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REGISTERED ARCHITECT

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Rev	Date	Comments
	03.11.16	Bid/Permit
1	03.30.16	Permit Comments

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NOTE: FOR REPRESENTATIONAL USE ONLY, NOT A CONTRACT DOCUMENT

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Sheet Title:
Cover, Project Directory, Sheet Index

Sheet Number:
G001

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Beaufort, SC

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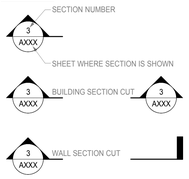
Abbreviations

#/FT	PER FOOT
@	AT
A/C	AIR CONDITIONING
AB	ANCHOR BOLT
AC	AIR CONDITIONING
ACMU	ARCHITECTURAL CONCRETE MASONRY UNIT
ACMU	ALUMINUM COMPOSITE METAL
ACOUST	ACOUSTICAL
ACT	ACOUSTICAL CEILING TILE
ADJ	ADJACENT
AFF	ABOVE FINISHED FLOOR
AIA	AMERICAN INSTITUTE OF ARCHITECTS
AIB	AIR INFILTRATION BARRIER
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
ALT	ALTERNATE
ALUM	ALUMINUM
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
APPROX	APPROXIMATE
ARCH	ARCHITECT
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AUTO	AUTOMATIC
BD	BOARD
BF	BOARD FOOT
BFA	BARRIER FREE ACCESSIBLE
BLKG	BLOCKING
BM	BEAM
BOC	BOTTOM OF CURB
BRK	BRICK
BTWN	BETWEEN
C	CHANNEL
CAB	CABINET
CC	COLOR CHANGE
CER	CERAMIC
CFMF	COLD-FORMED METAL FRAMING
CIP	CAST-IN-PLACE
CJ	CONTROL JOINT
CLG	CEILING
CMU	CONCRETE MASONRY UNIT
CO	CLEAN OUT
COL	COLUMN
CONC	CONCRETE MASONRY UNIT
CONT	CONTINUOUS
CSI	CONSTRUCTION SPECIFICATIONS INSTITUTE
CT	CERAMIC TILE
D4S	DRESSED FOUR SIDES
DBL	DOUBLE
DET	DETAIL
DIAG	DIAGONAL
DS	DOWNSPOUT
DWG	DRAWING
EB	EXPANSION BOLT
EFC	EPOXY FLOOR COATING
EIFS	EXTERIOR INSULATION FINISHING SYSTEM
EJ	EXPANSION JOINT
ELEC	ELECTRICAL
EOS	EDGE OF SLAB
EQ	EQUAL
EQUIP	EQUIPMENT
ERD	EMERGENCY ROOF DRAIN
ES	EACH SIDE
EW	EACH WAY
EXP	EXPANSION
EXT	EXTERIOR INSULATION FINISHING SYSTEM
FAB	FABRICATE
FE	FIRE EXTINGUISHER - WALL MOUNT
FEC	FIRE EXTINGUISHER - RECESSED CABINET
FFE	FINISH FLOOR ELEVATION
FIN	FINISH
FLR	FLOOR
FO	FACE OF
FR GWB	FIRE RATED GYPSUM WALLBOARD
FTG	FOOTING
FV	FIELD VERIFY
GA	GAUGE
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GTTR	GUTTER
GWB	GYPSUM WALLBOARD
GYP BD	GYPSUM WALLBOARD
HB	HOSE BIBB
HGT	HEIGHT
HORIZ	HORIZONTAL
IBC	INTERNATIONAL BUILDING CODE
INSUL	INSULATION
INT	INTERIOR
LIA	LINE ITEM ALTERNATE
LAM	LAMINATE
LAV	LAVATORY
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LSC	LIFE SAFETY CODE
MATL	MATERIAL
MAX	MAXIMUM
MDF	MEDIUM-DENSITY FIBERBOARD
MECH	MECHANICAL
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MO	MASONRY OPENING
MOD	MODIFIED
MOD BIT	MODIFIED BITUMEN
MR	MOISTURE RESISTANT
MTD	MOUNTED
MTL	METAL
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NIC	NOT IN CONTRACT
NRP	NON-REMOVABLE PIN
NTS	NOT TO SCALE
OC	ON CENTER
OH	OPPOSITE HAND
OPNG	OPENING
PLAM	PLASTIC LAMINATE
PFT	PORCELAIN FLOOR TILE
PL	PLATE
PLMB	PLUMBING
PLYWD	PLYWOOD
PT	PAINT OR PRESSURE TREATED
PVC	POLYVINYL CHLORIDE
QT	QUARRY TILE
RAD	RADIUS
RCP	REFLECTED CEILING PLAN
RD	ROOF DRAIN
REINF	REINFORCED
REQD	REQUIRED
RI	RIGID INSULATION
RJ	RAKED JOINT
RL	RAIN LEADER
RO	ROUGH OPENING
RTD	RATED
S4S	SMOOTH FOUR SIDES
SC	SOLID CORE
SHLV	SHELVES
SHT	SHEET
SIM	SIMILAR
SQ	SQUARE
STD	STANDARD
STL	STEEL
STOR	STORAGE
STR	STAIR
STRUCT	STRUCTURAL
SUB	SUBCONTRACTOR
SUSP	SUSPENDED
T&G	TONGUE AND GROOVE
TEL	TELEPHONE
TEX	TEXTURE
THK	THICKNESS
THOLD	THRESHOLD
TJ	TOOL JOINT
T/	TOP OF...
TOC	TOP OF CURB
TOM	TOP OF MASONRY
TOS	TOP OF STEEL
TPO	THERMOPLASTIC POLYOLEFIN
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
VB	VAPOR BARRIER
VCT	VINYL CERAMIC TILE
VENT	VENTILATION
VERT	VERTICAL
VHB	VERY HIGH BOND
VIF	VERIFY IN FIELD
VWC	VINYL WALLCOVERING
W/	WITH
WB	WEATHER BARRIER
WWF	WELDED WIRE FABRIC
WWM	WELDED WIRE MESH

Symbols Legend

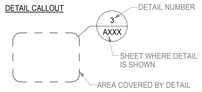
DRAWING TITLE MARK

SECTION MARK



ELEVATION MARK

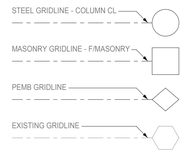
DETAIL CALLOUT



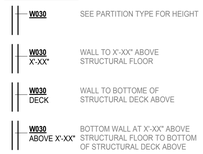
REVISED CLOUD & REVISION TRIANGLE

AREA ON HOLD & REVISION TRIANGLE

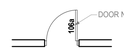
COLUMN BUBBLE & GRID LINES



PARTITION TYPE TAG



DOOR NUMBER

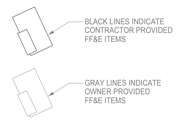


FRAME NUMBER

ROOM NAME & NUMBER

FIRE EXTINGUISHERS

FF&E - OWNER vs CONTRACTOR PROVIDED



General Notes

THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLIANCE WITH THE REQUIREMENTS LISTED IN THE PROJECT MANUAL AND THE DRAWINGS (CONTRACT DOCUMENTS) INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

1. FIELD VERIFIES ALL CONDITIONS AND DIMENSIONS PRIOR TO COMMENCING ANY WORK. VERIFY EXISTING ELEVATIONS AND LOCATIONS TO BE JOINED PRIOR TO COMMENCING CONSTRUCTION. NOTIFY THE ARCHITECT OF ALL INCONSISTENCIES. DO NOT COMMENCE THE WORK PRIOR TO RECEIPT OF MODIFICATIONS FROM THE ARCHITECT.

2. DO NOT SCALE THE DRAWINGS. IF DIMENSIONS ARE MISSING, NOTIFY THE ARCHITECT.

3. REVIEW AND APPROVE ALL SUBMITTALS BEFORE SUBMITTING TO THE ARCHITECT. THE ARCHITECT SHALL REVIEW SUBMITTALS FOR GENERAL CONFORMANCE WITH THE CONTRACT DOCUMENTS. ARCHITECTS APPROVAL OF SPECIFIC COMPONENTS DOES INDICATE APPROVAL OF THE COMPLETE ASSEMBLY. THE GENERAL CONTRACTOR IS SOLELY RESPONSIBLE FOR CORRECTING ALL NONCOMPLYING WORK INSTALLED WITHOUT APPROVED SUBMITTALS.

4. SOLELY RESPONSIBLE FOR ALL WORK AND MATERIALS INCLUDING THAT OF ALL SUBCONTRACTORS.

5. REPORT TO THE ARCHITECT ALL ERRORS, INCONSISTENCIES OR OMISSIONS FOUND IN THE CONTRACT DOCUMENTS. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR CORRECTING ALL ERRORS NOT BROUGHT TO THE ATTENTION OF THE ARCHITECT. CORRECTION OF ERRORS SHALL BE APPROVED BY THE ARCHITECT.

6. LOCATE ALL EXISTING UTILITIES INCLUDING ANY NOT SHOWN IN THE CONTRACT DOCUMENTS. PROTECT ALL EXISTING UTILITIES FROM DAMAGE DURING THE EXECUTION OF THE WORK. THE GENERAL CONTRACTOR IS SOLELY RESPONSIBLE FOR CORRECTING ANY DAMAGE CAUSED BY OPERATIONS DURING THE EXECUTION OF THE WORK.

7. PROVIDE ALL TEMPORARY SUPPORT FACILITIES INCLUDING BUT NOT LIMITED TO:
   a. WATER
   b. ELECTRICAL POWER
   c. TOILET FACILITIES.

8. THE GENERAL CONTRACTOR IS SOLEY RESPONSIBLE FOR SAFETY AND SECURITY OF THE SITE UNTIL THE COMPLETION OF PROJECT CLOSEOUT.

9. REMOVE ALL DEBRIS FROM THE SITE DAILY. THE SITE SHALL BE KEPT BROOM CLEAN AT ALL TIMES.

10. PERMANENTLY IDENTIFY ALL FIRE AND SMOKE BARRIERS AND PARTITIONS, INCLUDING BUT NOT LIMITED TO:
   a. RATED CORRIDOR WALLS.
   b. SMOKE BARRIERS AND PARTITIONS.
   c. HORIZONTAL EXITS.
   d. EXIT ENCLOSURES.

WITH MINIMUM ONE INCH HIGH LETTERS IN SIGNS OR STENCILING, LOCATED ABOVE CEILING OR OTHER CONCEALED LOCATIONS, SPACED A MAXIMUM OF 10 FEET ON CENTER; PROVIDE THE FOLLOWING CONTENT:

"FIRE AND/OR SMOKE RATED WALL-PROTECT ALL OPENINGS"

11. MAINTAIN ALL FIRE AND SMOKE RATINGS SHOWN IN THE CONTRACT DOCUMENTS. PROVIDE A RATED ASSEMBLY, APPROVED BY A NATIONALLY RECOGNIZED TESTING AGENCY, AT ALL OPENING AND PENETRATIONS.

12. SWING ALL DOORS IN THE MEANS OF EGRESS IN THE DIRECTION OF EXIT TRAVEL. PROVIDE EMERGENCY HARDWARE ON ALL EXIT ENCLOSURES AND AT ALL EXIT DISCHARGE.

13. PROVIDE LEVER HANDLE OR PUSH OPERATED HARDWARE ON ALL DOORS NOT IN THE MEANS OF EGRESS.

14. PROVIDE ONE AND ONE HALF INCH TUBES FOR ALL HANDRAILS AND GUARDRAILS. SMALLER TUBE AND PIPE SIZED ARE ALLOWED FOR THE SUPPORT ASSEMBLY IN COMPLIANCE WITH ALL CODES ADOPTED BY THE JURISDICTION HAVING AUTHORITY.

15. DO NOT INTERCONNECT DUCT SYSTEMS WITH OTHER BUILDING EXHAUST SYSTEMS.

16. COMBUSTIBLE INTERIOR TRIM SHALL BE CLASS A, B OR C WITH A FLAME SPREAD RATING OF 200 OR LESS.

17. MAINTAIN AND PROTECT ONE SET OF APPROVED PERMIT DOCUMENT ON SITE AT ALL TIMES. DO NOT ALLOW WORKMEN ACCESS TO THE PERMIT DOCUMENTS.

18. MAINTAIN AND KEEP CURRENT. RECORD DOCUMENTS INCLUDING BUT NOT LIMITED TO THE DRAWINGS AND THE PROJECT MANUAL. POST ALL ADDENDA, CHANGE ORDERS AND MINOR CHANGES IN THE WORK DAILY. CONFIRM ALL CONSTRUCTION DRAWINGS ARE CURRENT.

Accessibility Notes

ALL WORK SHALL COMPLY WITH THE AMERICANS WITH DISABILITIES ACT (2010) AND LOCAL ACCESSIBILITY REGULATIONS TO INCLUDE BUT NOT LIMITED TO THE FOLLOWING:

1. THE INTERNATIONAL SYMBOL OF ACCESSIBILITY SHALL BE LOCATED ALONGSIDE THE DOOR AT THE LATCH SIDE OF ALL ACCESSIBLE RESTROOM FACILITIES.

2. WATER CLOSETS SHALL BE POSITIONED WITH A WALL OR PARTITION TO THE REAR AND ONE SIDE. THE CENTERLINE OF THE WATER CLOSET SHALL BE 16 INCHES MINIMUM TO 18 INCHES MAXIMUM FROM THE SIDE WALL OR PARTITION. THE SEAT HEIGHT OF A WATER CLOSET ABOVE THE FINISH FLOOR SHALL BE 17 INCHES MINIMUM AND 19 INCHES MAXIMUM MEASURED TO THE TOP OF THE SEAT. SEATS SHALL NOT BE SPRUNG TO RETURN TO A LIFTED POSITION.

3. ACCESSIBLE URINALS SHALL BE THE STALL-TYPE OR THE WALL-HUNG TYPE WITH THE RIM 17 INCHES MAXIMUM ABOVE THE FINISH FLOOR OR GROUND. URINALS SHALL BE 13 1/2 INCHES DEEP MINIMUM MEASURED FROM THE OUTER FACE OF THE URINAL RIM TO THE BACK OF THE FIXTURE. PROVIDE A CLEAR FLOOR SPACE 30" X 48" IN FRONT OF THE ACCESSIBLE URINAL.

4. LAVATORIES SHALL BE INSTALLED WITH THE FRONT OF THE HIGHER OF THE RIM OR COUNTER SURFACE 34 INCHES MAXIMUM ABOVE THE FINISH FLOOR WITH A CLEARANCE OF 29" FROM THE FLOOR TO THE BOTTOM OF THE APRON. SPACE UNDER A LAVATORY BETWEEN 9 INCHES AND 27 INCHES ABOVE THE FINISH FLOOR OR GROUND SHALL BE CONSIDERED KNEE CLEARANCE. KNEE CLEARANCE SHALL EXTEND 25 INCHES MAXIMUM UNDER AN ELEMENT AT 9 INCHES ABOVE THE FINISH FLOOR. THE KNEE CLEARANCE SHALL BE 11 INCHES DEEP MINIMUM AT 9 INCHES ABOVE THE FINISH FLOOR AND 8 INCHES DEEP MINIMUM AT 27 INCHES ABOVE THE FINISH FLOOR. SPACE UNDER A LAVATORY BETWEEN THE FINISH FLOOR OR GROUND AND 9 INCHES ABOVE THE FINISH FLOOR OR GROUND SHALL BE CONSIDERED TOE CLEARANCE. TOE CLEARANCE SHALL EXTEND 25 INCHES MAXIMUM AND 17 INCHES MINIMUM UNDER A LAVATORY. KNEE CLEARANCE SHALL BE 30 INCHES WIDE MINIMUM.

5. WATER SUPPLY AND DRAIN PIPES UNDER LAVATORIES AND SINKS SHALL BE INSULATED OR OTHERWISE CONFIGURED TO PROTECT AGAINST CONTACT. THERE SHALL BE NO SHARP OR ABRASIVE SURFACES UNDER LAVATORIES AND SINKS.

6. CONTROLS FOR FAUCETS SHALL BE OPERABLE WITH ONE HAND AND SHALL NOT REQUIRE TIGHT GRASPING, PINCHING, OR TWISTING OF THE WRIST, THE FORCE REQUIRED TO ACTIVATE OPERABLE PARTS SHALL BE 5 POUNDS MAXIMUM. HAND-OPERATED METERING FAUCETS SHALL REMAIN OPEN FOR 10 SECONDS MINIMUM.

7. MIRRORS LOCATED ABOVE LAVATORIES OR COUNTERTOPS SHALL BE INSTALLED WITH THE BOTTOM EDGE OF THE REFLECTING SURFACE 40 INCHES MAXIMUM ABOVE THE FINISH FLOOR OR GROUND. MIRRORS NOT LOCATED ABOVE LAVATORIES OR COUNTERTOPS SHALL BE INSTALLED WITH THE BOTTOM EDGE OF THE REFLECTING SURFACE 35 INCHES MAXIMUM ABOVE THE FINISH FLOOR OR GROUND.

8. DOORS SHALL NOT SWING INTO THE CLEAR FLOOR SPACE OR CLEARANCE REQUIRED FOR ANY FIXTURE. DOORS SHALL BE PERMITTED TO SWING INTO THE REQUIRED TURNING SPACE.

9. GRAB BARS SHALL BE INSTALLED IN A HORIZONTAL POSITION, 33 INCHES MINIMUM AND 36 INCHES MAXIMUM ABOVE THE FINISH FLOOR MEASURED TO THE TOP OF THE GRIPPING SURFACE. GRAB BARS AND ANY WALL OR OTHER SURFACES ADJACENT TO GRAB BARS SHALL BE FREE OF SHARP OR ABRASIVE ELEMENTS AND SHALL HAVE ROUNDED EDGES. GRAB BARS SHALL NOT ROTATE WITHIN THEIR FITTINGS. ALLOWABLE STRESSES SHALL NOT BE EXCEEDED FOR MATERIALS USED WHEN A VERTICAL OR HORIZONTAL FORCE OF 250 POUNDS IS APPLIED AT ANY POINT ON THE GRAB BAR, FASTENER, MOUNTING DEVICE, OR SUPPORTING STRUCTURE.

10. DRINKING FOUNTAINS SHALL BE PROVIDED WITH SPOUT OUTLETS AT 36 INCHES MAXIMUM ABOVE THE FINISH FLOOR AND 38 INCHES MINIMUM AND 43 INCHES MAXIMUM ABOVE THE FINISH FLOOR OR GROUND. THE SPOUT SHALL BE LOCATED 15 INCHES MINIMUM FROM THE VERTICAL SUPPORT AND 5 INCHES MAXIMUM FROM THE FRONT EDGE OF THE UNIT, INCLUDING BUMPERS. THE SPOUT SHALL PROVIDE A FLOW OF WATER 4 INCHES HIGH MINIMUM AND SHALL BE LOCATED 5 INCHES MAXIMUM FROM THE FRONT OF THE UNIT. THE ANGLE OF THE WATER STREAM SHALL BE MEASURED HORIZONTALLY RELATIVE TO THE FRONT FACE OF THE UNIT. WHERE SPOUTS ARE LOCATED LESS THAN 3 INCHES OF THE FRONT OF THE UNIT, THE ANGLE OF THE WATER STREAM SHALL BE 30 DEGREES MAXIMUM. WHERE SPOUTS ARE LOCATED BETWEEN 3 INCHES AND 5 INCHES MAXIMUM FROM THE FRONT OF THE UNIT, THE ANGLE OF THE WATER STREAM SHALL BE 15 DEGREES MAXIMUM.

11. DOOR CLOSERS SHALL BE ADJUSTED SO THAT FROM AN OPEN POSITION OF 90 DEGREES, THE TIME REQUIRED TO MOVE THE DOOR TO A POSITION OF 12 DEGREES FROM THE LATCH IS 5 SECONDS MINIMUM.

12. FIRE DOORS SHALL HAVE A MINIMUM OPENING FORCE ALLOWABLE BY THE APPROPRIATE ADMINISTRATIVE AUTHORITY. THE FORCE FOR PUSHING OR PULLING OPEN A DOOR OR GATE OTHER THAN FIRE DOORS SHALL BE 5 POUNDS MAXIMUM. THESE FORCES DO NOT APPLY TO THE FORCE REQUIRED TO RETRACT LATCH BOLTS OR DISENGAGE OTHER DEVICES THAT HOLD THE DOOR OR GATE IN A CLOSED POSITION.

13. FIRE ALARM SYSTEMS SHALL HAVE PERMANENTLY INSTALLED AUDIBLE AND VISIBLE ALARMS COMPLYING WITH NFPA 72 AND ANSI A117.1, EXCEPT THAT THE MAXIMUM ALLOWABLE SOUND LEVEL OF AUDIBLE NOTIFICATION APPLIANCES COMPLYING WITH SECTION 4.3.2.1 OF NFPA 72 (1999 EDITION) SHALL HAVE A SOUND LEVEL NO MORE THAN 110 DB AT THE MINIMUM HEARING DISTANCE FROM THE AUDIBLE APPLIANCE.

14. FLOOR AND GROUND SURFACES SHALL BE STABLE, FIRM, AND SLIP RESISTANT. CHANGES IN LEVEL OF 1/4 INCH HIGH MAXIMUM SHALL BE PERMITTED TO BE VERTICAL. CHANGES IN LEVEL BETWEEN 1/4 INCH HIGH MINIMUM AND 1/2 INCH HIGH MAXIMUM SHALL BE BEVELED WITH A SLOPE NOT STEEPER THAN 1:2.

15. FLOOR OR GROUND SURFACE WITHIN REQUIRED MANEUVERING CLEARANCES AT DOORS SHALL COMPLY WITH 15. CHANGES IN LEVEL ARE NOT PERMITTED.
   EXCEPTIONS:
   1. SLOPES NOT STEEPER THAN 1:48 SHALL BE PERMITTED.
   2. CHANGES IN LEVEL AT THRESHOLDS COMPLYING WITH 16 SHALL BE PERMITTED.

16. THRESHOLDS, IF PROVIDED AT DOORWAYS, SHALL BE 1/2 INCH HIGH MAXIMUM.

Location Map

NOT TO SCALE

Client:
William L Grainger

P.O. BOX 7267
GARDEN CITY, GA 31408

Project Number: 15221
Project Name:
Grainger Nissan

245 Robert Smalls Parkway,
Beaufort, SC 29906

Sheet Title:
Abbreviations, Symbols,General Notes, Location Map

Sheet Number:
G002

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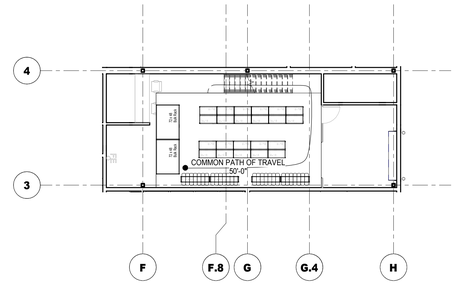


2 G003 Occupancy & Egress Diagram - 2nd Floor
3/32" = 1'-0"

Occupancy Legend

- STORAGE S-1
- BUSINESS B

Fire Extinguisher Legend

- F.E. — SURFACE MOUNTED FIRE EXTINGUISHER
- F.E.C. — RECESSED OR SEMI-RECESSED FIRE EXTINGUISHER CABINET RECESSED IN STUD WALL 6" OR DEEPER

Code Summary

Grainger Nissan

Applicable Codes
2012 International Building Code
2012 International Fire Code
2012 International Plumbing Code
2012 International Mechanical Code
2012 International Fuel Gas Code
2009 International Energy Code (Jan 1, 2013)
2009 ANSI A 117.1 (Accessibility Code)
2011 National Electric Code
2012 NFPA: 101 Life Safety Code

Building Description: New automotive dealership with sales and service shop.

Occupancy Type: Non-separated mixed occpancy
B- Business (automobile showroom)
S-1 (service shop and parts)

ConstructionType	**Type II-B**	**(sprinklered)**
Req'd fire resistance from Table 601		
Primary structural frame	0	
Bearing Walls	0	
Non bearing walls Exterior	0	*Table 602*
Non bearing wall Interior	0	
Floors & secondary members	0	
Roofs & secondary members	0	

Separation Between Occupancies

B to S-1	non-separated

Occupancy Type- see Chapters 3 and 4, Table 503	**B**	**S-1**
allowable height	3 story	2 story
allowable area per floor	23,000	17,500
area increase for sprinkler (Is=2)	46,000	35,000
Allowable area per floor (with increases)	69,000	52,500

SHOWROOM

	B		**S-1**	
First Floor				
Covered Occupancy Gross Area	4,232	*Complies*	8,650	*Complies*
Unconditioned Occupancy Gross Area	3,498			
Allowable Area	*69,000*		*52,500*	
Second Floor				
Occupancy Gross Area	-	*Complies*	490	*Complies*
Allowable Area	*69,000*		*52,500*	

Total Building SF	**7,730**	**9,140**	**16,870**

Occupant Load Calculations

First Floor	*SF*	*Use*	*Occ/SF*		*Occ*
Showroom/Admin	4,232	Business	100		42
Service Shop and Parts	8,650	S-1	300		29
	12,882	Total Occupants - First Floor			**71**

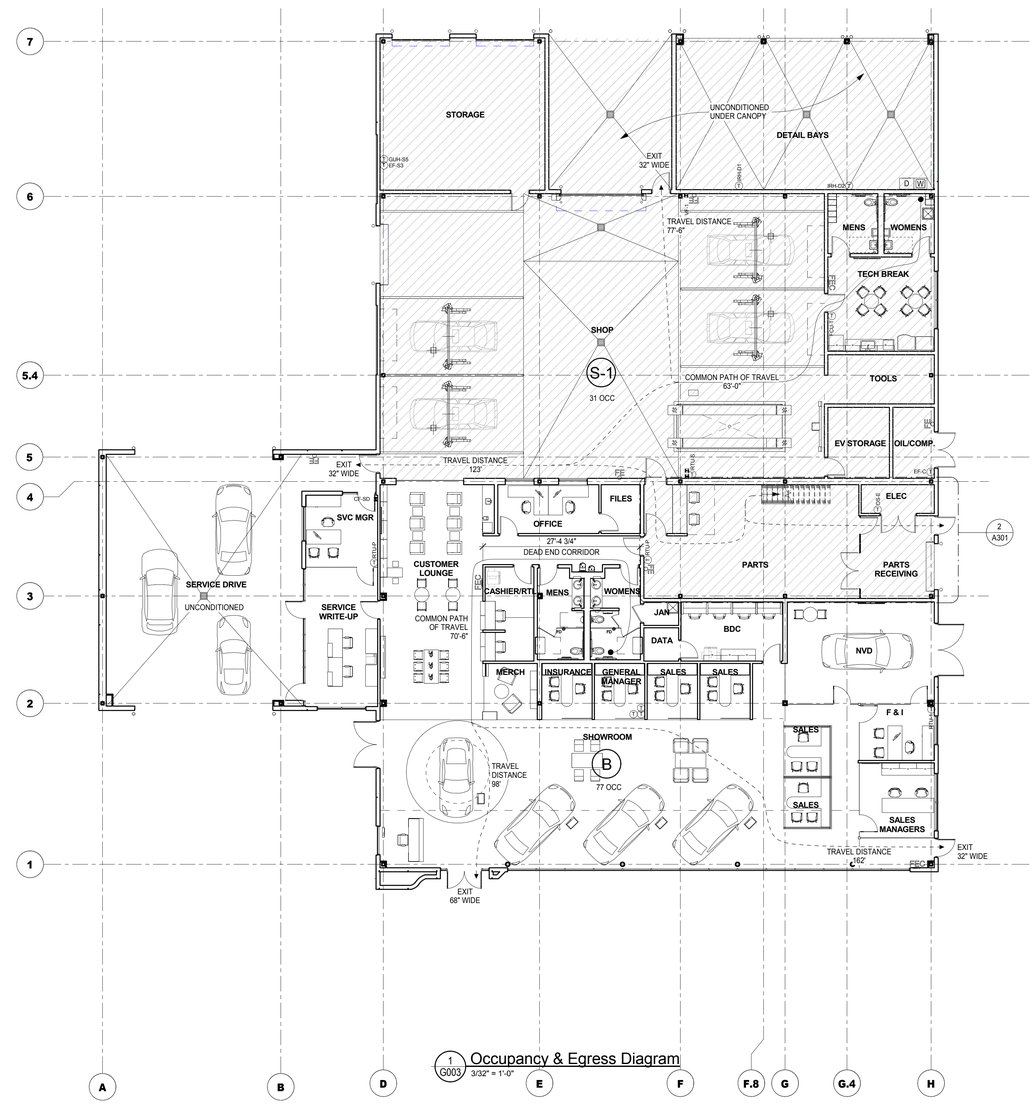
Second Floor	*SF*	*Use*	*Occ/SF*		*Occ*
Parts	490	S-1	300		2
	490	Total Occupants - Second Floor			**2**
		IBC Total Occupants - Entire Building			**73**

Means of Egress Capacity (from NFPA)	B	S-1
Max. Travel Distance	300	400
Max. Common Path of Travel	100	100
Max. Dead End Corridor	50	100
Minimum Corridor Width	44"	44"
Minimum Stair Width	44"	44"
No. of Exits Required per Story	2	2
No. of Exits Provided at First Floor	2	2
No. of Exits Provided at Second Floor	-	-

Egress Width Required	factor	required	provided	
Level Components (first floor)	0.2	14.23	162"	(32" at 3' doors, 68" at 6' doors)
Stairs (second floor)	0.3	0.49	44	

Plumbing Counts

Space	Occ	WCs male	WCs fem	Lavs male	Lavs female	DFs
Business Areas	77	1.3	1.3	1.0	1.0	0.8
Service & Storage	30	0.5	0.5	0.5	0.5	-
Required		1.7	1.7	1.4	1.4	0.8
Provided		3.0	3.0	3.0	3.0	1.0
conforms?		yes	yes	yes	yes	yes



1 G003 Occupancy & Egress Diagram
3/32" = 1'-0"

Client:
William L Grainger

P.O. BOX 7267
GARDEN CITY, GA 31408

Project Number: 15221
Project Name:
Grainger Nissan

245 Robert Smalls Parkway,
Beaufort, SC 29906

Sheet Title:
Code Information - Occupancy

Sheet Number:
G003

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COMcheck Software Version 4.0.2.3
Envelope Compliance Certificate

Section 1: Project Information

Energy Code: **2009 IECC**
Project Title: Grainger Nissan
Project Type: New Construction

Construction Site:
224 Robert Smalls Parkway
Beaufort, SC 29906

Owner/Agent:
Patrick McGahagan
Matrix Construction Services

Designer/Contractor:
Stuart Romm
Praxis3 LLC
100 Peachtree Street NW
Suite 1450
Atlanta, GA 30303
404-875-4500
sromm@praxis3.com

Building Location (for weather data): Beaufort, South Carolina
Climate Zone: 3a
Vertical Glazing / Wall Area Pct.: **18%**

Building Use: Activity Type(s)	**Floor Area**
1-Automotive Facility : Nonresidential	13372

Section 2: Envelope Assemblies and Requirements Checklist

Envelope PASSES: Design 7% better than code.

Envelope Assemblies:

Component Name/Description	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	Proposed U-Factor	Budget U-Factor(a)
Roof 1: Insulation Entirely Above Deck, [Bldg. Use 1 - Automotive Facility]	12642	---	25.0	0.039	0.048
Floor 1: Slab-On-Grade:Unheated, [Bldg. Use 1 - Automotive Facility]	512	---	---	---	---
Exterior Wall 1: Steel-Framed, 16" o.c., [Bldg. Use 1 - Automotive Facility]	2249	19.0	5.4	0.069	0.084
Window 1: Metal Frame Curtain Wall/Storefront, Perf. Specs.: Product ID NA, SHGC 0.25, [Bldg. Use 1 - Automotive Facility] (c)	1015	---	---	0.460	0.600
Window 2: Metal Frame Curtain Wall/Storefront, Perf. Specs.: Product ID NA, SHGC 0.25, [Bldg. Use 1 - Automotive Facility] (c)	69	---	---	0.460	0.600
Door 1: Glass (> 50% glazing):Metal Frame, Entrance Door, Perf. Specs.: Product ID NA, SHGC 0.25, [Bldg. Use 1 - Automotive Facility] (c)	57	---	---	0.460	0.900
Exterior Wall 2: Steel-Framed, 16" o.c., [Bldg. Use 1 - Automotive Facility]	2608	19.0	5.4	0.069	0.084
Window 3: Metal Frame Curtain Wall/Storefront, Perf. Specs.: Product ID NA, SHGC 0.25, [Bldg. Use 1 - Automotive Facility] (c)	75	---	---	0.460	0.600
Window 4: Metal Frame Curtain Wall/Storefront, Perf. Specs.: Product ID NA, SHGC 0.25, [Bldg. Use 1 - Automotive Facility] (c)	38	---	---	0.460	0.600
Window 5: Metal Frame Curtain Wall/Storefront, Perf. Specs.: Product ID NA, SHGC 0.25, [Bldg. Use 1 - Automotive Facility] (c)	69	---	---	0.460	0.600
Window 6: Metal Frame Curtain Wall/Storefront, Perf. Specs.: Product ID NA, SHGC 0.25, [Bldg. Use 1 - Automotive Facility] (c)	52	---	---	0.460	0.600
	93	---	---	0.460	0.900

Component Name/Description	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	Proposed U-Factor	Budget U-Factor(a)
Door 2: Glass (> 50% glazing):Metal Frame, Entrance Door, Perf. Specs.: Product ID NA, SHGC 0.25, [Bldg. Use 1 - Automotive Facility] (c)					
Door 3: Glass (> 50% glazing):Metal Frame, Entrance Door, Perf. Specs.: Product ID NA, SHGC 0.25, [Bldg. Use 1 - Automotive Facility] (c)	32	---	---	0.460	0.900
Door 4: Insulated Metal, Swinging, [Bldg. Use 1 - Automotive Facility]	21	---	---	0.700	0.700
Door 5: Insulated Metal, Swinging, [Bldg. Use 1 - Automotive Facility]	42	---	---	0.700	0.700
Door 6: Other Door, Non-Swinging, [Bldg. Use 1 - Automotive Facility]	64	---	---	0.500	1.450
Exterior Wall 3: Steel-Framed, 16" o.c., [Bldg. Use 1 - Automotive Facility]	1482	19.0	5.4	0.069	0.084
Door 7: Insulated Metal, Swinging, [Bldg. Use 1 - Automotive Facility]	21	---	---	0.700	0.700
Door 8: Other Door, Non-Swinging, [Bldg. Use 1 - Automotive Facility]	168	---	---	0.500	1.450
Exterior Wall 4: Steel-Framed, 16" o.c., [Bldg. Use 1 - Automotive Facility]	603	19.0	5.4	0.069	0.084
Exterior Wall 5: Steel-Framed, 16" o.c., [Bldg. Use 1 - Automotive Facility]	713	19.0	5.4	0.069	0.084
Door 9: Other Door, Non-Swinging, [Bldg. Use 1 - Automotive Facility]	110	---	---	0.500	1.450
Door 10: Other Door, Non-Swinging, [Bldg. Use 1 - Automotive Facility]	110	---	---	0.500	1.450
Exterior Wall 6: Steel-Framed, 16" o.c., [Bldg. Use 1 - Automotive Facility]	1877	19.0	5.4	0.069	0.084
Door 11: Insulated Metal, Swinging, [Bldg. Use 1 - Automotive Facility]	21	---	---	0.700	0.700
Door 12: Insulated Metal, Swinging, [Bldg. Use 1 - Automotive Facility]	21	---	---	0.700	0.700
Door 13: Other Door, Non-Swinging, [Bldg. Use 1 - Automotive Facility]	120	---	---	0.500	1.450
Exterior Wall 7: Steel-Framed, 16" o.c., [Bldg. Use 1 - Automotive Facility]	313	19.0	5.4	0.069	0.084
Window 7: Metal Frame Curtain Wall/Storefront, Perf. Specs.: Product ID NA, SHGC 0.25, [Bldg. Use 1 - Automotive Facility] (c)	35	---	---	0.460	0.600
Door 14: Glass (> 50% glazing):Metal Frame, Entrance Door, Perf. Specs.: Product ID NA, SHGC 0.25, [Bldg. Use 1 - Automotive Facility] (c)	24	---	---	0.460	0.900
Exterior Wall 8: Steel-Framed, 16" o.c., [Bldg. Use 1 - Automotive Facility]	848	19.0	5.4	0.069	0.084
Window 8: Metal Frame Curtain Wall/Storefront, Perf. Specs.: Product ID NA, SHGC 0.25, [Bldg. Use 1 - Automotive Facility] (c)	37	---	---	0.460	0.600
Window 9: Metal Frame Curtain Wall/Storefront, Perf. Specs.: Product ID NA, SHGC 0.25, [Bldg. Use 1 - Automotive Facility] (c)	172	---	---	0.450	0.600
Door 15: Glass (> 50% glazing):Metal Frame, Entrance Door, Perf. Specs.: Product ID NA, SHGC 0.25, [Bldg. Use 1 - Automotive Facility] (c)	28	---	---	0.460	0.900
Door 16: Glass (> 50% glazing):Metal Frame, Entrance Door, Perf. Specs.: Product ID NA, SHGC 0.25, [Bldg. Use 1 - Automotive Facility] (c)	28	---	---	0.460	0.900
Exterior Wall 9: Steel-Framed, 16" o.c., [Bldg. Use 1 - Automotive Facility]	307	19.0	5.4	0.069	0.084
Window 10: Metal Frame Curtain Wall/Storefront, Perf. Specs.: Product ID NA, SHGC 0.25, [Bldg. Use 1 - Automotive Facility] (c)	81	---	---	0.460	0.600
Exterior Wall 10: Steel-Framed, 16" o.c., [Bldg. Use 1 - Automotive Facility]	671	19.0	5.4	0.069	0.084
Window 11: Metal Frame Curtain Wall/Storefront, Perf. Specs.: Product ID NA, SHGC 0.25, [Bldg. Use 1 - Automotive Facility] (c)	73	---	---	0.460	0.600
Window 12: Metal Frame Curtain Wall/Storefront, Perf. Specs.: Product ID NA, SHGC 0.25, [Bldg. Use 1 - Automotive Facility] (c)	46	---	---	0.460	0.600
Door 17: Glass (> 50% glazing):Metal Frame, Entrance Door, Perf. Specs.: Product ID NA, SHGC 0.25, [Bldg. Use 1 - Automotive Facility] (c)	78	---	---	0.460	0.900

(a) Budget U-factors are used for software baseline calculations ONLY, and are not code requirements.

(b) 'Other' components require supporting documentation for proposed U-factors.

(c) Fenestration product performance must be certified in accordance with NFRC and requires supporting documentation.

Air Leakage, Component Certification, and Vapor Retarder Requirements:

- ☐ 1. All joints and penetrations are caulked, gasketed or covered with a moisture vapor-permeable wrapping material installed in accordance with the manufacturer's installation instructions.
- ☐ 2. Windows, doors, and skylights certified as meeting leakage requirements.
- ☐ 3. Component R-values & U-factors labeled as certified.
- ☐ 4. No roof insulation is installed on a suspended ceiling with removable ceiling panels.
- ☐ 5. 'Other' components have supporting documentation for proposed U-Factors.
- ☐ 6. Insulation installed according to manufacturer's instructions, in substantial contact with the surface being insulated, and in a manner that achieves the rated R-value without compressing the insulation.
- ☐ 7. Stair, elevator shaft vents, and other outdoor air intake and exhaust openings in the building envelope are equipped with motorized dampers.
- ☐ 8. Cargo doors and loading dock doors are weather sealed.
- ☐ 9. Recessed lighting fixtures installed in the building envelope are Type IC rated as meeting ASTM E283, are sealed with gasket or caulk.

Section 3: Compliance Statement

Compliance Statement: The proposed envelope design represented in this document is consistent with the building plans, specifications and other calculations submitted with this permit application. The proposed envelope system has been designed to meet the 2009 IECC requirements in COM*check* Version 4.0.2.3 and to comply with the mandatory requirements in the Requirements Checklist.

Name - Title   Signature   Date

PRAXIS3
architecture + multidisciplinary design

100 Peachtree St NW
Suite 1450
Atlanta, GA 30303

404-875-4500 tel
404-876-8884 fax

www.praxis3.com

STATE OF SOUTH CAROLINA
STUART MICHAEL ROMM
Atlanta, GA
8123
REGISTERED ARCHITECT

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Rev	Date	Comments
	03.11.16	Bid/Permit

Client:
William L Grainger

P.O. BOX 7267
GARDEN CITY, GA 31408

Project Number: 15221
Project Name:
Grainger Nissan

245 Robert Smalls Parkway,
Beaufort, SC 29906

Sheet Title:
Code Information - Energy

Sheet Number:
G004

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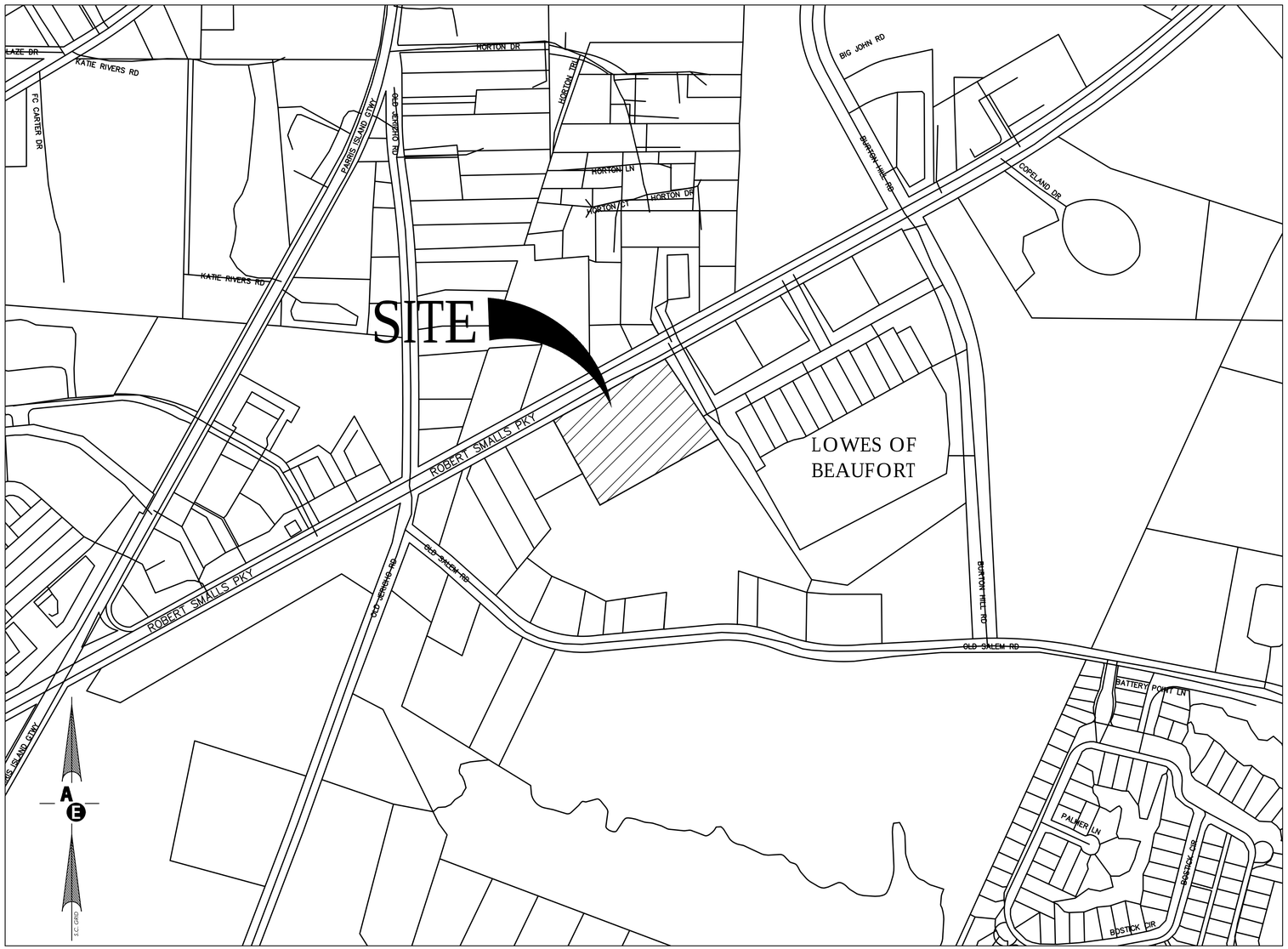
SITE PLAN
FOR
GRAINGER NISSAN
ROBERT SMALLS PARKWAY
CITY OF BEAUFORT
BEAUFORT COUNTY, SOUTH CAROLINA



VICINITY MAP
NOT TO SCALE

BJWSA NUMBER: ----------

N.P.D.E.S. DISTURBED AREA = 7.0 A

3 DAYS BEFORE DIGGING IN SOUTH CAROL
CALL 1-888-721-7877
PALMETTO UTILITY PROTECTION SERVIC

APPROXIMATE LOCATION OF SI
LONGITUDE: 80°-43'-15"
LATITUDE: 32°-25'-43"

DEVELOPER NAME:
GRAINGER NISSAN
c/o WILLIAM L. GRAINGER
1596 CHATHAM PARKWAY
SAVANNAH, GA 31408

PROJECT DATA INFORMATION
GRAINGER NISSIAN
DISTRICT #: R122
MAP #: 029
PARCEL #: 0495
PROJECT ZONING: (GC) GENERAL COMMER
ZONING BOUNDARIES: GC, C5RCMU, HC
FEMA FLOOD ZONE: C

PHONE #:		PERMI
B.J.W.S.A.	843.987.9250	------
D.H.E.C.	843.522.3345	------
O.C.R.M.	843.744.5898	------
S.C.D.O.T.	843.524.7255	------
S.C.E.&G.	843.525.7712	------
PAL. ELEC.	843.208.5512	------

APPROVED FOR CONSTRUCTIO
BY: _____

Andrews Engineer
2712 Bu
Beaufor
843.379
Fax 843
& Su

SOUTH CAROLINA ANDREWS ENGINEERING CO. No. C00008 CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER NO. 12860 STEVEN WADE ANDREWS

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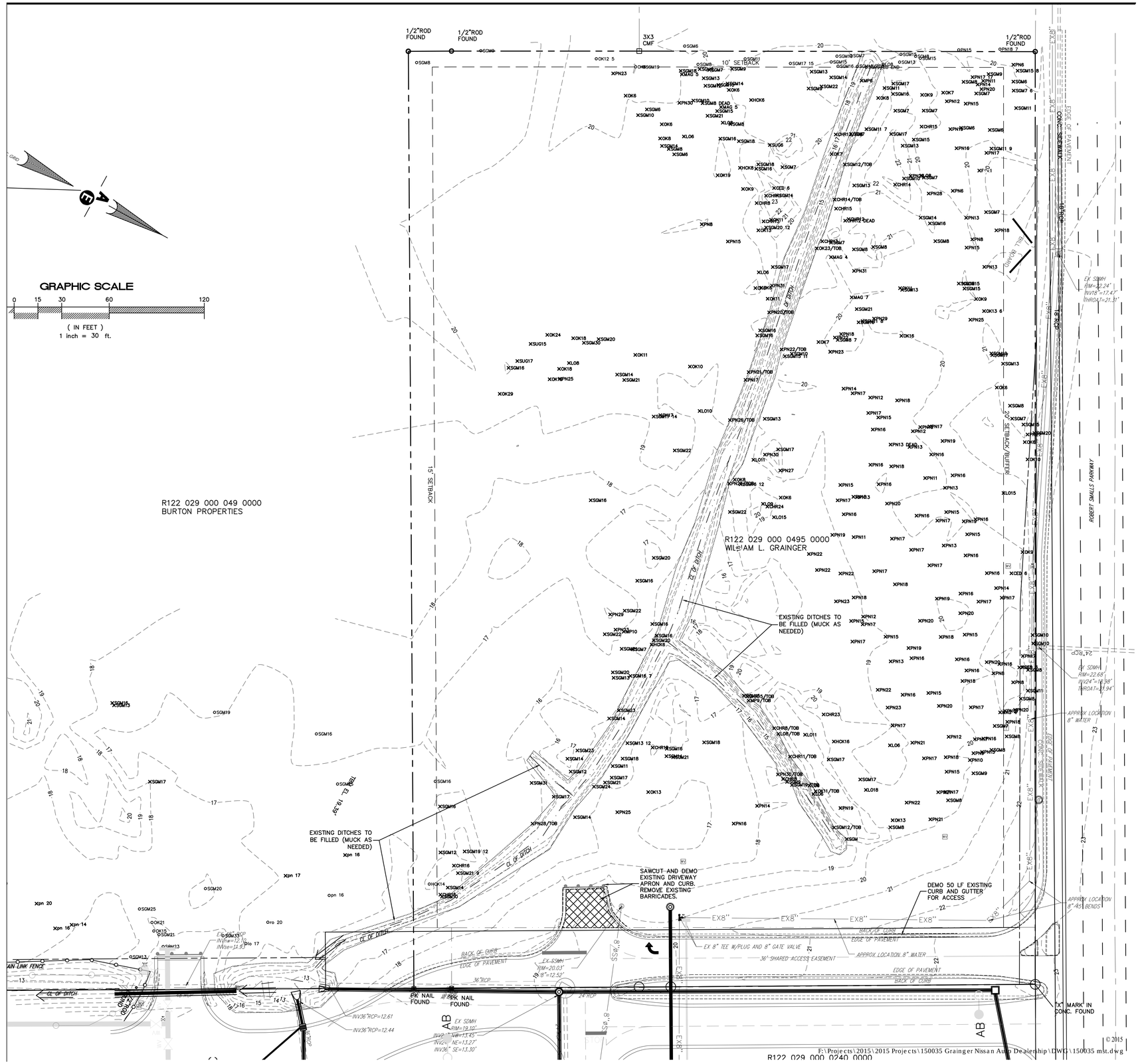

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Andrews Engineering & Surveying
2712 Bull Street Suite A
Beaufort SC 29902
843.379.2222
Fax 843.379.2223

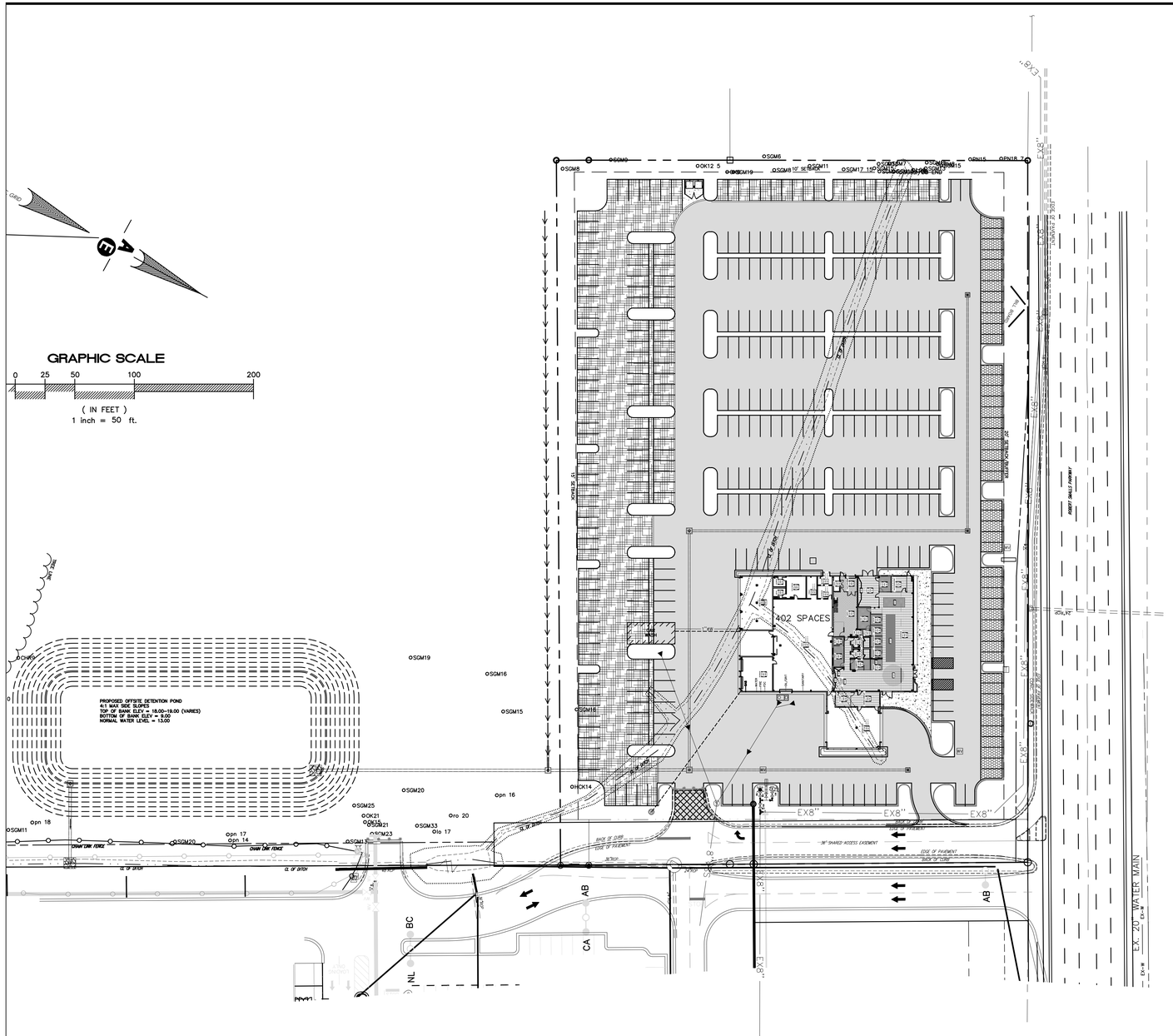
Site Development Plan
For
Grainger Nissan
S.C. Hwy 170
City of Beaufort
Beaufort County, SC

Existing Site
&
Demolition Plan

Date Drawn:	02/16/16
Last Revised:	02/26/16
Drawn By:	Cad Tech
Engineer:	S. Andrews

SHEET #:
1

JOB: 150035



LOWE'S
HOME IMPROVEMENT WAREHOUSE
115K

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Andrews Engineering & Surveying
2712 Bull Street Suite A
Beaufort, SC 29902
843.379.2222
Fax 843.379.2223

Site Development Plan
For
Grainger Nissan
S.C. Hwy 170
City of Beaufort
Beaufort County, SC

Overall Site Plan

Date Drawn:	02/16/16
Last Revised:	02/26/16
Drawn By:	Cad Tech
Engineer:	S. Andrews

SHEET #:
2

JOB: 150035

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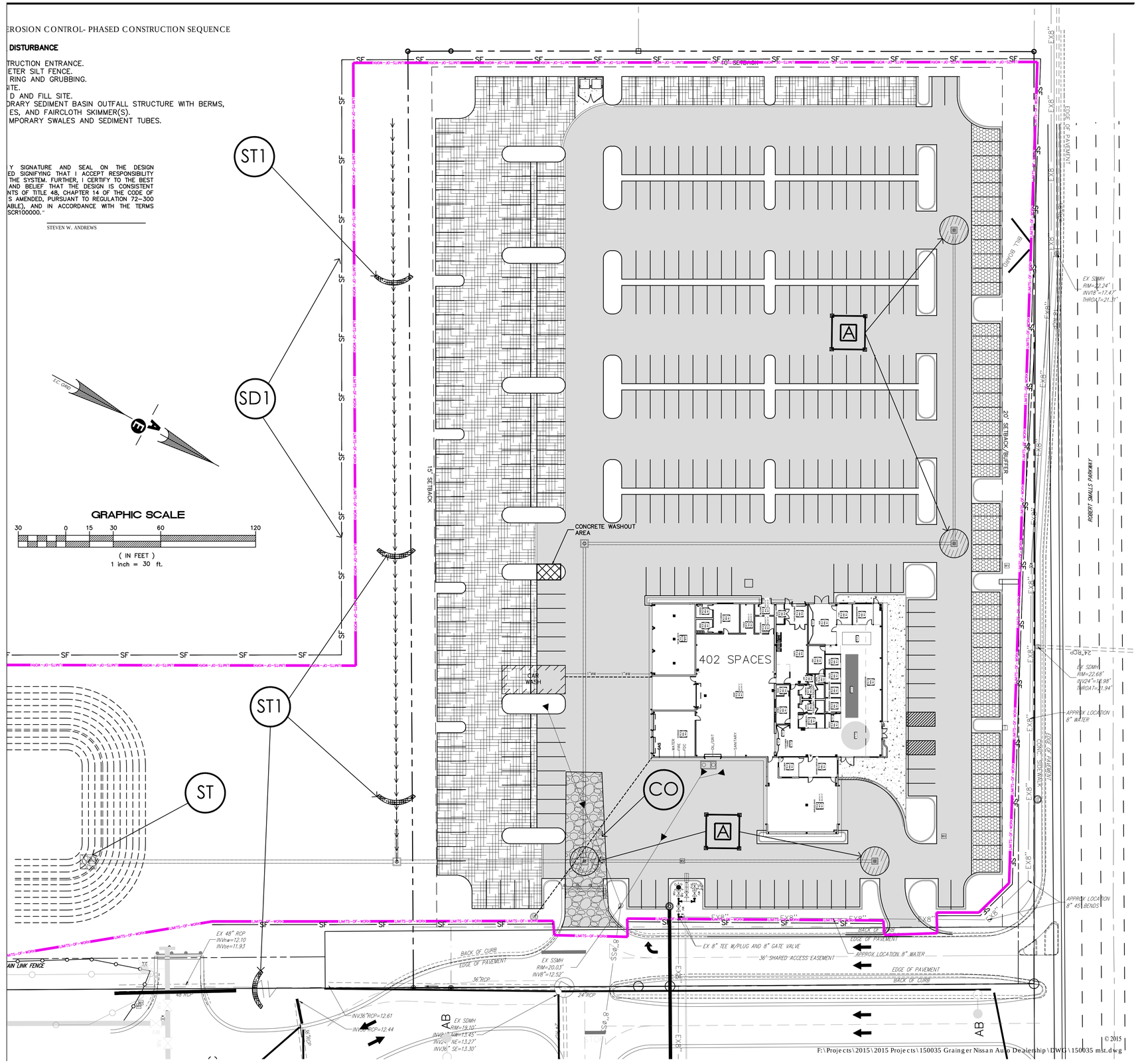
EROSION CONTROL- PHASED CONSTRUCTION SEQUENCE

DISTURBANCE

TRUCTION ENTRANCE.
ETER SILT FENCE.
RING AND GRUBBING.
ITE.
D AND FILL SITE.
ORARY SEDIMENT BASIN OUTFALL STRUCTURE WITH BERMS,
ES, AND FAIRCLOTH SKIMMER(S).
MPORARY SWALES AND SEDIMENT TUBES.

Y SIGNATURE AND SEAL ON THE DESIGN
ED SIGNIFYING THAT I ACCEPT RESPONSIBILITY
THE SYSTEM. FURTHER, I CERTIFY TO THE BEST
AND BELIEF THAT THE DESIGN IS CONSISTENT
NTS OF TITLE 48, CHAPTER 14 OF THE CODE OF
S AMENDED, PURSUANT TO REGULATION 72-300
ABLE), AND IN ACCORDANCE WITH THE TERMS
SCR100000."

STEVEN W. ANDREWS



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Beaufort SC 29902
843.379.2222
Fax 843.379.2223

Site Development Plan
For
Grainger Nissan
S.C. Hwy 170
City of Beaufort
Beaufort County, SC

Sediment and Erosion Control Plan - Phase 1
Initial Disturbance

Date Drawn:	02/16/16
Last Revised:	02/26/16
Drawn By:	Cad Tech
Engineer:	S. Andrews

SHEET #:
3

JOB: 150035

ROSION CONTROL- PHASED CONSTRUCTION SEQUENCE

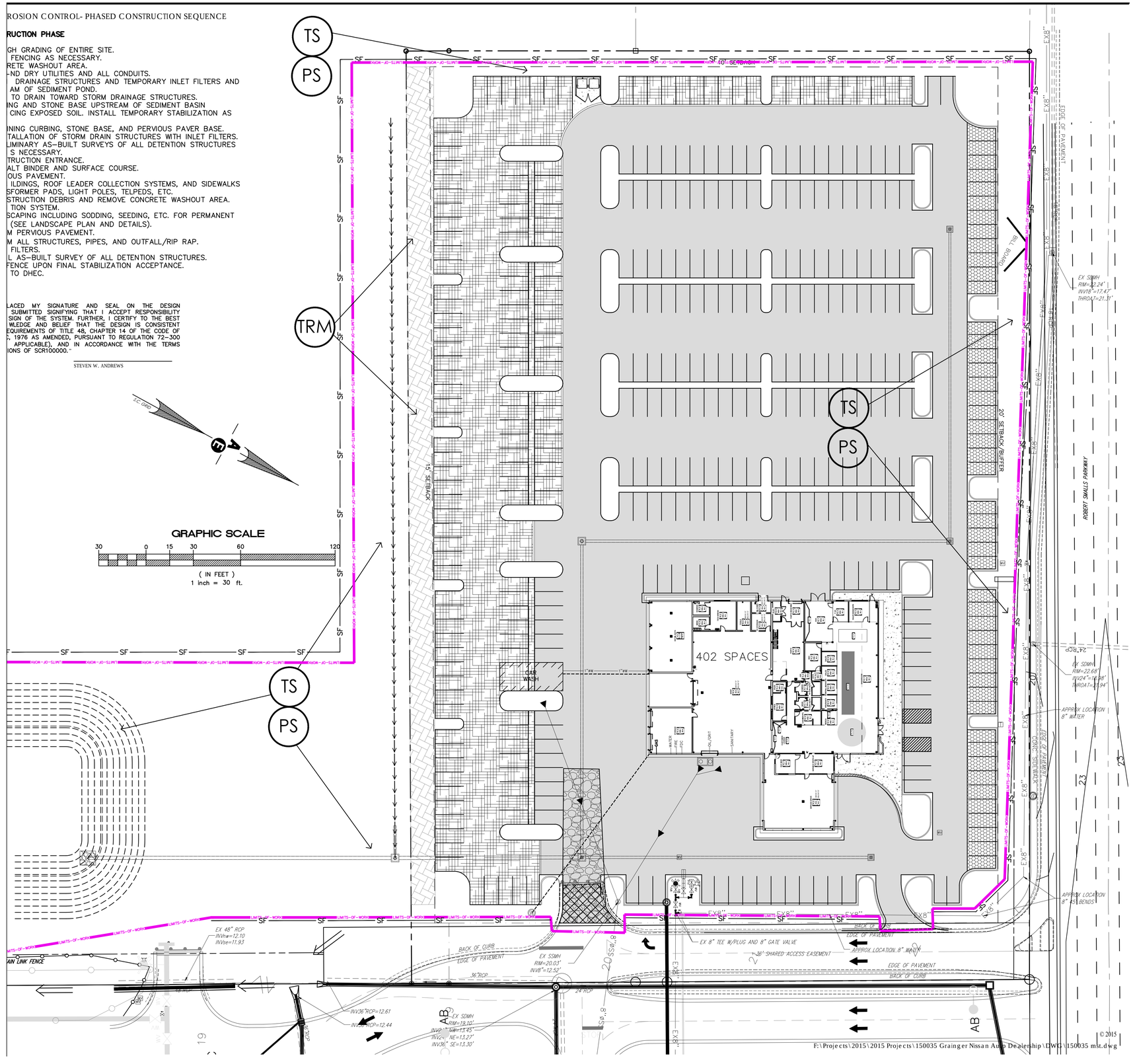
RUCTION PHASE

GH GRADING OF ENTIRE SITE.
FENCING AS NECESSARY.
RETE WASHOUT AREA.
-ND DRY UTILITIES AND ALL CONDUITS.
DRAINAGE STRUCTURES AND TEMPORARY INLET FILTERS AND
AM OF SEDIMENT POND.
TO DRAIN TOWARD STORM DRAINAGE STRUCTURES.
NG AND STONE BASE UPSTREAM OF SEDIMENT BASIN
CING EXPOSED SOIL. INSTALL TEMPORARY STABILIZATION AS

NING CURBING, STONE BASE, AND PERVIOUS PAVER BASE.
TALLATION OF STORM DRAIN STRUCTURES WITH INLET FILTERS.
LIMINARY AS-BUILT SURVEYS OF ALL DETENTION STRUCTURES
S NECESSARY.
TRUCTION ENTRANCE.
ALT BINDER AND SURFACE COURSE.
OUS PAVEMENT.
ILDINGS, ROOF LEADER COLLECTION SYSTEMS, AND SIDEWALKS
SFORMER PADS, LIGHT POLES, TELPEDS, ETC.
STRUCTION DEBRIS AND REMOVE CONCRETE WASHOUT AREA.
TION SYSTEM.
SCAPING INCLUDING SODDING, SEEDING, ETC. FOR PERMANENT
(SEE LANDSCAPE PLAN AND DETAILS).
M PERVIOUS PAVEMENT.
M ALL STRUCTURES, PIPES, AND OUTFALL/RIP RAP.
FILTERS.
L AS-BUILT SURVEY OF ALL DETENTION STRUCTURES.
FENCE UPON FINAL STABILIZATION ACCEPTANCE.
TO DHEC.

LACED MY SIGNATURE AND SEAL ON THE DESIGN
SUBMITTED SIGNIFYING THAT I ACCEPT RESPONSIBILITY
SIGN OF THE SYSTEM. FURTHER, I CERTIFY TO THE BEST
WLEDGE AND BELIEF THAT THE DESIGN IS CONSISTENT
EQUIREMENTS OF TITLE 48, CHAPTER 14 OF THE CODE OF
, 1976 AS AMENDED, PURSUANT TO REGULATION 72-300
APPLICABLE), AND IN ACCORDANCE WITH THE TERMS
IONS OF SCR100000."

STEVEN W. ANDREWS



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Andrews Engineering & Surveying
2712 Bull Street Suite A
Beaufort SC 29902
843.379.2222
Fax 843.379.2223

Site Development Plan
For
Grainger Nissan
S.C. Hwy 170
City of Beaufort
Beaufort County, SC

Sediment and Erosion Control Plan - Phase 2
Final Stabilization

Date Drawn:	02/16/16
Last Revised:	02/26/16
Drawn By:	Cad Tech
Engineer:	S. Andrews

SHEET #:
4

JOB: 150035

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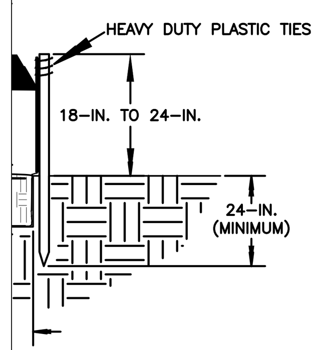
OM TRENCH DETAIL



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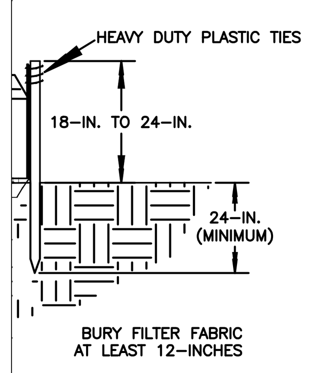


olina Department of
Environmental Control

T FENCE
SC–03 Page 1 of 2
TO SCALE FEBRUARY 2014 DATE

SILT FENCE – POST REQUIREMENTS

1. Silt Fence posts must be 48–inch long steel posts that meet, at a minimum, the following physical characteristics.
   – Composed of a high strength steel with a minimum yield strength of 50,000 psi.
   – Include a standard "T" section with a nominal face width of 1.38–inches and a nominal "T" length of 1.48–inches.
   – Weigh 1.25 pounds per foot (± 8%)
2. Posts shall be equipped with projections to aid in fastening of filter fabric.
3. Steel posts may need to have a metal soil stabilization plate welded near the bottom when installed along steep slopes or installed in loose soils. The plate should have a minimum cross section of 17–square inches and be composed of 15 gauge steel, at a minimum. The metal soil stabilization plate should be completely buried.
4. Install posts to a minimum of 24–inches. A minimum height of 1– to 2–inches above the fabric shall be maintained, and a maximum height of 3 feet shall be maintained above the ground.
5. Post spacing shall be at a maximum of 6–feet on center.

SILT FENCE – FABRIC REQUIREMENTS

1. Silt fence must be composed of woven geotextile filter fabric that consists of the following requirements:
   – Composed of fibers consisting of long chain synthetic polymers of at least 85% by weight of polyolefins, polyesters, or polyamides that are formed into a network such that the filaments or yarns retain dimensional stability relative to each other;
   – Free of any treatment or coating which might adversely alter its physical properties after installation;
   – Free of any defects or flaws that significantly affect its physical and/or filtering properties; and,
   – Have a minimum width of 36–inches.
2. Use only fabric appearing on SC DOT's Qualified Products Listing (QPL), Approval Sheet #34, meeting the requirements of the most current edition of the SC DOT Standard Specifications for Highway Construction.
3. 12–inches of the fabric should be placed within excavated trench and toed in when the trench is backfilled.
4. Filter Fabric shall be purchased in continuous rolls and cut to the length of the barrier to avoid joints.
5. Filter Fabric shall be installed at a minimum of 24–inches above the ground.

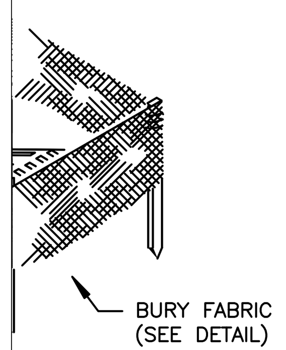
SILT FENCE – INSPECTION & MAINTENANCE

1. The key to functional silt fence is weekly inspections, routine maintenance, and regular sediment removal.
2. Regular inspections of silt fence shall be conducted once every calendar week and, as recommended, within 24–hours after each rainfall even that produces 1/2–inch or more of precipitation.
3. Attention to sediment accumulations along the silt fence is extremely important. Accumulated sediment should be continually monitored and removed when necessary.
4. Remove accumulated sediment when it reaches 1/3 the height of the silt fence.
5. Removed sediment shall be placed in stockpile storage areas or spread thinly across disturbed area. Stabilize the removed sediment after it is relocated.
6. Check for areas where stormwater runoff has eroded a channel beneath the silt fence, or where the fence has sagged or collapsed due to runoff overtopping the silt fence. Install checks/tie–backs and/or reinstall silt fence, as necessary.
7. Check for tears within the silt fence, areas where silt fence has begun to decompose, and for any other circumstance that may render the silt fence ineffective. Removed damaged silt fence and reinstall new silt fence immediately.
8. Silt fence should be removed within 30 days after final stabilization is achieved and once it is removed, the resulting disturbed area shall be permanently stabilized.

South Carolina Department of
Health and Environmental Control
SILT FENCE
STANDARD DRAWING NO. SC–03 PAGE 2 of 2
GENERAL NOTES FEBRUARY 2014 DATE

SEDIMENT AND EROSION CONTROL NOTES

1. If necessary, slopes, which exceed eight (8) vertical feet should be stabilized with synthetic or vegetative mats, in addition to hydroseeding. It may be necessary to install temporary slope drains during construction. Temporary berms may be needed until the slope is brought to grade.
2. Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than fourteen (14) days after work has ceased, except as stated below.
   - Where stabilization by the 14th day is precluded by snow cover or frozen ground conditions stabilization measures must be initiated as soon as practicable.
   - Where construction activity on a portion of the Site is temporarily ceased, and earth-disturbing activities will be resumed within 14 days, temporary stabilization measures do not have to be initiated on that portion of the Site.
3. All sediment and erosion control devices shall be inspected once every calendar week. If periodic inspection or other information indicates that a BMP has been inappropriately or incorrectly installed, the Permittee must address the necessary replacement or modification required to correct the BMP within 48 hours of identification.
4. Provide silt fence and/or other control devices, as may be required, to control soil erosion during utility construction. All disturbed areas shall be cleaned, graded, and stabilized with grassing immediately after the utility installation. Fill, cover, and temporary seeding at the end of each day are recommended. If water is encountered while trenching, the water should be filtered to remove sediment before being pumped back into any waters of the State.
5. All erosion control devices shall be properly maintained during all phases of construction until the completion of all construction activities and all disturbed areas have been stabilized. Additional control devices may be required during construction in order to control erosion and/or offsite sedimentation. All temporary control devices shall be removed once construction is complete and the site is stabilized.
6. The contractor must take necessary action to minimize the tracking of mud onto paved roadway(s) from construction areas and the generation of dust. The contractor shall daily remove mud/soil from pavement, as may be required.
7. Residential subdivisions require erosion control features for infrastructure as well as for individual lot construction. Individual property owners shall follow these plans during construction or obtain approval of an individual plan in accordance with S.C Reg. 72-300 et seq. and SCR100000.
8. Temporary diversion berms and/or ditches will be provided as needed during construction to protect work areas from upslope runoff and/or to divert sediment-laden water to appropriate traps or stable outlets.
9. All waters of the State (WoS), including wetlands, are to be flagged or otherwise clearly marked in the field. A double row of silt fence is to be installed in all areas where a 50-foot buffer can't be maintained between the disturbed area and all WoS. A 10-foot buffer should be maintained between the last row of silt fence and all WoS.
10. Litter, construction debris, oils, fuels, and building products with significant potential for impact (such as stockpiles of freshly treated lumber) and construction chemicals that could be exposed to storm water must be prevented from becoming a pollutant source in storm water discharges.
11. A copy of the OS-SWPPP, inspections records, and rainfall data must be retained at the construction site or a nearby location easily accessible during normal business hours, from the date of commencement of construction activities to the date that final stabilization is reached.
12. Initiate stabilization measures on any exposed steep slope (3H:1V or greater) where land-disturbing activities have permanently or temporarily ceased, and will not resume for a period of 7 calendar days.
13. Minimize soil compaction and, unless infeasible, preserve topsoil.
14. Minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters. Wash waters must be treated in a sediment basin or alternative control that provides equivalent or better treatment prior to discharge;
15. Minimize the discharge of pollutants from dewatering of trenches and excavated areas. These discharges are to be routed through appropriate BMPs (sediment basin, filter bag, etc.).
16. The following discharges from sites are prohibited:
   - Wastewater from washout of concrete, unless managed by an appropriate control;
   - Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds and other construction materials;
   - Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance; and
   - Soaps or solvents used in vehicle and equipment washing.
17. After construction activities begin, inspections must be conducted at a minimum of at least once every calendar week and must be conducted until final stabilization is reached on all areas of the construction site.
18. If existing BMPs need to be modified or if additional BMPs are necessary to comply with the requirements of this permit and/or SC's Water Quality Standards, implementation must be completed before the next storm event whenever practicable. If implementation before the next storm event is impracticable, the situation must be documented in the OS-SWPPP and alternative BMPs must be implemented as soon as reasonably possible.
19. A Pre-Construction Conference must be held for each construction site with an approved On-Site SWPPP prior to the implementation of construction activities. For non-linear projects that disturb 10 acres or more this conference must be held on-site unless the Department has approved otherwise.



INSTALLATION
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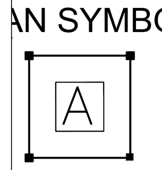


olina Department of
Environmental Control
Type A
IC INLET PROTECTION
SC–07 PAGE 1 of 2
SCALE FEBRUARY 2014 DATE

TYPE A – FILTER FABRIC REQUIREMENTS

1. Silt fence must be composed of woven geotextile filter fabric that consists of the following requirements:
   – Composed of fibers consisting of long chain synthetic polymers of at least 85% by weight of polyolefins, polyesters, or polyamides that are formed into a network such that the filaments or yarns retain dimensional stability relative to each other;
   – Free of any treatment or coating which might adversely alter its physical properties after installation;
   – Free of any defects or flaws that significantly affect its physical and/or filtering properties; and,
   – Have a minimum width of 36–inches.
2. Use only fabric appearing on SC DOT's Qualified Products Listing (QPL), Approval Sheet #34, meeting the requirements of the most current edition of the SC DOT Standard Specifications for Highway Construction.
3. 12–inches of the fabric should be placed within excavated trench and toed in when the trench is backfilled.
4. Filter Fabric shall be purchased in continuous rolls and cut to the length of the barrier to avoid joints.
5. Filter Fabric shall be installed at a minimum of 24–inches above the ground.

TYPE A – POST REQUIREMENTS

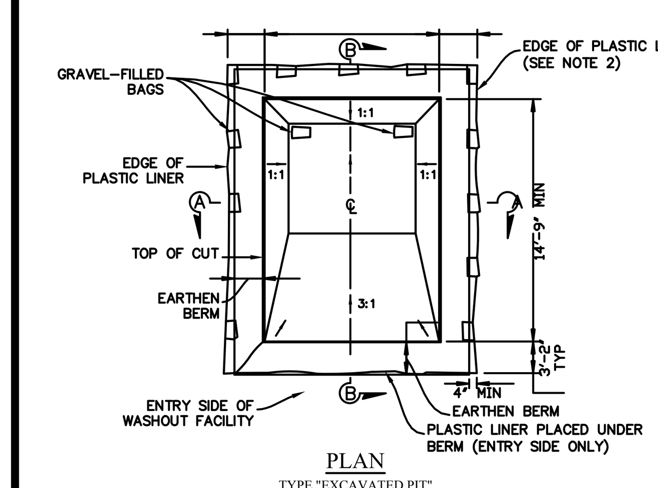
1. Silt Fence posts must be 48–inch long steel posts that meet, at a minimum, the following physical characteristics.
   – Composed of a high strength steel with a minimum yield strength of 50,000 psi.
   – Include a standard "T" section with a nominal face width of 1.38–inches and a nominal "T" length of 1.48–inches.
   – Weigh 1.25 pounds per foot (± 8%)
2. Posts shall be equipped with projections to aid in fastening of filter fabric.
3. Install posts to a minimum of 24–inches. A minimum height of 1– to 2– inches above the fabric shall be maintained, and a maximum height of 3 feet shall be maintained above the ground.
4. Post spacing shall be at a maximum of 3–feet on center.

TYPE A – INSPECTION & MAINTENANCE

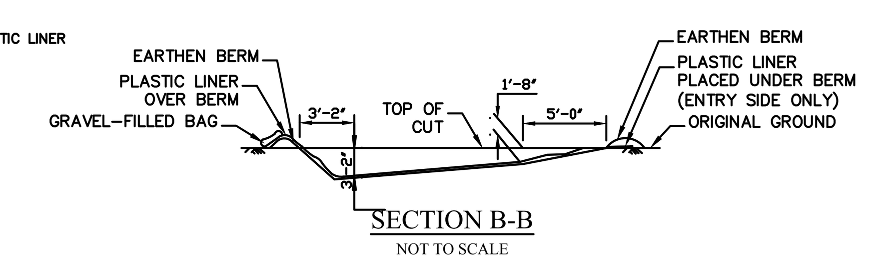
1. The key to functional inlet protection is weekly inspections, routine maintenance, and regular sediment removal.
2. Regular inspections of inlet protection shall be conducted once every calendar week and, as recommended, within 24–hours after each rainfall even that produces 1/2–inch or more of precipitation.
3. Attention to sediment accumulations along the filter fabric is extremely important. Accumulated sediment should be continually monitored and removed when necessary.
4. Remove accumulated sediment when it reaches 1/3 the height of the filter fabric. When a sump is installed in front of the fabric, sediment should be removed when it fills approximately 1/3 the depth of the sump.
5. Removed sediment shall be placed in stockpile storage areas or spread thinly across disturbed area. Stabilize the removed sediment after it is relocated.
6. Check for areas where stormwater runoff has eroded a channel beneath the filter fabric, or where the fabric has sagged or collapsed due to runoff overtopping the inlet protection.
7. Check for tears within the filter fabric, areas where fabric has begun to decompose, and for any other circumstance that may render the inlet protection ineffective. Removed damaged fabric and reinstall new filter fabric immediately.
8. Inlet protection structures should be removed after all the disturbed areas are permanently stabilized. Remove all construction material and sediment, and dispose of them properly. Grade the disturbed area to the elevation of the drop inlet structure crest. Stabilize all bare areas immediately.

South Carolina Department of
Health and Environmental Control
Type A
FILTER FABIC INLET PROTECTION
STANDARD DRAWING NO. SC–07 PAGE 2 of 2
GENERAL NOTES FEBRUARY 2014 DATE

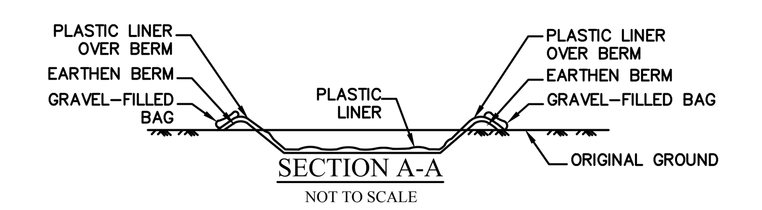
EXCAVATED PIT CONCRETE WASHOUT



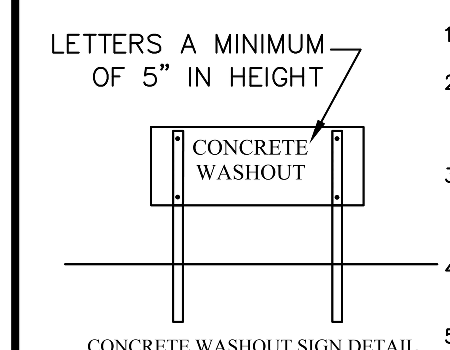
PLAN
TYPE "EXCAVATED PIT"



SECTION B-B
NOT TO SCALE



SECTION A-A
NOT TO SCALE

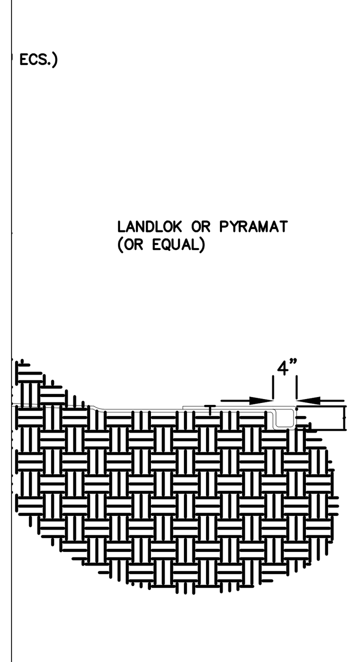


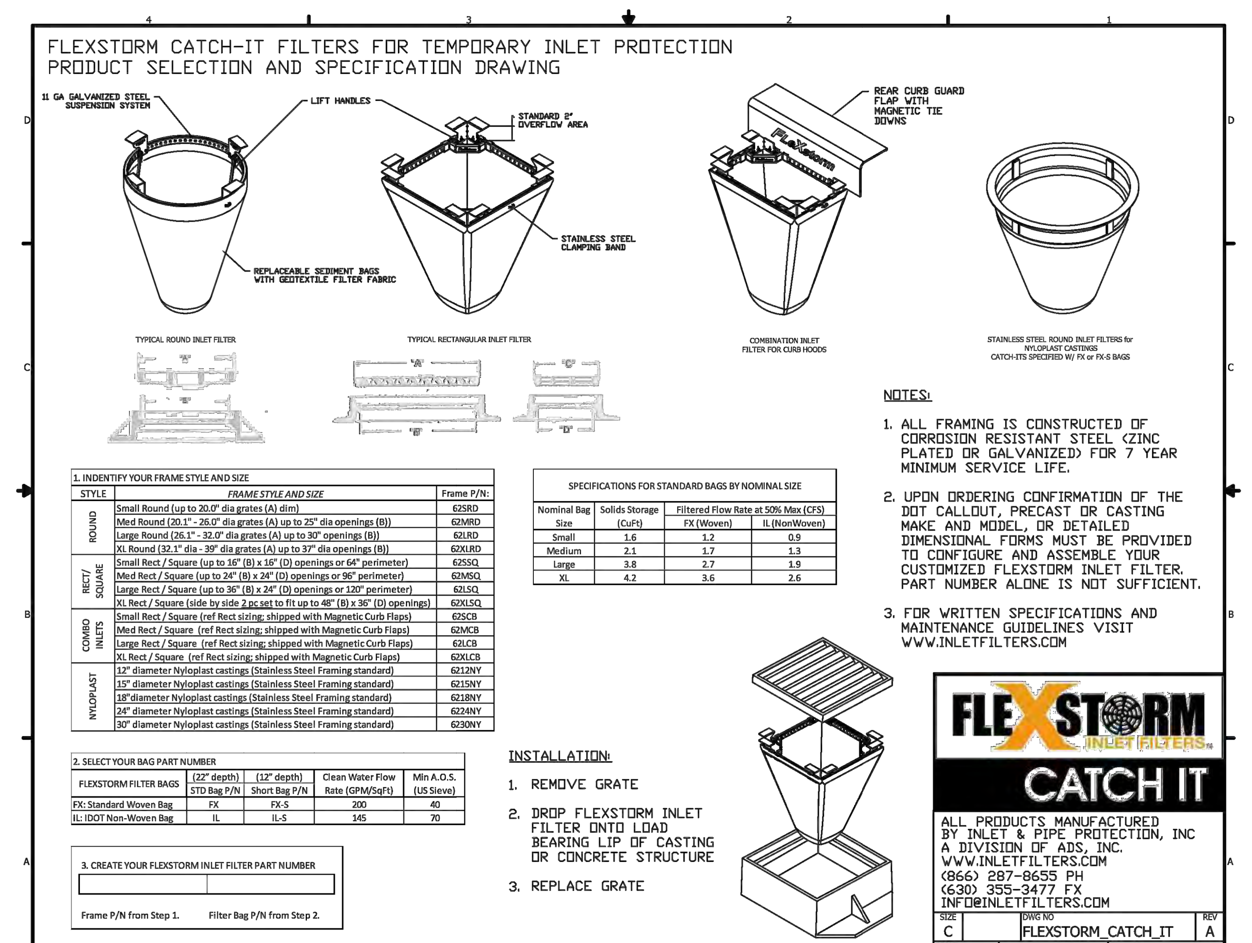
CONCRETE WASHOUT SIGN DETAIL

NOTES:

1. ACTUAL LAYOUT DETERMINED IN FIELD.
2. INSTALL CONCRETE WASHOUT SIGN (24"X24", MINIMUM) WITHIN 30' OF THE TEMPORARY CONCRETE WASHOUT FACILITY.
3. TEMPORARY WASHOUT AREA MUST BE AT LEAST 50' FROM A STORM DRAIN, CREEK BANK OR PERIMETER CONTROL.
4. CLEAN OUT CONCRETE WASHOUT AREA WHEN 50% FULL.
5. THE KEY TO FUNCTIONAL CONCRETE WASHOUTS IS WEEKLY INSPECTIONS, ROUTINE MAINTENANCE, AND REGULAR CLEAN OUT.
6. SILT FENCE SHALL BE INSTALLED AROUND PERIMETER OF CONCRETE WASHOUT AREA EXCEPT FOR THE SIDE UTILIZED FOR ACCESSING THE WASHOUT.
7. A ROCK CONSTRUCTION ENTRANCE MAY BE NECESSARY ALONG ONE SIDE OF THE WASHOUT TO PROVIDE VEHICLE ACCESS.

South Carolina Department of
Health and Environmental Control
CONCRETE WASHOUT
EXCAVATED PIT
STANDARD DRAWING NO. RC–08 PAGE 1 of 1
NOT TO SCALE FEBRUARY 2014 DATE





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PLAN REVISIONS

NO.	DESCRIPTION:	DATE:	BY:
1	–	–	–
2	–	–	–
3	–	–	–
4	–	–	–
5	–	–	–
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7	–	–	–
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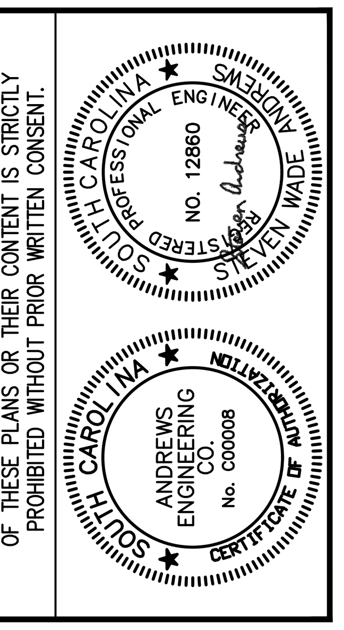

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2712 Bull Street Suite A
Beaufort, SC 29902
843.379.2222
Fax 843.379.2223

Site Development Plan
For
Grainger Nissan
S.C. Hwy 170
City of Beaufort
Beaufort County, SC

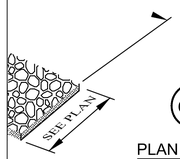
Sediment and Erosion
Control Details
Sheet 1

Date Drawn:	02/16/16
Last Revised:	02/26/16
Drawn By:	Cad Tech
Engineer:	S. Andrews

SHEET #:
5

JOB: 150035

EDGES SHALL BE TAPERED OUT
TOWARDS ROAD TO PREVENT
TRACKING OF MUD ON THE EDGES



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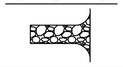


South Carolina Department of Health and Environmental Control

CONSTRUCTION ENTRANCE

STANDARD DRAWING NO. SC-06 PAGE 1 of 2

NOT TO SCALE — FEBRUARY 2014 DATE

CONSTRUCTION ENTRANCE - GENERAL NOTES

1. Stabilized construction entrances should be used at all points where traffic will egress/ingress a construction site onto a public road or any impervious surfaces, such as parking lots.
2. Install a non-woven geotextile fabric prior to placing any stone.
3. Install a culvert pipe across the entrance when needed to provide positive drainage.
4. The entrance shall consist of 2-inch to 3-inch D50 stone placed at a minimum depth of 6-inches.

   Minimum dimensions of the entrance shall be as shown on plans, and may be modified as necessary to accommodate site constraints.
5. The edges of the entrance shall be tapered out towards the road to prevent tracking at the edge of the entrance.
7. Divert all surface runoff and drainage from the stone pad to a sediment trap or basin or other sediment trapping structure.
8. Limestone may not be used for the stone pad.

CONSTR. ENTRANCE - INSPECTION & MAINTENANCE

1. The key to functional construction entrances is weekly inspections, routine maintenance, and regular sediment removal.
2. Regular inspections of construction entrances shall be conducted once every calendar week and, as recommended, within 24-hours after each rainfall even that produces 1/2-inch or more of precipitation.
3. During regular inspections, check for mud and sediment buildup and pad integrity. Inspection frequencies may need to be more frequent during long periods of wet weather.
4. Reshape the stone pad as necessary for drainage and runoff control.
5. Wash or replace stones as needed and as directed by site inspector. The stone in the entrance should be washed or replaced whenever the entrance fails to reduce the amount of mud being carried off-site by vehicles. Frequent washing will extend the useful life of stone pad.
6. Immediately remove mud and sediment tracked or washed onto adjacent impervious surfaces by brushing or sweeping. Flushing should only be used when the water can be discharged to a sediment trap or basin.
7. During maintenance activities, any broken pavement should be repaired immediately.
8. Construction entrances should be removed after the site has reached final stabilization. Permanent vegetation should replace areas from which construction entrances have been removed, unless area will be converted to an impervious surface to serve post-construction.

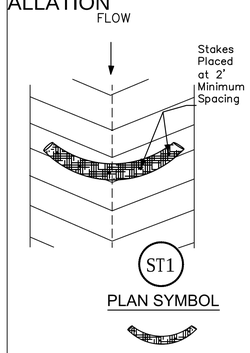
South Carolina Department of Health and Environmental Control

CONSTRUCTION ENTRANCE

STANDARD DRAWING NO. SC-06 PAGE 2 of 2

GENERAL NOTES — FEBRUARY 2014 DATE

ALLATION



PLAN SYMBOL

South Carolina Department of Health and Environmental Control

SEDIMENT TUBES

STANDARD DRAWING NO. SC-05 PAGE 1 of 2

NOT TO SCALE — FEBRUARY 2014 DATE

SEDIMENT TUBES - GENERAL NOTES

1. Sediment tubes may be installed along contours, in drainage conveyance channels, and around inlets to help prevent off-site discharge of sediment-laden stormwater runoff.
2. Sediment tubes are elongated tubes of compacted geotextiles, curled excelsior wood, natural coconut fiber, or hardwood mulch. Straw, pine needle, and leaf mulch-filled sediment tubes are not permitted.
3. The outer netting of the sediment tube should consist of seamless, high-density polyethylene photodegradable materials treated with ultraviolet stabilizers or a seamless, high-density polyethylene non-degradable material.
4. Sediment tubes, when used as checks within channels, should range between 18-inches and 24-inches depending on channel dimensions. Diameters outside this range may be allowed where necessary when approved.
5. Curled excelsior wood, or natural coconut products that are rolled up to create a sediment tube are not allowed.
6. Sediment tubes should be staked using wooden stakes (2-inch X 2-inch) or steel posts (standard "U" or "T" sections with a minimum weight of 1.25 pounds per foot) at a minimum of 48-inches in length placed on 2-foot centers.
7. Install all sediment tubes to ensure that no gaps exist between the soil and the bottom of the tube. Manufacturer's recommendations should always be consulted before installation.
8. The ends of adjacent sediment tubes should be overlapped 6-inches to prevent flow and sediment from passing through the field joint.
9. Sediment tubes should not be stacked on top of one another, unless recommended by manufacturer.
10. Each sediment tube should be installed in a trench with a depth equal to 1/5 the diameter of the sediment tube.
11. Sediment tubes should continue up the side slopes a minimum of 1-foot above the design flow depth of the channel.
12. Install stakes at a diagonal facing incoming runoff.

SEDIMENT TUBES - INSPECTION & MAINTENANCE

1. The key to functional sediment tubes is weekly inspections, routine maintenance, and regular sediment removal.
2. Regular inspections of sediment tubes shall be conducted once every calendar week and, as recommended, within 24-hours after each rainfall even that produces 1/2-inch or more of precipitation.
3. Attention to sediment accumulations in front of the sediment tube is extremely important. Accumulated sediment should be continually monitored and removed when necessary.
4. Remove accumulated sediment when it reaches 1/3 the height of the sediment tube.
5. Removed sediment shall be placed in stockpile storage areas or spread thinly across disturbed area. Stabilize the removed sediment after it is relocated.
6. Large debris, trash, and leaves should be removed from in front of tubes when found.
7. If erosion causes the edges to fall to a height equal to or below the height of the sediment tube, repairs should be made immediately to prevent runoff from bypassing tube.
8. Sediment tubes should be removed after the contributing drainage area has been completely stabilized. Permanent vegetation should replace areas from which sediment tubes have been removed.

South Carolina Department of Health and Environmental Control

SEDIMENT TUBES

STANDARD DRAWING NO. SC-05 PAGE 2 of 2

GENERAL NOTES — FEBRUARY 2014 DATE

DING

ANENT VEGETATIVE
REES,SHRUBS,VINES,
EGUMES ON
.

VEGETATATIVE SEEDING NOTES

-TEMPORARY STABILIZATION IS REQUIRED WITHIN 14 DAYS AFTER CONSTRUCTION ACTIVITY IS COMPLETE UNLESS CONSTRUCTION ACTIVITY IS GOING TO RESUME WITHIN 21 DAYS.

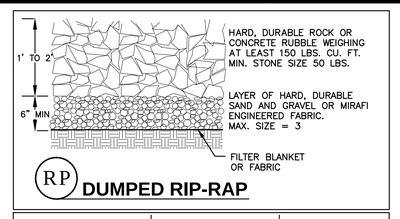
-COVER SEEDED AREAS WITH AN APPROPRIATE MULCH TO PROVIDE PROTECTION FROM THE WEATHER.

-WHEN THE TEMPORARY VEGETATION DOES NOT GROW QUICKLY OR THICK ENOUGH TO PREVENT EROSION, RE-SEED AS SOON AS POSSIBLE.

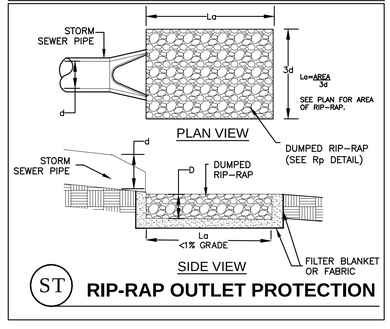
-KEEP SEEDED AREAS ADEQUATELY MOIST. IRRIGATE THE SEEDED AREA IF NORMAL RAINFALL IS NOT ADEQUATE FOR THE GERMINATION AND GROWTH OF SEEDLINGS.

-WATER SEEDED AREAS AT CONTROLLED RATES THAT ARE LESS THAN THE RATE AT WHICH THE SOIL CAN ABSORB WATER TO PREVENT RUNOFF.

-SEED SELECTION IS BASED ON GEOGRAPHICAL LOCATION, SOIL TYPE AND THE SEASON
OF THE YEAR IN WHICH THE PLANTING IS TO BE DONE.



DUMPED RIP-RAP



RIP-RAP OUTLET PROTECTION

Temporary Seeding – Coastal

Species	Lbs/Ac	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Sandy, Droughty Sites													
Browntop Millet	40 lbs./ac.												
Rye, Grain	56 lbs./ac.												
Ryegrass	50 lbs./ac.												
Well drained, clayey/loamey Sites													
Browntop Millet or Japanese Millet	40 lbs./ac.												
Rye, Grain or Oats	56 lbs./ac. 75 lbs./ac.												
Ryegrass	50 lbs./ac.												

Permanent Seeding - Coastal

Species	Lbs/Ac	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Sandy, Droughty Sites													
Browntop Millet Bahiagrass	10 lbs./ac. 40 lbs./ac.												
Browntop Millet Bahiagrass Sericea Lespedeza	10 lbs./ac. 30 lbs./ac. 40 lbs/ac.												
Browntop Millet Atlantic Coastal Panicgrass	10 lbs./ac. 15 lbs./ac. PLS												
Browntop Millet Switchgrass (Alamo) Little Bluestem Sericea Lespedeza	10 lbs./ac. 8 lbs./ac. PLS 4 lbs./ac. 20 lbs./ac.												
Browntop Millet Weeping Lovegrass	10 lbs./ac. 8 lbs./ac.												
Well drained, clayey/loamey Sites													
Browntop Millet Bahiagrass	10 lbs./ac. 40 lbs./ac.												
Rye, Grain Bahiagrass Clover, Crimson (Annual)	10 lbs./ac. 40 lbs./ac. 5 lbs./ac.												
Browntop Millet Bahiagrass Sericea lespedeza	10 lbs./ac. 30 lbs./ac. 40 lbs./ac.												
Browntop Millet Bermuda, Common Sericea lespedeza	10 lbs./ac. 10 lbs./ac. 40 lbs./ac.												
Browntop Millet Bermuda, Common Kobe Lespedeza (Annual)	10 lbs./ac. 12 lbs./ac. 10 lbs./ac.												
Browntop Millet Bahiagrass Bermuda, Common Sericea lespedeza	10 lbs./ac. 20 lbs./ac. 6 lbs./ac. 40 lbs./ac.												
Browntop Millet Switchgrass Little Bluestem Indiangrass	10 lbs./ac. 8 lbs./ac. PLS 3 lbs./ac. PLS 3 lbs./ac. PLS												

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PLAN REVISIONS

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SOUTH CAROLINA PROFESSIONAL ENGINEER REGISTERED NO. 12860 STEVEN WADE ANDREWS

SOUTH CAROLINA ANDREWS ENGINEERING CO. No. C00008 CERTIFICATE OF AUTHORIZATION

Andrews Engineering & Surveying
2712 Bull Street Suite A
Beaufort, SC 29902
843.379.2222
Fax 843.379.2223

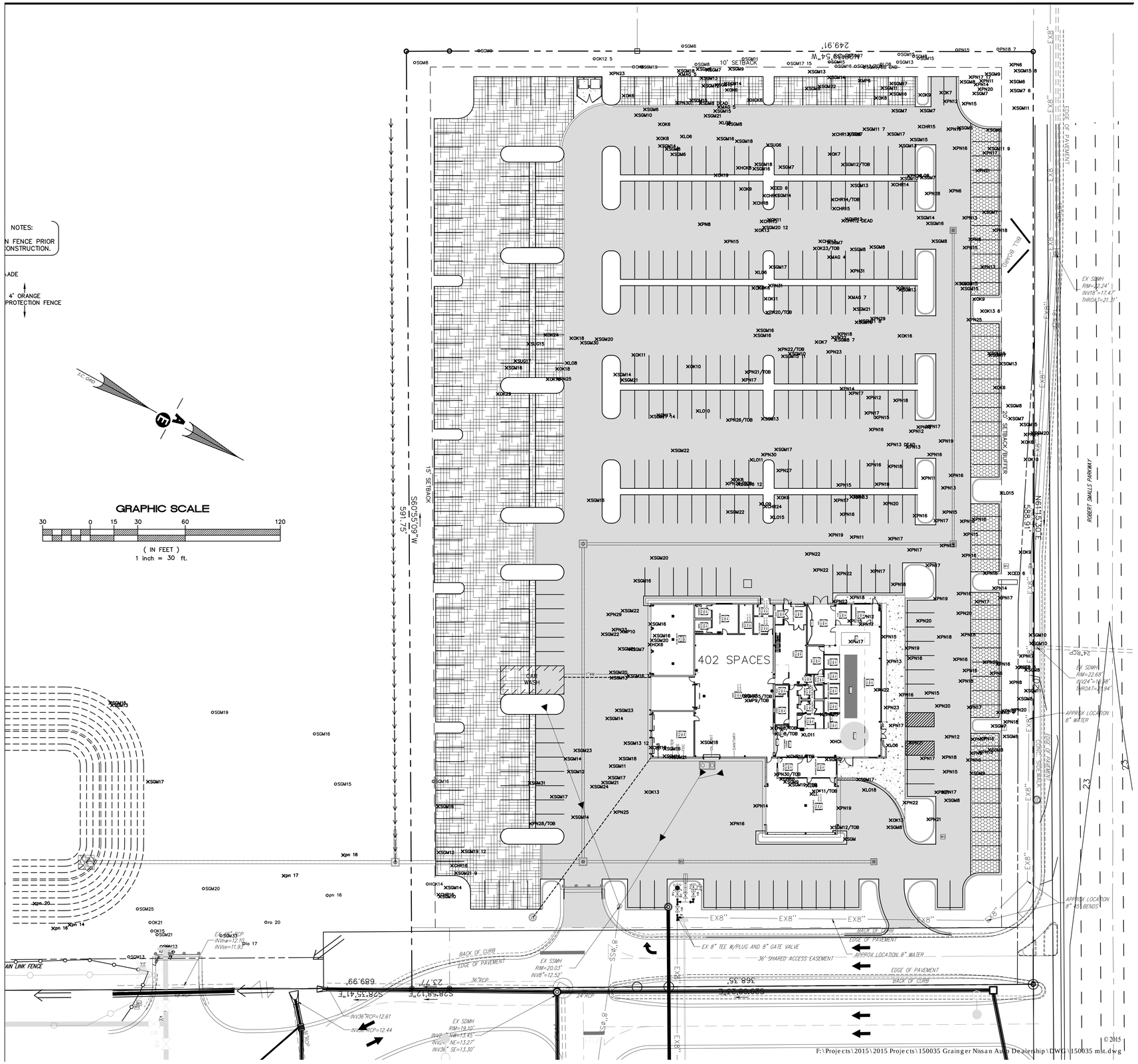
Site Development Plan
For
Grainger Nissan
S.C. Hwy 170
City of Beaufort
Beaufort County, SC

Sediment and Erosion Control Details
Sheet 2

Date Drawn:	02/16/16
Last Revised:	02/26/16
Drawn By:	Cad Tech
Engineer:	S. Andrews

SHEET #:
6

JOB: 150035



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Andrews Engineering & Surveying
2712 Bull Street Suite A
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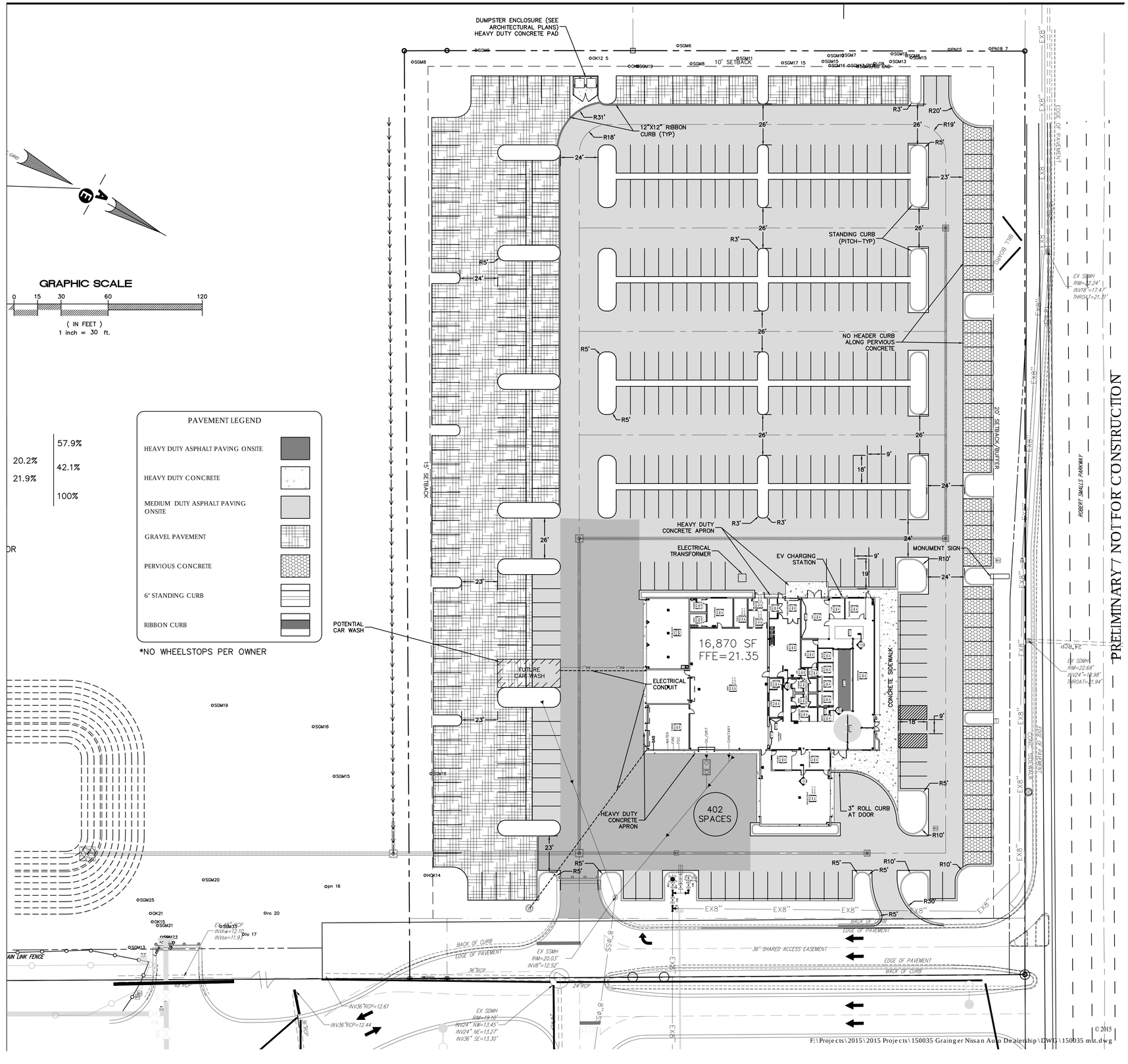
Site Development Plan
For
Grainger Nissan
S.C. Hwy 170
City of Beaufort
Beaufort County, SC

Tree Protection
and
Removal Plan

Date Drawn:	02/16/16
Last Revised:	02/26/16
Drawn By:	Cad Tech
Engineer:	S. Andrews

SHEET #:
7

JOB: 150035



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Site Development Plan
For
Grainger Nissan
S.C. Hwy 170
City of Beaufort
Beaufort County, SC

Horizontal Control Plan

Date Drawn: 02/16/16
Last Revised: 04/14/16
Drawn By: Cad Tech
Engineer: S. Andrews

SHEET #: 8

JOB: 150035

NOTE:
1. CONTRACTOR TO FIELD VERIFY DEPTH AND LOCATION OF EXISTING WET/DRY UTILITIES BEFORE CONSTRUCTION AND TO COORDINATE SHUTDOWN OF WATERLINE WITH BJWSA 72 HOURS IN ADVANCE OF BEGINNING WATERLINE CONNECTIONS AND/OR CONSTRUCTION.

2. ALL DEDICATED FIRE LINES FROM PIV TO BUILDING AND FDC'S TO BE DESIGNED & INSTALLED BY FIRE SPRINKLER DESIGNER/FIRE SPRINKLER CONTRACTOR.

3. LOCATION OF WATER/SEWER SERVICES TO STRUCTURES AS SHOWN ARE TO BE CONSIDERED SCHEMATIC. NOT TO BE USED FOR STAKING. SEE DETAILS OR ARCHITECTURAL DRAWINGS FOR EXACT LOCATION.

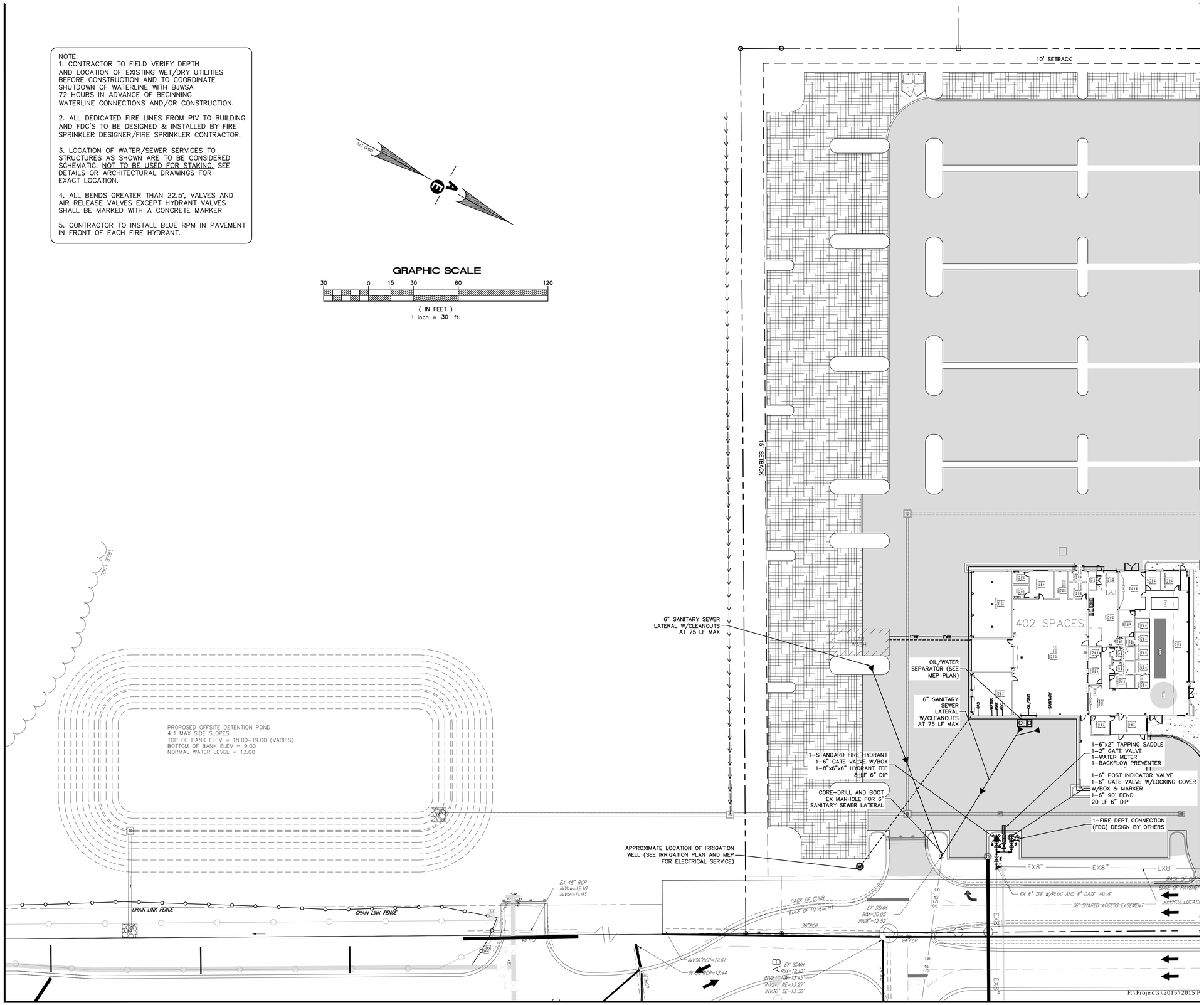
4. ALL BENDS GREATER THAN 22.5°, VALVES AND AIR RELEASE VALVES EXCEPT HYDRANT VALVES SHALL BE MARKED WITH A CONCRETE MARKER

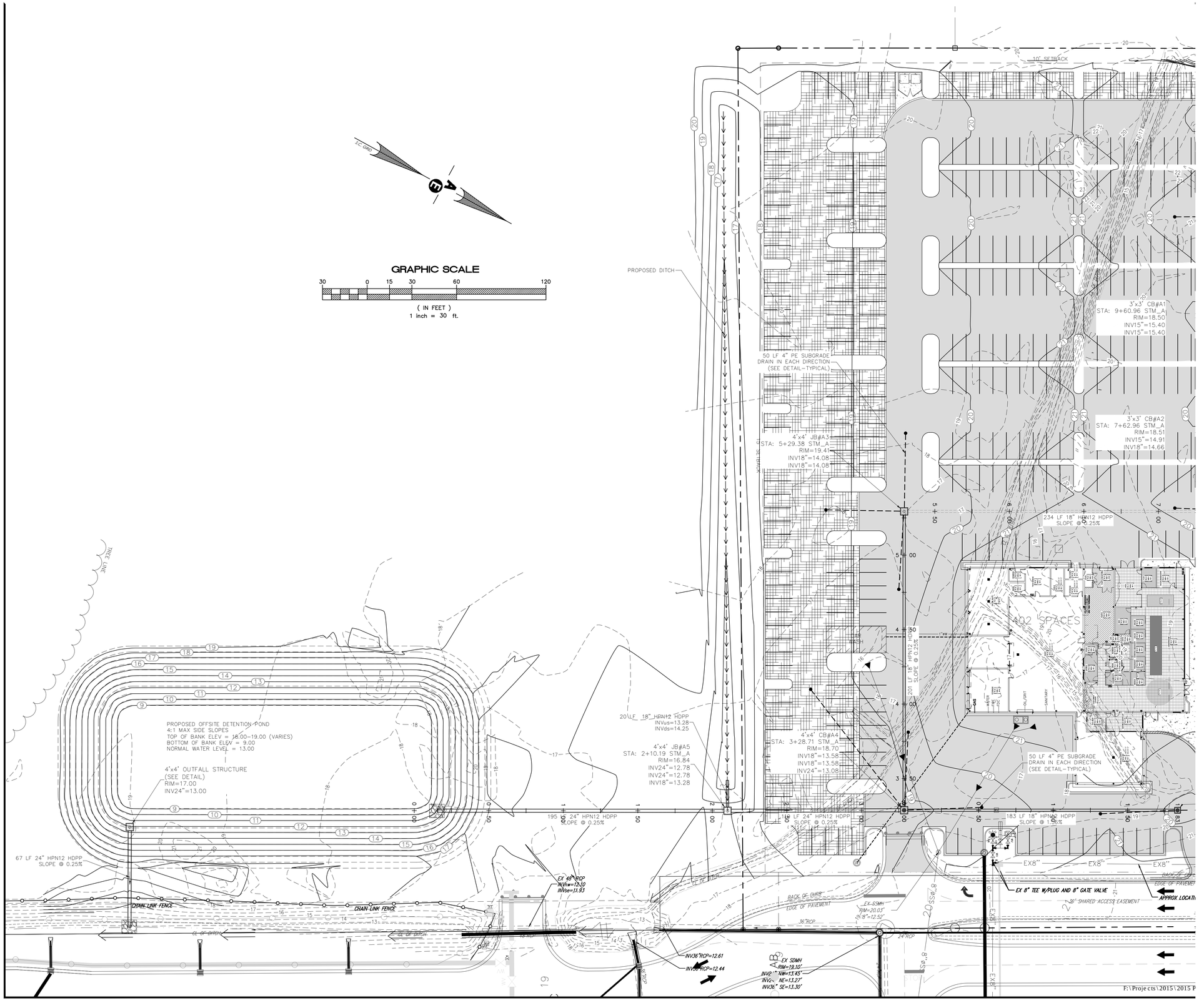
5. CONTRACTOR TO INSTALL BLUE RPM IN PAVEMENT IN FRONT OF EACH FIRE HYDRANT.

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.




GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft.
10' SETBACK
PROPOSED DITCH
50 LF 4" PE SUBGRADE DRAIN IN EACH DIRECTION (SEE DETAIL-TYPICAL)
3'x3' CB#A1
STA: 9+60.96 STM_A
RIM=18.50
INV15"=15.40
INV15"=15.40
3'x3' CB#A2
STA: 7+62.96 STM_A
RIM=18.51
INV15"=14.91
INV18"=14.66
4'x4' JB#A3
STA: 5+29.38 STM_A
RIM=19.41
INV18"=14.08
INV18"=14.08
234 LF 18" HPN12 HDPP
SLOPE @ 0.25%
402 SPACES
201 LF 18" HPN12 HDPP
SLOPE @ 0.25%
4'x4' CB#A4
STA: 3+28.71 STM_A
RIM=18.70
INV18"=13.58
INV18"=13.58
INV24"=13.08
4'x4' JB#A5
STA: 2+10.19 STM_A
RIM=16.84
INV24"=12.78
INV24"=12.78
INV18"=13.28
20 LF 18" HPN12 HDPP
INVus=13.28
INVds=14.25
PROPOSED OFFSITE DETENTION POND
4:1 MAX SIDE SLOPES
TOP OF BANK ELEV = 18.00-19.00 (VARIES)
BOTTOM OF BANK ELEV = 9.00
NORMAL WATER LEVEL = 13.00
4'x4' OUTFALL STRUCTURE
(SEE DETAIL)
RIM=17.00
INV24"=13.00
67 LF 24" HPN12 HDPP
SLOPE @ 0.25%
195 LF 24" HPN12 HDPP
SLOPE @ 0.25%
14 LF 24" HPN12 HDPP
SLOPE @ 0.25%
183 LF 18" HPN12 HDPP
SLOPE @ 1.25%
50 LF 4" PE SUBGRADE DRAIN IN EACH DIRECTION (SEE DETAIL-TYPICAL)
EX 48" RCP
INVin=12.10
INVoe=11.93
CHAIN-LINK FENCE
CHAIN-LINK FENCE
EX 8" TEE W/PLUG AND 8" GATE VALVE
36' SHARED ACCESS EASEMENT
APPROX. LOCATI
BACK OF CURB
EDGE OF PAVEMENT
EX-SDMH
RIM=20.03'
INV8"=12.52'
36"RCP
24"RCP
INV36"RCP=12.61
INV36"RCP=12.44
EX SDMH
RIM=13.10'
INV24" NW=13.45'
INV24" NE=13.27'
INV36" SE=13.30'
EX8"
EX8"
EX8"
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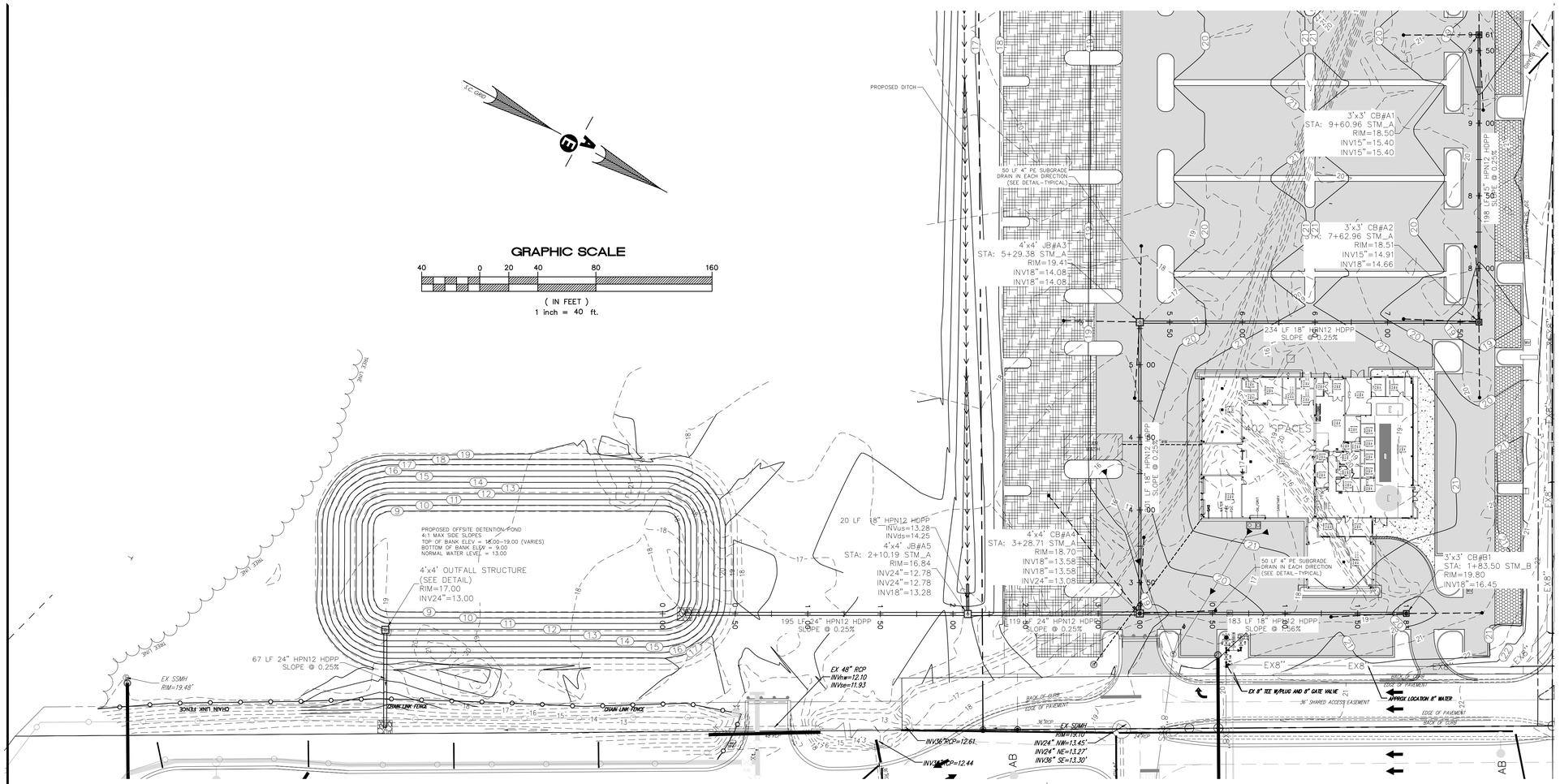

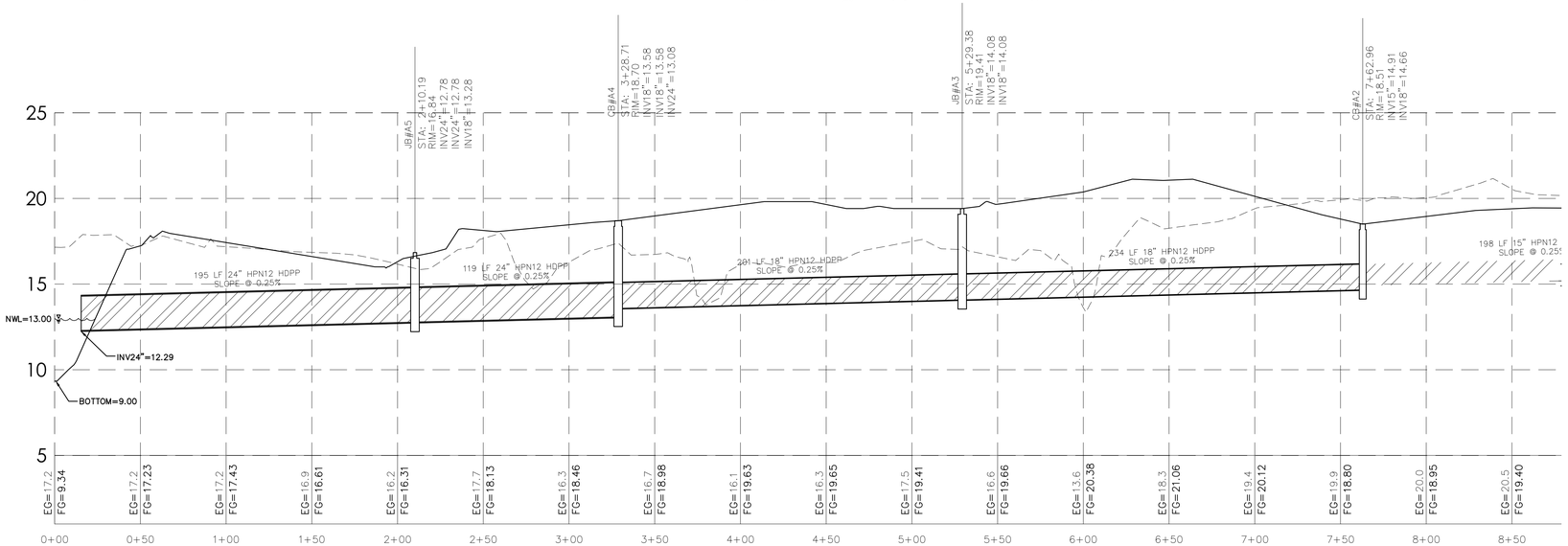

STM_A PROFILE

SCALE: VERT 1"=4' HORZ 1"=40'

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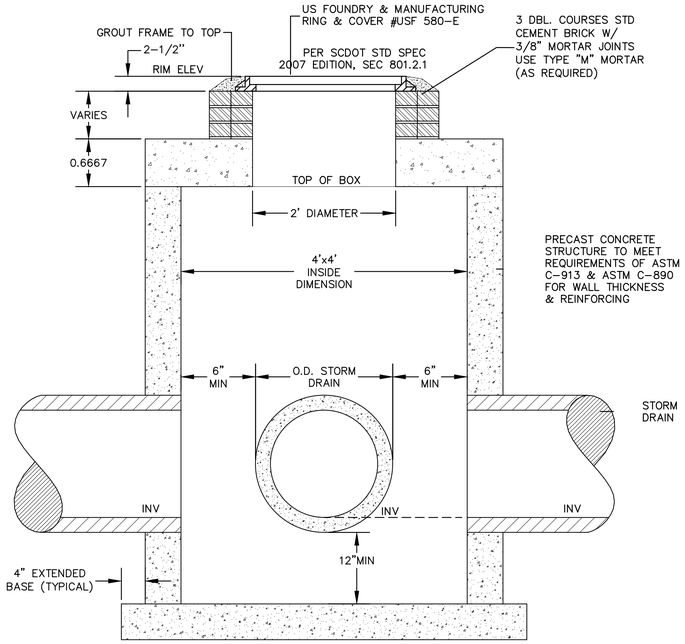
UFACTURING
3107–5650

. COURSES STD
T BRICK W/
MORTAR JOINTS
YPE "M" MORTAR

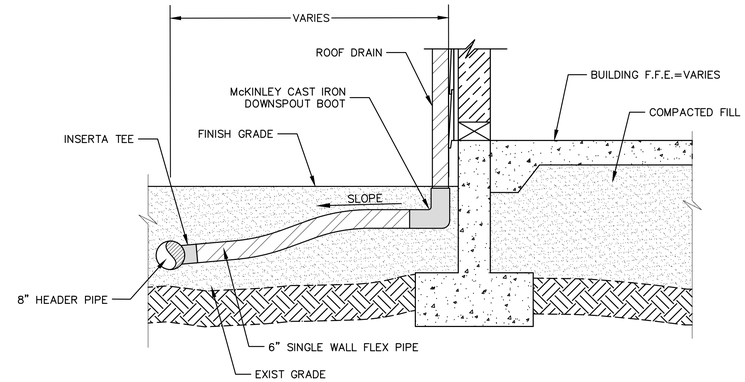
ST CONCRETE
URE TO MEET
EMENTS OF ASTM
& ASTM C–890
LL THICKNESS
FORCING

STORM
DRAIN

TO SHEET 29 FOR
TION REGARDING SUMPS
CTURES CONNECTED TO
LATOR ROW(S) OF THE
ED STORMTECH BEDS.

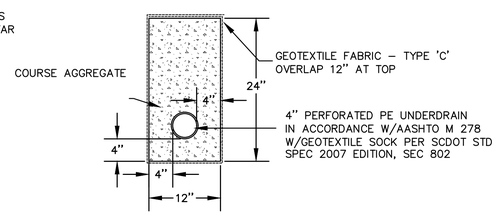


TYPICAL SECTION
4'x4' JUNCTION BOX
SCALE: 1"=1'–0'



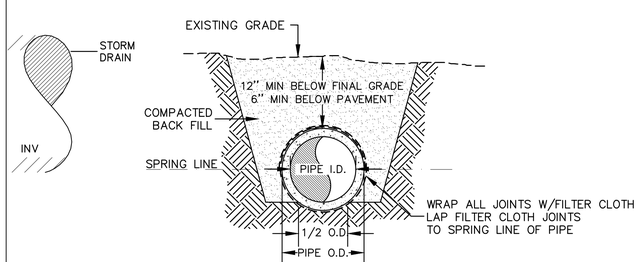
TYPICAL DETAIL AT ROOF DRAIN
N.T.S.

DBL. COURSES STD
EMENT BRICK W/
8" MORTAR JOINTS
SE TYPE "M" MORTAR
S REQUIRED)



TYPICAL SUBGRADE
DRAIN DETAIL
N.T.S.

RECAST CONCRETE
STRUCTURE TO MEET
EQUIREMENTS OF ASTM
C–913 & ASTM C–890
OR WALL THICKNESS
& REINFORCING



TYPICAL STORM SEWER
PIPE BEDDING DETAIL
N.T.S.

HP STORM TRENCH INSTALLATION DETAIL

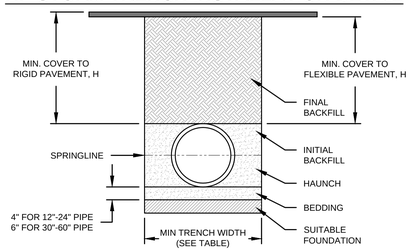


TABLE 1, RECOMMENDED MINIMUM TRENCH WIDTHS

PIPE DIAM.	MIN. TRENCH WIDTH
12" (300mm)	30" (750mm)
15" (375mm)	34" (850mm)
18" (450mm)	39" (975mm)
24" (600mm)	48" (1200mm)
30" (750mm)	56" (1400mm)
36" (900mm)	64" (1600mm)
42" (1050mm)	72" (1800mm)
(48" (1200mm)	80" (2000mm)
60" (1500mm)	96" (2400mm)

TABLE 2, MINIMUM RECOMMENDED COVER BASED ON VEHICLE LOADING CONDITIONS

PIPE DIAM.	SURFACE LIVE LOADING CONDITION	
	H-25	HEAVY CONSTRUCTION (75T AXLE LAOD) *
12" - 48" (300mm - 1200mm)	12" (300mm)	48" (1200mm)
60" (1500mm)	24" (600mm)	60" (1500mm)

* VEHICLES IN EXCESS OF 75T MAY REQUIRE ADDITIONAL COVER

TABLE 3, MAXIMUM COVER FOR ADS HP STORM PIPE, ft

	CLASS I	CLASS II			CLASS III		CLASS IV
PIPE DIA	COMPACTED	95%	90%	85%	95%	90%	95%
12" (300mm)	39 (11.9m)	27 (8.2m)	20 (6.1m)	9 (2.7m)	21 (6.4m)	12 (3.7m)	11 (3.4m)
15" (375mm)	42 (12.8m)	29 (8.8m)	21 (6.4m)	10 (3.0m)	22 (6.7m)	12 (3.7m)	11 (3.4m)
18" (450mm)	36 (11.0m)	25 (7.6m)	18 (5.5m)	9 (2.7m)	19 (5.8m)	12 (3.7m)	11 (3.4m)
24" (600mm)	31 (9.4m)	22 (6.7m)	16 (4.9m)	7 (2.1m)	16 (4.9m)	11 (3.4m)	10 (3.0m)
30" (750mm)	33 (10.1m)	23 (7.0m)	17 (5.2m)	9 (2.7m)	17 (5.2m)	11 (3.4m)	10 (3.0m)
36" (900mm)	32 (9.8m)	22 (6.7m)	16 (4.9m)	7 (2.1m)	16 (4.9m)	11 (3.4m)	10 (3.0m)
42" (1050mm)	32 (9.8m)	22 (6.7m)	15 (4.6m)	7 (2.1m)	16 (4.9m)	11 (3.4m)	10 (3.0m)
48" (1200mm)	31 (9.4m)	21 (6.4m)	15 (4.6m)	6 (1.8m)	15 (4.6m)	10 (3.0m)	9 (2.7m)
60" (1500mm)	34 (10.4m)	23 (7.0m)	16 (4.9m)	6 (1.8m)	16 (4.9m)	11 (3.4m)	10 (3.0m)

FILL HEIGHT TABLE GENERATED USING AASHTO SECTION 12, LOAD RESISTANCE FACTOR DESIGN (LRFD) PROCEDURE WITH THE FOLLOWING ASSUMPTIONS:
NO HYDROSTATIC PRESSURE
UNIT WEIGHT OF SOIL (γ s) = 120 PCF

NOTES:

1. ALL PIPE SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321, "STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY FLOW APPLICATIONS", LATEST ADDITION, WITH THE EXCEPTION THAT THE INITIAL BACKFILL MAY EXTEND TO THE CROWN OF THE PIPE. SOIL CLASSIFICATIONS ARE THE LATEST VERSION OF ASTM D2321. CLASS IVB MATERIALS (MH, CH) AS DEFINED IN PREVIOUS VERSIONS OF ASTM D2321 ARE NOT APPROPRIATE BACKFILL MATERIALS.
2. MEASURES SHOULD BE TAKEN TO PREVENT MIGRATION OF NATIVE FINES INTO BACKFILL MATERIAL, WHEN REQUIRED.
3. FOUNDATION: WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH SUITABLE MATERIAL AS SPECIFIED BY THE ENGINEER. AS AN ALTERNATIVE AND AT THE DISCRETION OF THE DESIGN ENGINEER, THE TRENCH BOTTOM MAY BE STABILIZED USING A GEOTEXTILE MATERIAL.
4. BEDDING: SUITABLE MATERIAL SHALL BE CLASS I, II, III, OR IV. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. COMPACTION SHALL BE SPECIFIED BY THE ENGINEER IN ACCORDANCE WITH TABLE 3 FOR THE APPLICABLE FILL HEIGHTS LISTED. UNLESS OTHERWISE NOTED BY THE ENGINEER, MINIMUM BEDDING THICKNESS SHALL BE 4" (100mm) FOR 12"-24" (300mm-600mm) DIAMETER PIPE; 6" (150mm) FOR 30"-60" (750mm-900mm) DIAMETER PIPE. THE MIDDLE 1/3 BENEATH THE PIPE INVERT SHALL BE LOOSELY PLACED. PLEASE NOTE, CLASS IV MATERIAL HAS LIMITED APPLICATION AND CAN BE DIFFICULT TO PLACE AND COMPACT; USE ONLY WITH THE APPROVAL OF A SOIL EXPERT.
5. INITIAL BACKFILL: SUITABLE MATERIAL SHALL BE CLASS I, II, III, OR IV IN THE PIPE ZONE EXTENDING TO THE CROWN OF THE PIPE. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. MATERIAL SHALL BE INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION. COMPACTION SHALL BE SPECIFIED BY THE ENGINEER IN ACCORDANCE WITH TABLE 3 FOR THE APPLICABLE FILL HEIGHTS LISTED. PLEASE NOTE, CLASS IV MATERIAL HAS LIMITED APPLICATION AND CAN BE DIFFICULT TO PLACE AND COMPACT; USE ONLY WITH THE APPROVAL OF A SOIL EXPERT.
6. MINIMUM COVER: MINIMUM COVER, H, IN NON-TRAFFIC APPLICATIONS (GRASS OR LANDSCAPE AREAS) IS 12" (300mm) FROM THE TOP OF PIPE TO GROUND SURFACE. ADDITIONAL COVER MAY BE REQUIRED TO PREVENT FLOTATION. FOR TRAFFIC APPLICATIONS; CLASS I OR II MATERIAL COMPACTED TO 85% SPD AND CLASS III COMPACTED TO 90% SPD IS REQUIRED. FOR TRAFFIC APPLICATIONS, MINIMUM COVER, H, IS 12" (300mm) UP TO 48" (1200mm) DIAMETER PIPE AND 24" (600mm) OF COVER FOR 60" (1500mm) DIAMETER PIPE, MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TO TOP OF RIGID PAVEMENT.
7. FOR ADDITIONAL INFORMATION SEE TECHNICAL NOTE 2.04.

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REV.	DESCRIPTION	BY	MM/DD/YY	CHK'D
4	GENERAL UPDATES	SL	08/31/15	

ADVANCED DRAINAGE SYSTEMS, INC. ("ADS") HAS PREPARED THIS DETAIL BASED ON INFORMATION PROVIDED TO ADS. THIS DRAWING IS INTENDED TO DEPICT THE COMPONENTS AS REQUESTED. ADS HAS NOT PERFORMED ANY ENGINEERING OR DESIGN SERVICES FOR THIS PROJECT, NOR HAS ADS INDEPENDENTLY VERIFIED THE INFORMATION SUPPLIED. THE INSTALLATION DETAILS PROVIDED HEREIN ARE GENERAL RECOMMENDATIONS AND ARE NOT SPECIFIC FOR THIS PROJECT. THE DESIGN ENGINEER SHALL REVIEW THESE DETAILS PRIOR TO CONSTRUCTION. IT IS THE DESIGN ENGINEERS RESPONSIBILITY TO ENSURE THE DETAILS PROVIDED HEREIN MEETS OR EXCEEDS THE APPLICABLE NATIONAL, STATE, OR LOCAL REQUIREMENTS AND TO ENSURE THAT THE DETAILS PROVIDED HEREIN ARE ACCEPTABLE FOR THIS PROJECT.

TYPICAL STORM TRENCH DETAIL
HP STORM

DRAWING NUMBER: STD-108

ADS 4640 TRUEMAN BLVD HILLIARD, OHIO 43026
ADVANCED DRAINAGE SYSTEMS, INC.

DRAWN BY: JAB
DATE: 01/29/09
SCALE: NTS
SHEET: 1 OF 1

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SOUTH CAROLINA PROFESSIONAL LAND SURVEYOR NO. 13527 JAMES E. HALYAK JR.

SOUTH CAROLINA ANDREWS ENGINEERING CO. No. C00008 CERTIFICATE OF AUTHORIZATION

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2712 Bull Street Suite A
Beaufort SC 29902
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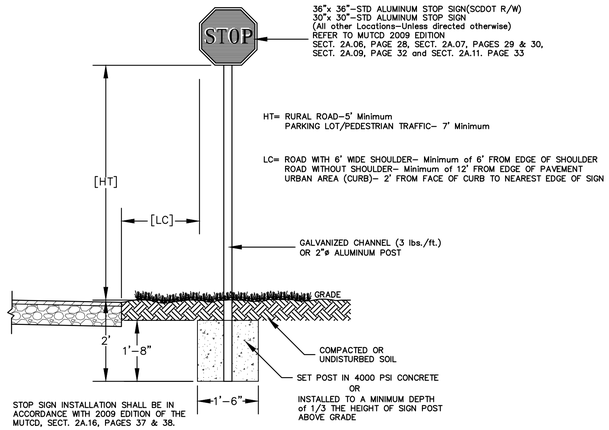
Site Development Plan
For
Grainger Nissan
S.C. Hwy 170
City of Beaufort
Beaufort County, SC

Storm Sewer
Details

Date Drawn: 02/16/16
Last Revised: 02/26/16
Drawn By: Cad Tech
Engineer: S. Andrews

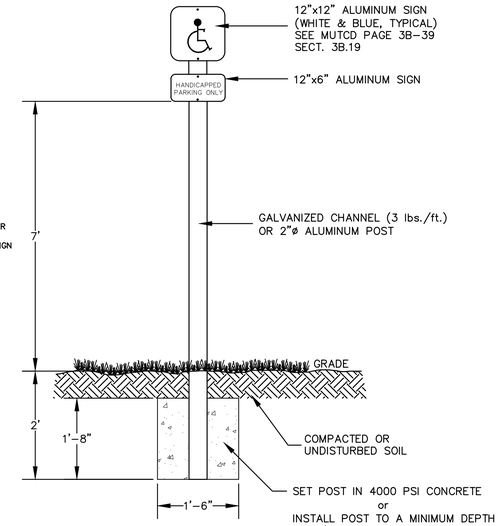
SHEET #:
12

JOB: 150035



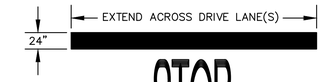
DETAIL–TYPICAL STOP SIGN

N.T.S



HANDICAPPED
PARKING SIGN

N.T.S

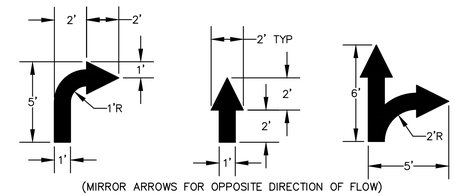


NOTE: ALL STOP BARS ARE TO BE SOLID WHITE LINES EXTENDING ACROSS THE LANE(S) AND INSTALLED IN ACCORDANCE WITH THE 2009 EDITION OF THE MUTCD SECT. 3B.16, PAGE 381.

ALL CROSSWALKS SHALL BE AS INSTALLED AS INDICATED ON THE PLANS AND IN ACCORDANCE WITH SECT. 3B.18, PAGE 383 OF THE 2009 MUTCD, OR MOST CURRENT EDITION, UNLESS OTHERWISE DIRECTED.

STOP BAR DETAIL

N.T.S.



(MIRROR ARROWS FOR OPPOSITE DIRECTION OF FLOW)

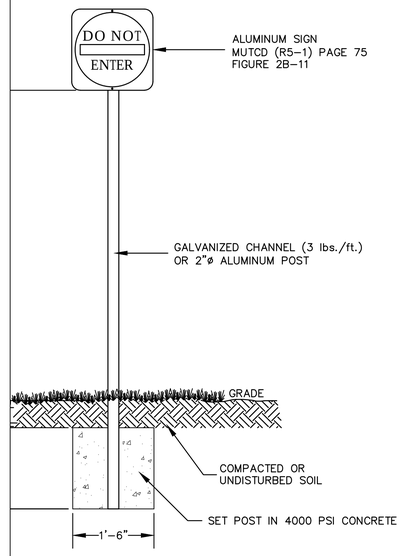
NOTE:

ALL ARROWS, PAVEMENT WORDS & SYMBOL MARKINGS SHALL BE AS INDICATED ON THE PLANS AND INSTALLED IN ACCORDANCE WITH SECT. 3B.20 PAGES 387–393 of the 2009 MUTCD, OR MOST CURRENT EDITION IN EFFECT. UNLESS OTHERWISE DIRECTED.

ALL ARROWS, PAVEMENT WORDS, SYMBOLS AND STRIPING NOT IN R/W SHALL BE TO BE SOLID WHITE REFLECTIVE TRAFFIC PAINT. PER SCDOT STD SPEC 2007 EDITION, SEC 625

ALL ARROWS, PAVEMENT WORDS, SYMBOLS AND STRIPING IN SCDOT, CITY OR COUNTY R/W SHALL BE TO BE SOLID WHITE THERMOPLASTIC MARKINGS. PER SCDOT STD SPEC 2007 EDITION, SEC 627, UNLESS OTHERWISE DIRECTED.

DIRECTIONAL ARROW STRIPE DETAIL



DO NOT ENTER SIGN

N.T.S

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SOUTH CAROLINA PROFESSIONAL LAND SURVEYOR NO. 13527 JAMES E. HAYES JR.

SOUTH CAROLINA ANDREWS ENGINEERING No. C00008 CERTIFICATE OF AUTHORIZATION

Andrews Engineering & Surveying
2712 Bull Street Suite A
Beaufort SC 29902
843.379.2222
Fax 843.379.2223

Site Development Plan
For
Grainger Nissan
S.C. Hwy 170
City of Beaufort
Beaufort County, SC

Site Details
Sheet 1

Date Drawn:	02/16/16
Last Revised:	02/26/16
Drawn By:	Cad Tech
Engineer:	S. Andrews

SHEET #:
13

JOB: 150035

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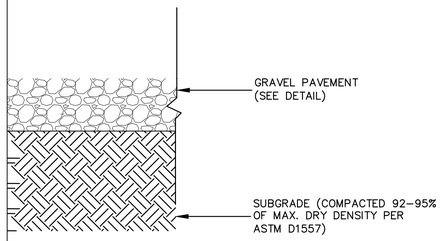
F:\Projects\2015\2015 Projects\150035 Grainger Nissan Auto Dealership\DWG\150035 det.dwg



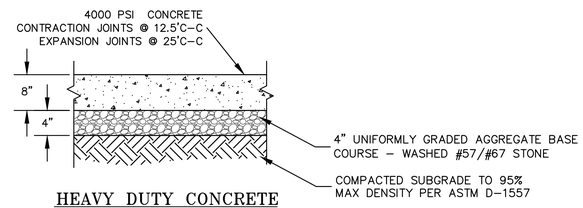
ON CURB

CTED SUBGRADE (TO A DEPTH OF 12") TO 95% MAX
Y AS DETERMINED BY ASTM D1557
SUBGRADE IS GRADED AND COMPACTED, NO RUBBER
EQUIPMENT SHOULD BE ALLOWED TO TRAVEL OVER
UBGRADE. THE AGGREGATE BASE SHOULD BE PLACED
CKING THE TRUCKS INTO POSITION SUCH THAT THE
S ARE ALWAYS ON EXISTING PAVEMENT OR PREVIOUSLY
D AGGREGATE BASE

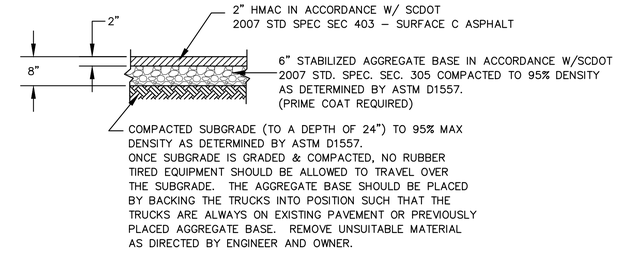
CRUSHED AGGREGATE PAVE SHOULD BE FREE
FROM LUMPS OR BALLS OF CLAY OR OTHER
OBJECTIONAL MATTER AND SHALL NOT CONTAIN
METALS, WOOD, BRICK, PLASTICS OR OTHER
UNACCEPTABLE DEBRIS.

WOVEN GEOTEXTILE FABRIC
AASHTO M288 CLASS 1
LAP JOINTS A MINIMUM OF 30".
EXTEND BEYOND BASE 12".

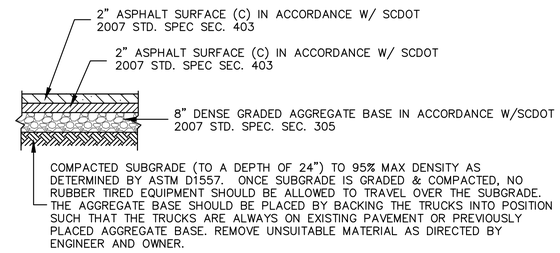
ING DETAIL



HEAVY DUTY CONCRETE
PAVEMENT @ DUMPSTER PAD
N.T.S.

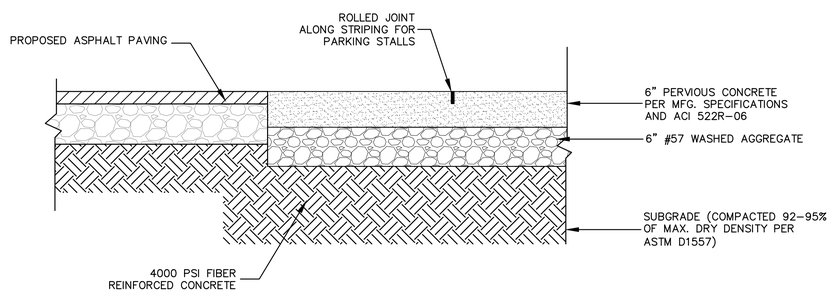


ASPHALT PAVING DETAIL
N.T.S

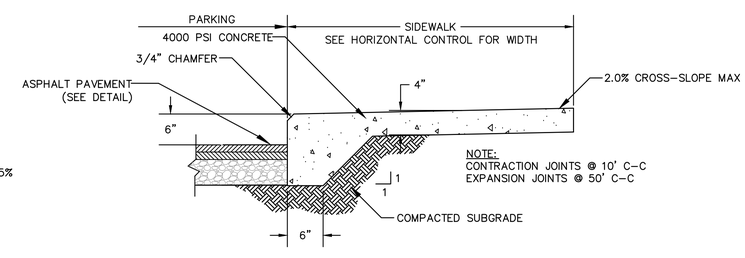


HEAVY DUTY ASPHALT PAVING DETAIL
N.T.S

E
NG



TYPICAL SECTION
PERVIOUS CONCRETE PAVING & ASPHALT
N.T.S



Typical–PAVEMENT & SIDEWALK DETAIL
N.T.S

PRELIMINARY / NOT FOR CONSTRUCTION

PLAN REVISIONS			
NO.	DESCRIPTION:	DATE:	BY:
1	–	–	–
2	–	–	–
3	–	–	–
4	–	–	–
5	–	–	–
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SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER NO. 12860 STEVEN WADE ANDREWS

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION ANDREWS ENGINEERING CO. No. C00008

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2712 Bull Street Suite A
Beaufort SC 29902
843.379.2222
Fax 843.379.2223

Site Development Plan
For
Grainger Nissan
S.C. Hwy 170
City of Beaufort
Beaufort County, SC

Site Details
Sheet 2

Date Drawn:	02/16/16
Last Revised:	04/14/16
Drawn By:	Cad Tech
Engineer:	S. Andrews

SHEET #:
14

JOB: 150035

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N HYDRANT SHALL BE AT FINAL GRADE.
RESTRAINED.

IN) BLUE REFLECTOR

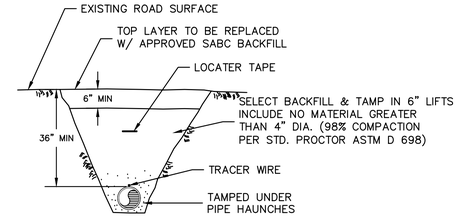
ADE

PAVEMENT

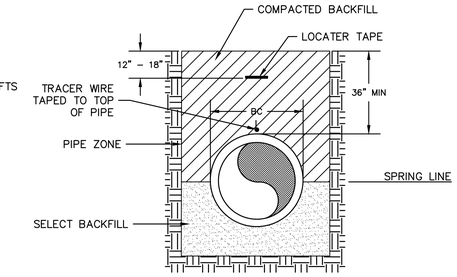
R

-IN

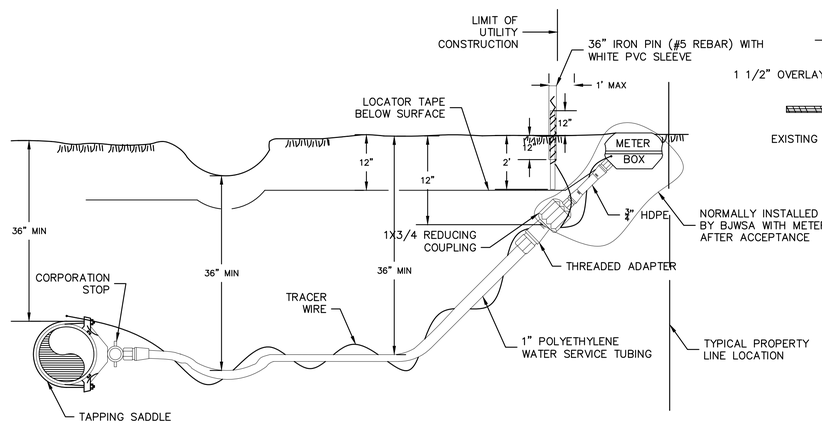
E



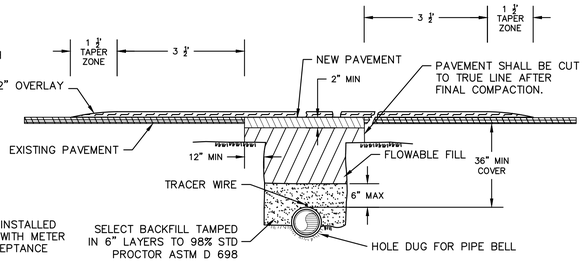
UNPAVED ROADWAY BEDDING DETAIL



TYPICAL BEDDING DETAIL



WATER SERVICE PROFILE



PAVED AREA DETAIL

BEDDING PRESSURE PIPE DETAIL

NOTES:
1. PAVEMENT CUT TO EXTEND 12" BEYOND EDGES OF TRENCH AS SHOWN.
2. MATCH EXISTING PAVEMENT TYPE AND THICKNESS. MINIMUM THICKNESS OVER TRENCH IS 2".
3. ALL INSTALLATIONS IN PUBLIC ROADWAYS SHALL COMPLY WITH CONDITIONS OUTLINED ON APPLICABLE ENCROACHMENT PERMIT.

NOTES:
1. WRITTEN AUTHORIZATION FROM BJWSA IS REQUIRED FOR LESS THAN 18" SEPARATION.
2. NORMAL JOINT RESTRAINT IS REQUIRED.

DISTANCE FROM FINAL GRADE
BOTTOM OF MAIN AT STORM DRAIN
LESS THAN 5', THEN 45° BENDS ARE
T REQUIRED. (SEE NOTE 2)

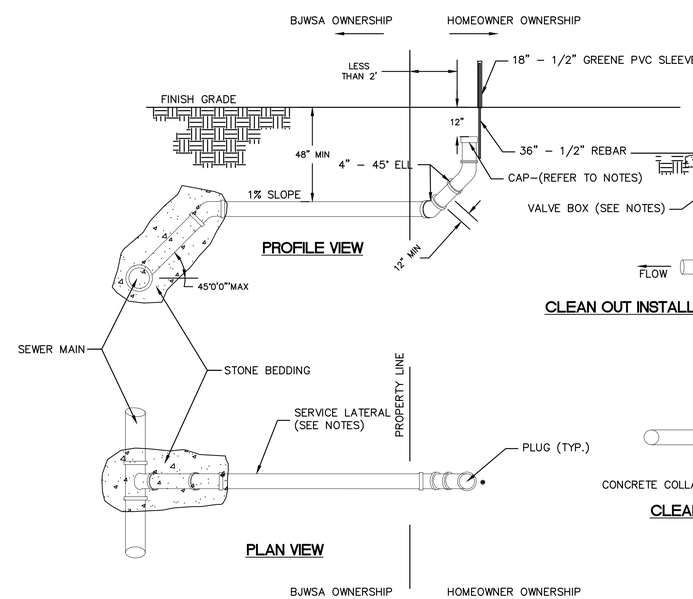
PIPE

ERED
ER

TILITY

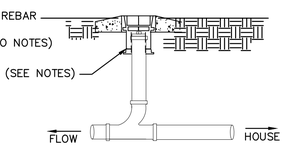
IF
LESS

NOTES:
1. SERVICE LATERAL SHALL BE INSTALLED 12" BELOW FINISHED GRADE AND CAPPED IN A MANNER SUITABLE FOR PRESSURE TESTING.
2. CLEAN OUTS INSIDE GRASSED AREA SHALL CONSIST OF PVC PLUG IN SEWER LIDDED VALVE BOX SURROUNDED BY A CONCRETE COLLAR. COLLAR SHALL BE FLUSH WITH FINISHED GRADE. VALVE BOX LID SHALL NOT PROTRUDE ABOVE COLLAR TOP.
3. ALL CLEAN OUTS ARE TO BE 4", INCLUDING CLEAN OUTS ON 6" SEWER LATERALS.

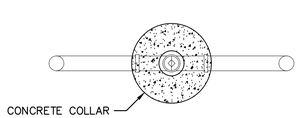


PROFILE VIEW

PLAN VIEW



CLEAN OUT INSTALLATION – PROFILE VIEW



CLEAN OUT – PLAN VIEW

SEWER SERVICE, SINGLE

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PLAN REVISIONS

NO.	DESCRIPTION:	DATE:	BY:
1	-	-	-
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SOUTH CAROLINA PROFESSIONAL LAND SURVEYOR NO. 13527 JAMES E. HAYES JR.

SOUTH CAROLINA ANDREWS ENGINEERING CO. No. C00008 CERTIFICATE OF AUTHORIZATION

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2712 Bull Street Suite A
Beaufort SC 29902
843.379.2222
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Site Development Plan
For
Grainger Nissan
S.C. Hwy 170
City of Beaufort
Beaufort County, SC

Utility
Details

Date Drawn:	02/16/16
Last Revised:	02/26/16
Drawn By:	Cad Tech
Engineer:	S. Andrews

SHEET #:
15

JOB: 150035

VERTS
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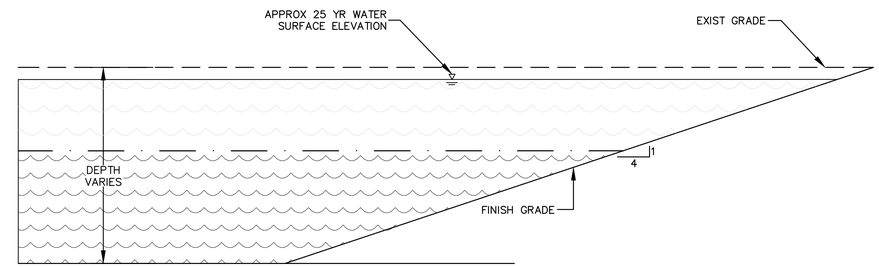
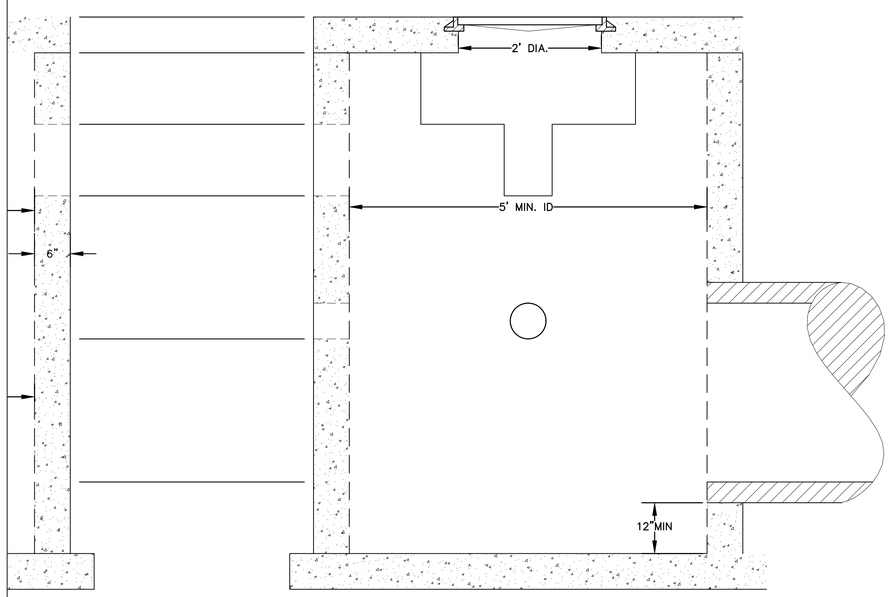
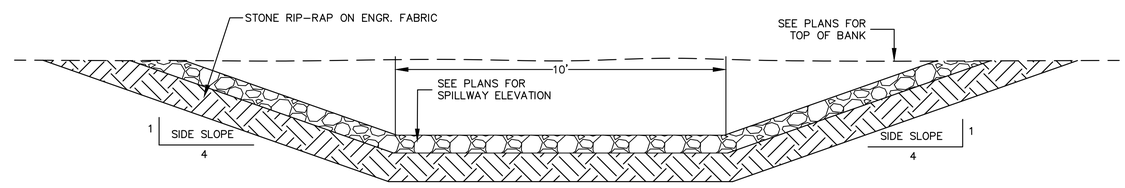


TYPICAL CROSS SECTION
POND
N.T.S.



SIDE VIEW

SECTION
OUTFALL CONTROL STRUCTURE
N.T.S.



TYPICAL SECTION
OVERFLOW WEIR
N.T.S.

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PLAN REVISIONS

NO.	DESCRIPTION:	DATE:	BY:
1	-	-	-
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Beaufort SC 29902
843.379.2222
Fax 843.379.2223

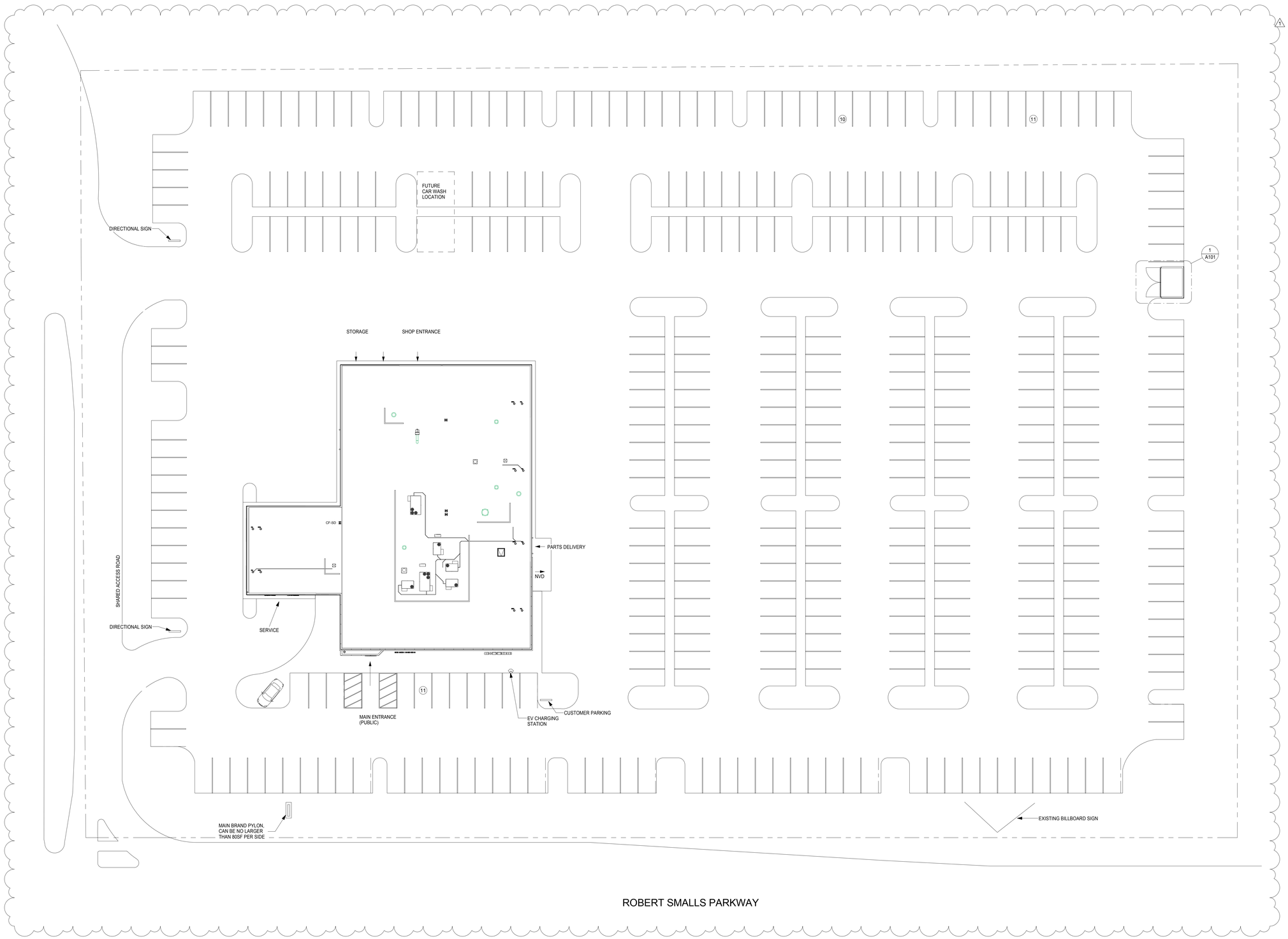
Site Development Plan
For
Grainger Nissan
S.C. Hwy 170
City of Beaufort
Beaufort County, SC

Storm Sewer and
Detention Pond
Details

Date Drawn:	02/16/16
Last Revised:	02/26/16
Drawn By:	Cad Tech
Engineer:	S. Andrews

SHEET #:
16

JOB: 150035



TRUE NORTH

1 A100 Architectural Site Plan
1" = 20'-0"

NOTE: FOR REFERENCE ONLY. REFER TO CIVIL DRAWINGS FOR COMPLETE SITE INFO.

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STATE OF SOUTH CAROLINA
STUART MICHAEL ROWAN
ATLANTA, GA
8123
REGISTERED ARCHITECT

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Rev	Date	Comments
	03.11.16	Bid/Permit
1	03.30.16	Permit Comments

Client:
William L Grainger

P.O. BOX 7267
GARDEN CITY, GA 31408

Project Number: 15221
Project Name:
Grainger Nissan

245 Robert Smalls Parkway,
Beaufort, SC 29906

Sheet Title:
Architectural Site Plan

Sheet Number:
A100

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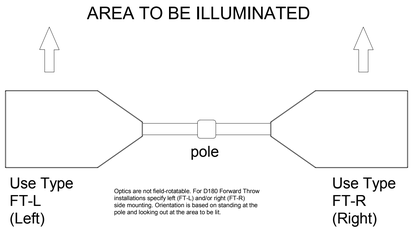
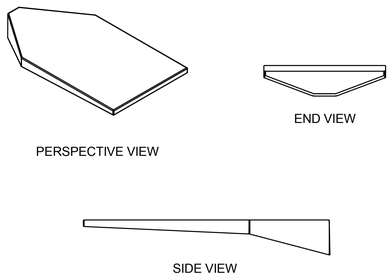
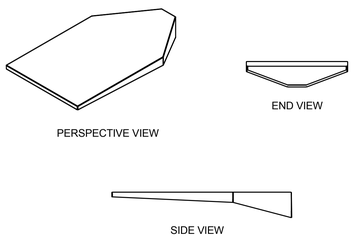


Fixture Type A

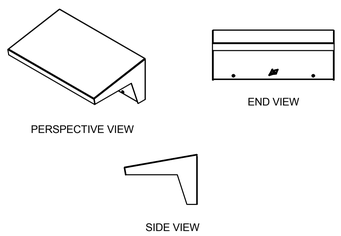
XLCL
LED Area Light



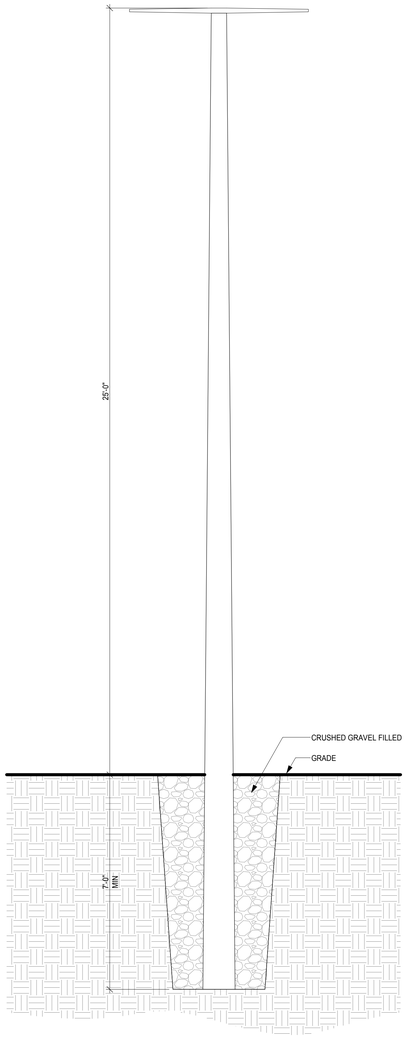
XLCM
LED Area Light

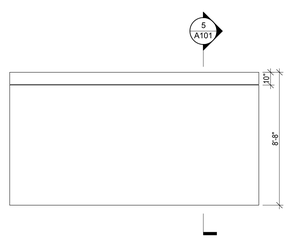


XLCW
LED Wall Sconce

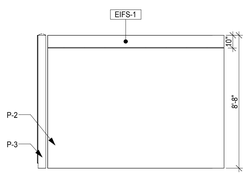


6 A101 Pole and Light Head Details
1/2" = 1'-0"

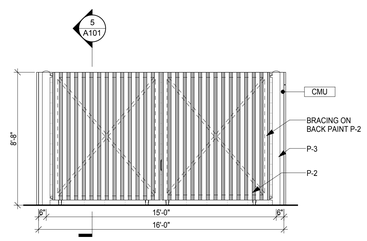




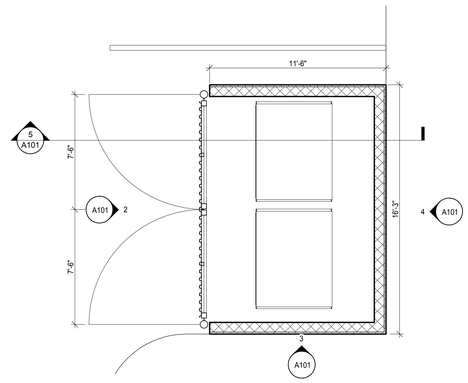
4 A101 Dumpster - Rear
1/4" = 1'-0"



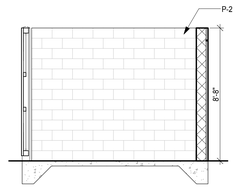
3 A101 Dumpster - Side
1/4" = 1'-0"



2 A101 Dumpster - Front
1/4" = 1'-0"



1 A101 Dumpster Enclosure
1/4" = 1'-0"



5 A101 Dumpster Enclosure
1/4" = 1'-0"

NOTE: SHEET ADDED TO SET

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Rev	Date	Comments
1	03.30.16	Permit Comments

Client:
William L Grainger

P.O. BOX 7267
GARDEN CITY, GA 31408

Project Number: 15221
Project Name:
Grainger Nissan

245 Robert Smalls Parkway,
Beaufort, SC 29906

Sheet Title:
Site Details

Sheet Number:
A101

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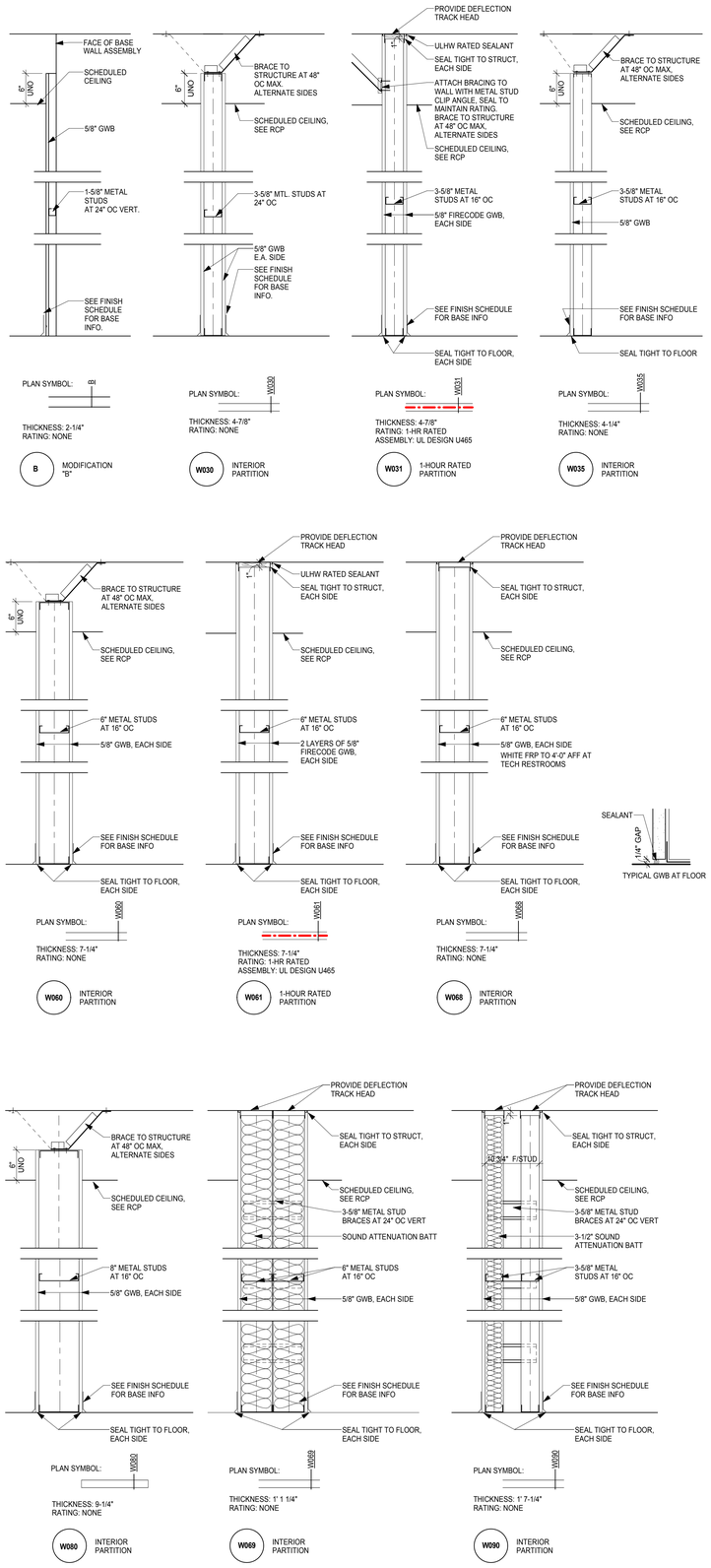
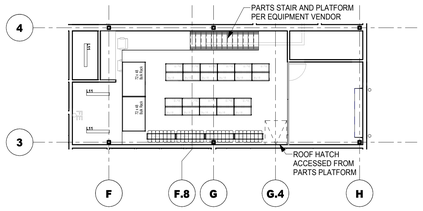




3 A201 Parts Platform
3/32" = 1'-0"

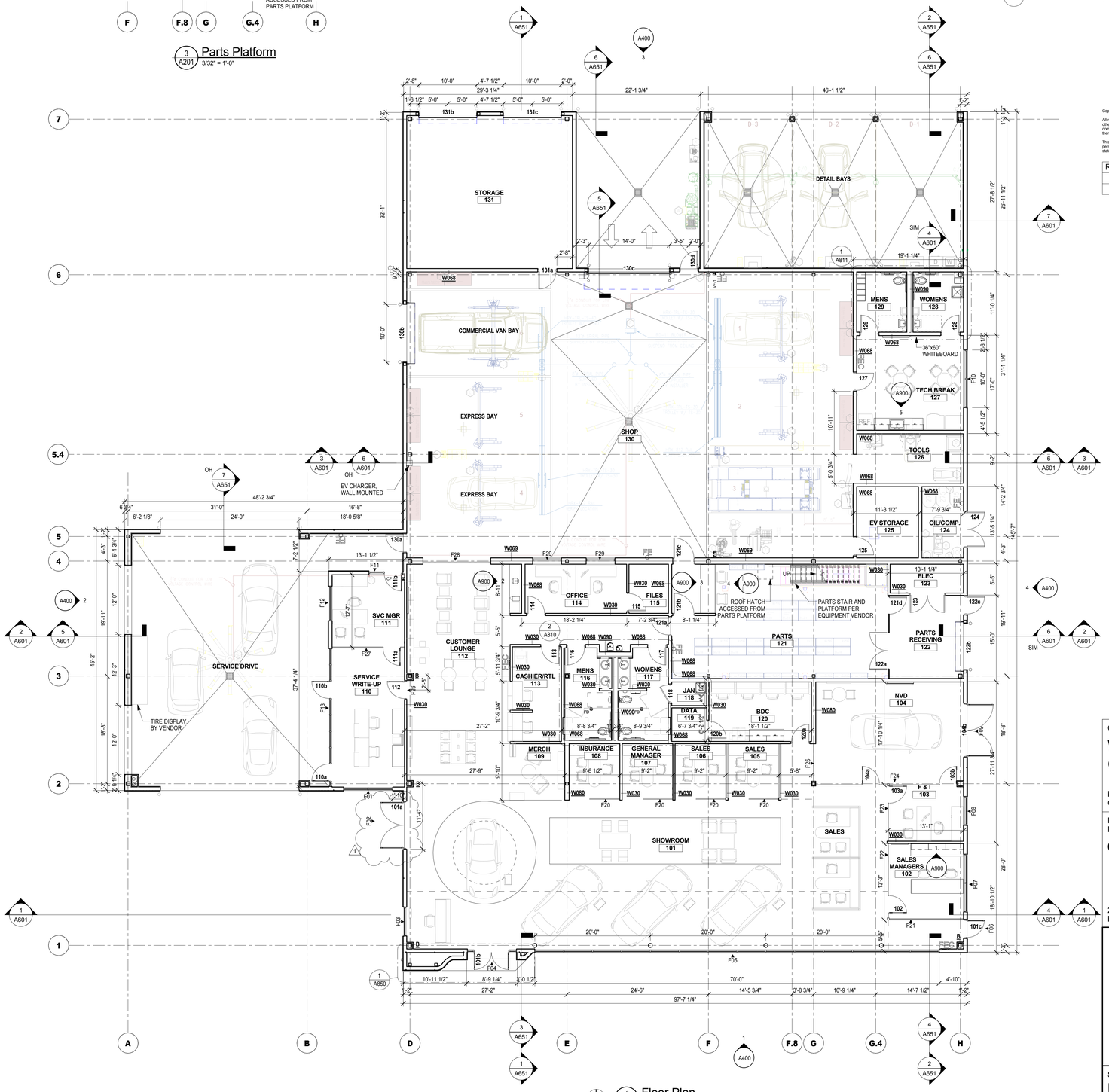
Partition Legend

UNTAGGED STUD PARTITIONS ARE W030 (TYP).
DIMENSIONS ARE TO FACE OF STUD OR MASONRY UNO.

GWB & STUD PARTITION

Legend

STEEL GRIDLINE - COLUMN CL



PROJECT NORTH

1 A201 Floor Plan
1/8" = 1'-0"

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ATLANTA, GA
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Project Name:
Grainger Nissan

245 Robert Smalls Parkway,
Beaufort, SC 29906

Sheet Title:
Floor Plan

Sheet Number:
A201

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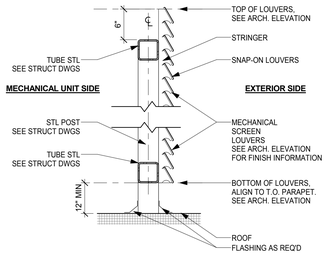
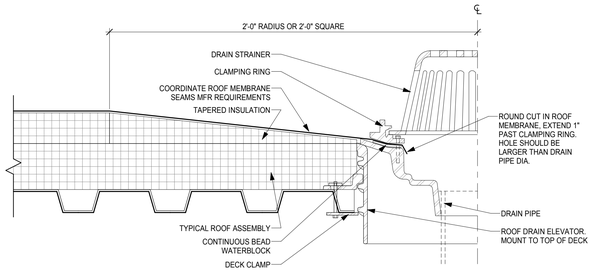
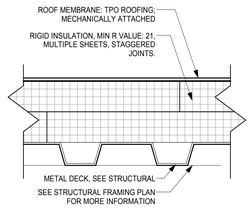


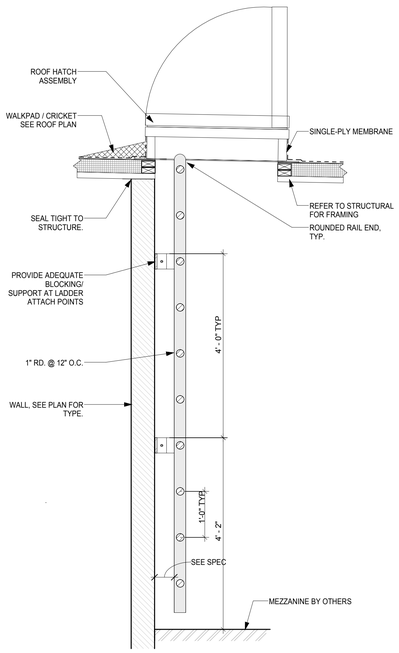
5 A202 Mechanical Screen
1" = 1'-0"



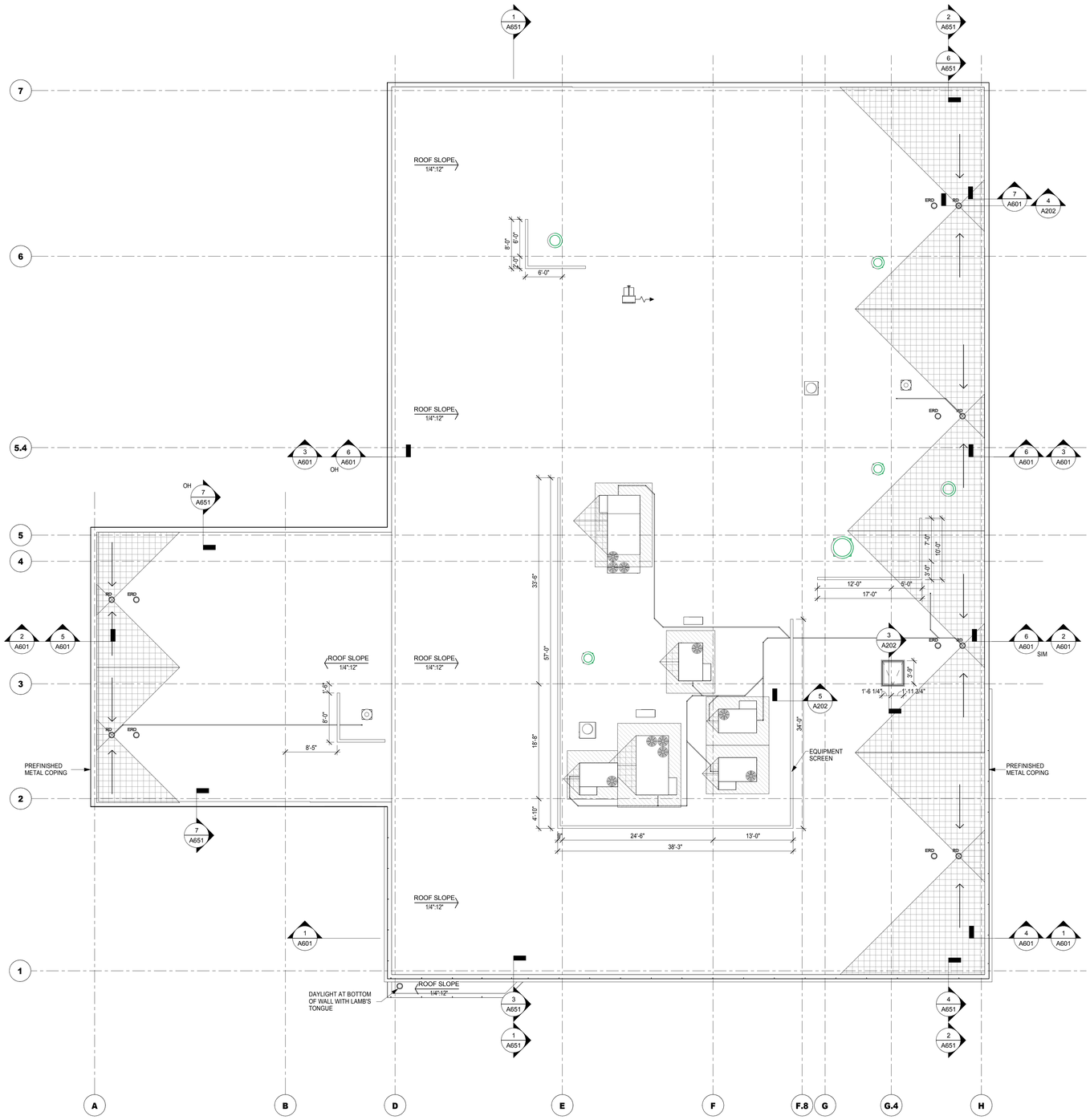
4 A202 Roof Drain
3" = 1'-0"



2 A202 Roof Assembly
3" = 1'-0"



3 A202 Roof Ladder and Hatch
3/4" = 1'-0"



PROJECT NORTH
1 A202 Roof Plan
1/8" = 1'-0"

Legend

STEEL GRIDLINE - COLUMN CL

	BUILT UP SLOPES	RD	ROOF DRAIN
	WALK PADS	ERD	EMERGENCY ROOF DRAIN
	ROOF HATCH		

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Rev	Date	Comments
	03.11.16	Bid/Permit

Client:
William L Grainger

P.O. BOX 7267
GARDEN CITY, GA 31408

Project Number: 15221
Project Name:
Grainger Nissan

245 Robert Smalls Parkway,
Beaufort, SC 29906

Sheet Title:
Roof Plan

Sheet Number:
A202

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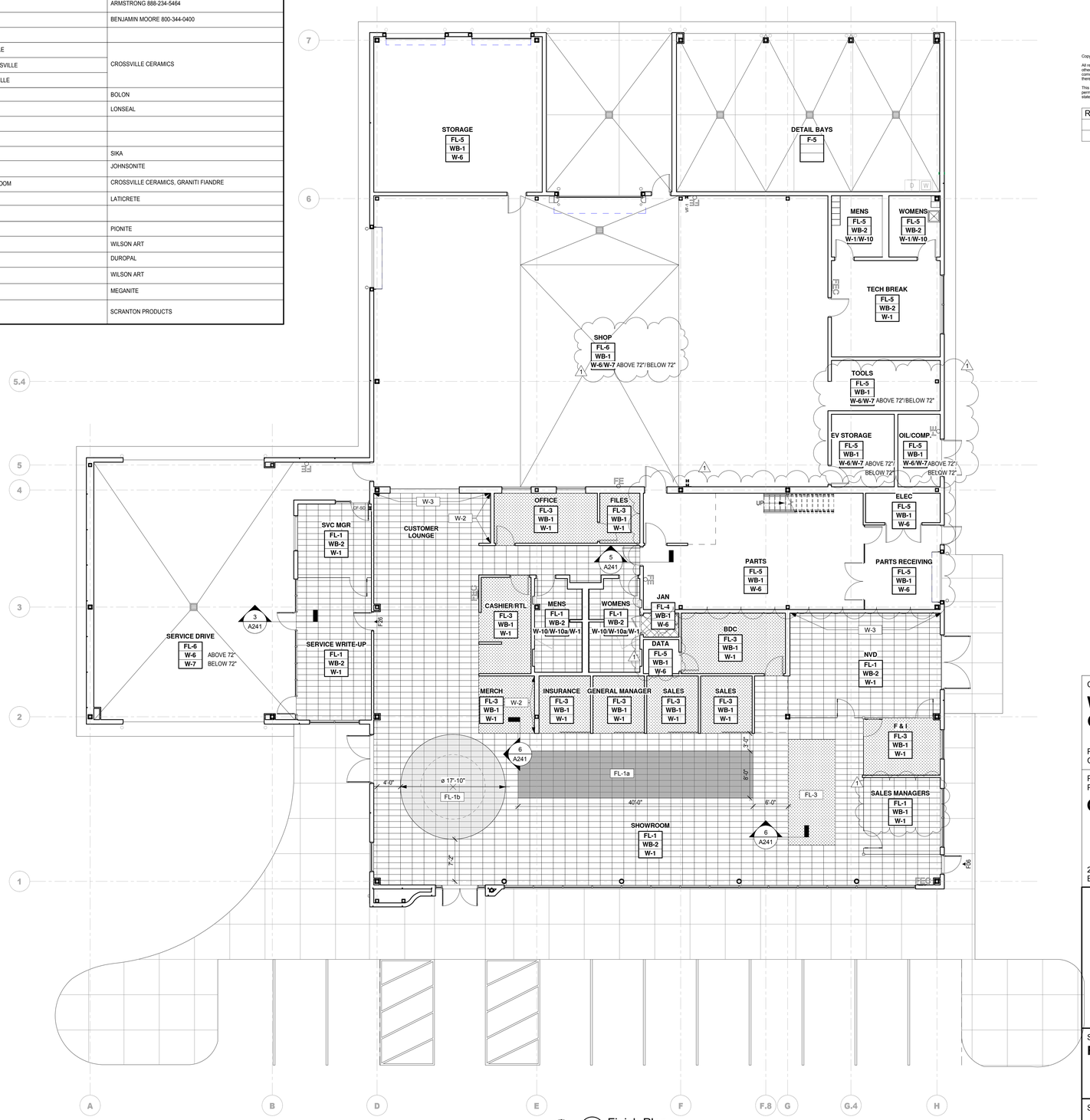
INTERIOR FINISH LEGEND

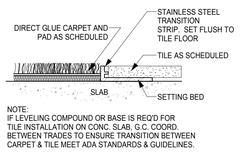
	CODE	MATERIAL	LOCATION	TYPE / PROPERTIES	COLOR	MANUFACTURER/ CONTACT
WALL FINISHES	W-1	PAINT	GENERAL	FLAT/SATIN	WHITE DIAMOND 2121-60	BENJAMIN MOORE 800-344-0400
	W-2	PAINT	MERCHANDISE LOUNGE, HOSPITALITY BAR	PEARL FINISH	RED PAINT, PMS200	
	W-3	PAINT	NEW VEHICLE DELIVERY	PEARL FINISH	DARK GRAY PAINT, GRAY 2121-10	
	W-6	PAINT	WALLS - (ABOVE 72" OR 75% OF WALL) SERVICE DRIVE & SHOP	SEMI-GLOSS FINISH	LIGHT GRAY PAINT, SILVER HALF DOLLAR 2121-40	BENJAMIN MOORE 800-344-0400
	W-7	PAINT	WALLS - (BELOW 72" OR 75% OF WALL) SERVICE DRIVE & SHOP	SEMI-GLOSS FINISH	DARK GRAY PAINT, STEEL WOOL 2121-20	
	W-10	WALL TILE TO MATCH FL-1 (HONED)	RESTROOM WALLS - SEE ELEVATIONS	12"X24"; GROUT TO MATCH TILE, RUNNING BOND	MIST, AV244, SHADES BY CROSSVILLE (HONED)	CROSSVILLE CERAMICS - SHEILA WYNN 865-675-0939, GRANITI FIANDRE - JOY KLEIN 813-334-3302
	W-10a	WALL TO MATCH FL-1a (HONED)	RESTROOM WALLS - SEE ELEVATIONS	12"X24"; GROUT TO MATCH TILE, RUNNING BOND	THUNDER, AV248, SHADES BY CROSSVILLE (HONED)	
		DELETED				
		DELETED				
CEILING	C-1	ACOUSTIC SUSPENDED CEILING	CEILING - GENERAL	9/16" BOLT SLOT WITH 1/8" REVEAL; BEVELED TEGULAR	SILHOUETTE DUNE	ARMSTRONG 888-234-5464
	C-3	EXPOSED CEILING	CEILING - UTILITY / WORKSHOP		WHITE DRY FALL 153-80	BENJAMIN MOORE 800-344-0400
	C-5	GYPSUM WALL BOARD	CEILING - VARIOUS LOCATIONS		MATCH W-3	
FLOOR FINISHES	FL-1	TILE	SHOWROOM, CAFE, SALES AREAS, RESTROOMS	12"X24"; GROUT TO MATCH TILE	MIST, AV244, SHADES BY CROSSVILLE	CROSSVILLE CERAMICS
	FL-1a	TILE	SHOWROOM SPINE	12"X24"; GROUT TO MATCH TILE	THUNDER, AV248, SHADES BY CROSSVILLE	
	FL-1b	TILE	FEATURE VEHICLE DISPLAY	12"X24"; GROUT TO MATCH TILE	FROST, AV241, SHADES BY CROSSVILLE	
	FL-3	WOVEN VINYL CARPET - GRAY	CUSTOMER LOUNGE, OFFICES		ARTISAN/ SLATE	BOLON
	FL-4	VINYL SHEET FLOOR	PARTS, TECH BREAKROOM, JANITOR		LONPERAL/BALEEN GRAY	LONSEAL
		DELETED				
	FL-5	SEALED CONCRETE	SERVICE SHOP			
	FL-6	STAINED SEALED CONCRETE	SERVICE SHOP		GRAY	SIKA
BASES	WB-1	VINYL WALL BASE		ROLL COVE W/ EXTERNAL CORNERS	GRAY #48	JOHNSONITE
	WB-2	PORCELAIN WALL BASE	@ FL-1 & FL-1a		MATCH PORCELAIN TILE IN GIVEN ROOM	CROSSVILLE CERAMICS, GRANITI FIANDRE
GROUT	GT-1	GROUT	INTERIOR @ FLOOR AND WALL TILE		TO MATCH TILE	LATICRETE
MILLWORK	LAM-1	PLASTIC LAMINATE	MILLWORK	SUEDE	PIONITE CLEAR ASH - WA001	PIONITE
	LAM-2	PLASTIC LAMINATE	MILLWORK	-	GRAPHITE NEBULA BLACK 4623-60	WILSON ART
	LAM-3	PLASTIC LAMINATE	MILLWORK	-	ICY WHITE U 1027	DUROPAL
	LAM-4	LAMINATE	MILLWORK	-	SATIN STAINLESS	WILSON ART
	SS-2	SOLID SURFACE	RESTROOM AND HOSPITATLITY COUNTERS	-	EBONY GRANITE 710	MEGANITE
TOILET PART.	SS-1	STAINLESS BRUSHED FINISH	MEN'S & WOMEN'S RESTROOMS	SEE SPECS		SCRANTON PRODUCTS

Finish Key

- FL-1 (FIELD PORCELAIN TILE)
- FL-1a (ACCENT PORCELAIN TILE)
- FL-1b(ACCENT PORCELAIN TILE)
- FL-3 (CARPET)
- FL-4 (VSF)
- FL-5 (SEALED CONCRETE)
- FL-6 (SEALED STAINED CONCRETE)

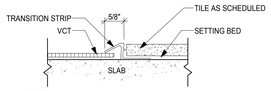


1 A241 Finish Plan 1/8" = 1'-0"



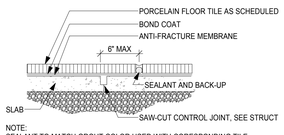
NOTE:
IF LEVELING COMPOUND OR BASE IS REQ'D FOR TILE INSTALLATION ON CONC. SLAB, G.C. COORD. BETWEEN TRADES TO ENSURE TRANSITION BETWEEN CARPET & TILE MEET ADA STANDARDS & GUIDELINES.

6 A241 Carpet to Tile 6" = 1'-0"



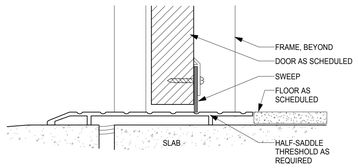
NOTE:
IF LEVELING COMPOUND OR BASE IS REQ'D FOR TILE INSTALLATION ON CONC. SLAB, G.C. COORD. BETWEEN TRADES TO ENSURE TRANSITION BETWEEN TILE "A" & TILE "B" MEET ADA STANDARDS & GUIDELINES.

5 A241 VCT to Tile 6" = 1'-0"



NOTE:
SEALANT TO MATCH GROUT COLOR USED WITH CORESPONDING TILE

4 A241 Tile Control Joint 6" = 1'-0"



3 A241 Concrete to Tile 6" = 1'-0"

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Client:
William L Grainger

P.O. BOX 7267
GARDEN CITY, GA 31408

Project Number: 15221
Project Name:
Grainger Nissan

245 Robert Smalls Parkway,
Beaufort, SC 29906

Sheet Title:
Finish Plan

Sheet Number:
A241

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FIXTURES AND FURNITURE LEGEND

Identification No.	Item	Location	Manufacturer	Image
FX - 1	Reception desk	• Reception	DCI	
FX - 2	Greeter totem	• Reception	DCI	
FX - 3	Paint & fabric display	• Merchandise lounge	DCI	
FX - 4a (Showroom) FX - 4b (Service Reception)	Brand wall	• Showroom • Service reception	DCI	
FX - 5a	Service reception podium / counter	• Service reception	DCI	
FX - 6	Vehicle specification stand	• Showroom	DCI	
FX - 7	Cashier / Retail Parts counter with ADA counter	• Cashier & Retail Parts	DCI	
FX - 8	Merchandising cabinet	• Merchandise lounge	DCI	
FX - 9	Accessory wall Optional: Nissan Personalization Studio screen	• Merchandise lounge • Cashier & Retail Parts	DCI	
FX - 10	Apparel & brochure display	• Merchandise lounge	DCI	
FX - 11	Kid's furniture	• Kid's area	DCI	
FX - 12	Media cabinet	• Reception	DCI	
FX - 14	Service media center	• Hospitality Bar	DCI	
FX - 15	Graphic: *"Innovation that excites"*	• Merchandise lounge	DCI	
FX - 16	Graphic: *"Refuel...on us"*	• Hospitality Bar	DCI	
FX - 17	Graphic: *"Thank you for choosing Nissan. Now hit the road."*	• New Vehicle Delivery	DCI	
FX - 18	Nissan Customer Promise	• Merchandise lounge	NNA	
FX - 19	Nissan Wi-Fi Interior Sign	• Customer Lounge	DCI	

Identification No.	Item	Location	Manufacturer	Image
FN - 1	Employee chair	• Sales • F&I	Ideal Image	
FN - 2	Employee stool	• Reception • Service advisor • Cashier • Retail Parts	Ideal Image	
FN - 3	Customer chair	• Sales consultation areas	Ideal Image	
FN - 4	Swoop chair	• Showroom • Merchandise lounge	Ideal Image	
FN - 5	Club chair	• Customer lounge	Ideal Image	
FN - 6	Cafe stool	• Customer lounge • New Vehicle Delivery	Ideal Image	
FN - 8c	Plug-in bar (6 person / powered)	• Customer lounge	Ideal Image	
FN - 10	28" Cafe high round table (42" high)	• Customer lounge • New Vehicle Delivery	Ideal Image	
FN - 11b	30" Round table (25" high)	• Sales consultation areas	Ideal Image	
FN - 12a	Sale desk	• Sales consultation areas	Ideal Image	
FN - 12b	Manager desk	• Managers • F&I	Ideal Image	
FN - 12c	Credenza	• Sales consultation areas • F&I	Ideal Image	
FN - 13a	Divider wall 54" x 95"	• Sales consultation areas	Ideal Image	
FN - 14	End table	• Customer lounge	Ideal Image	

GRAPHICS LEGEND

Graphics placement

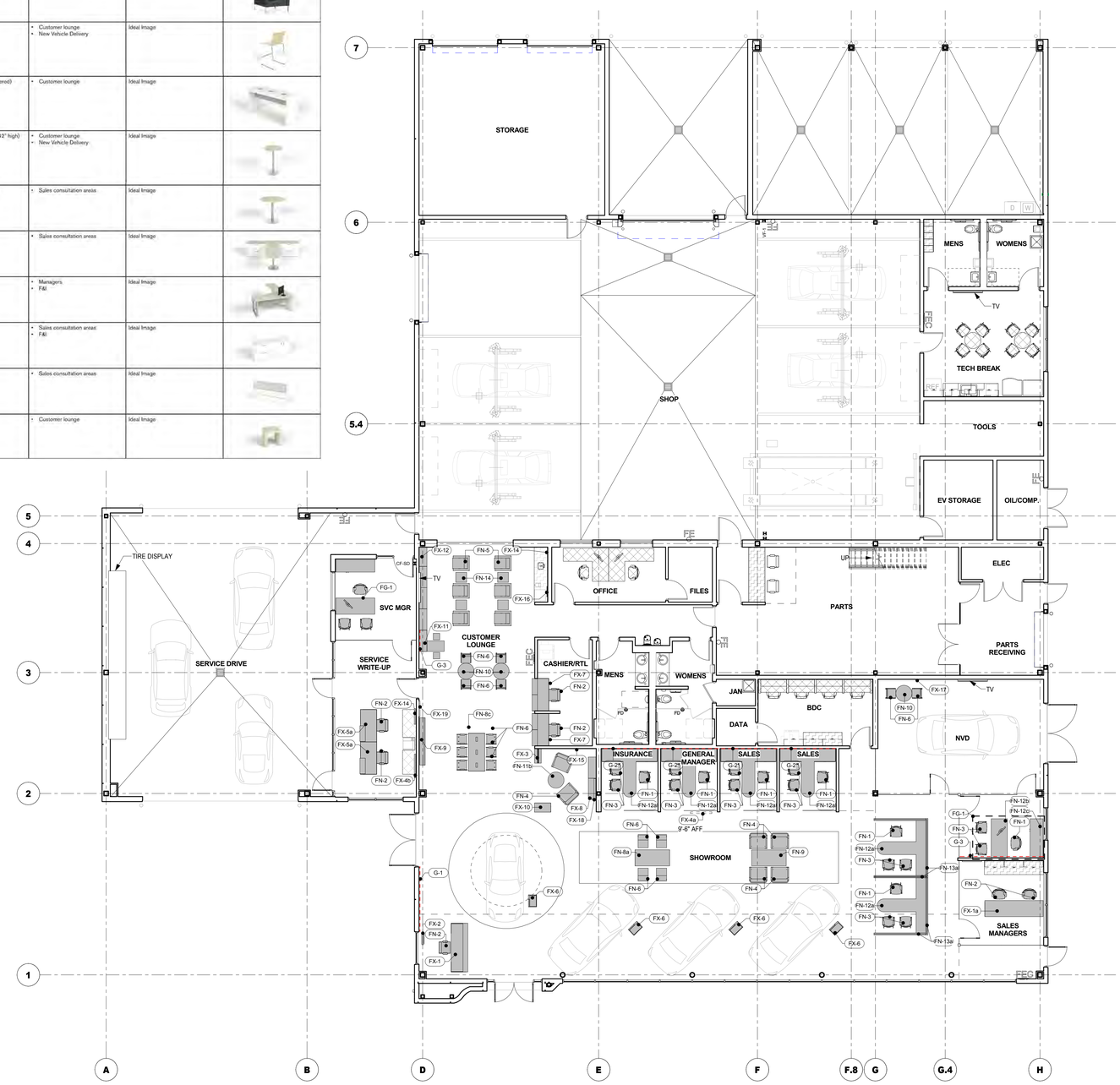
G1 Feature Vehicle Support

G2 "Lifestyle"

G3 "Innovation through design"

Furniture, Fixture, Millwork Legend

- FX - # — MANUFACTURER SPEC FIXTURE, PROVIDED BY THE OWNER
- FN - # — MANUFACTURER SPEC FURNITURE, PROVIDED BY THE OWNER
- OTHER FURNITURE, BY OWNER
- MILLWORK & LOCKERS, SEE A900 PROVIDED BY THE CONTRACTOR



PROJECT NORTH

1 A251 Furniture Plan
1/8" = 1'-0"

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William L Grainger

P.O. BOX 7267
GARDEN CITY, GA 31408

Project Number: 15221
Project Name:
Grainger Nissan

245 Robert Smalls Parkway,
Beaufort, SC 29906

Sheet Title:
Furniture Plan

Sheet Number:
A251

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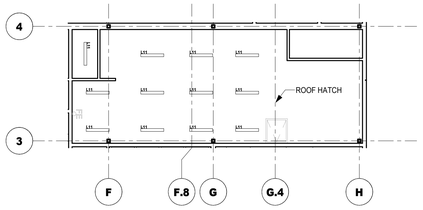
Ceiling Legend

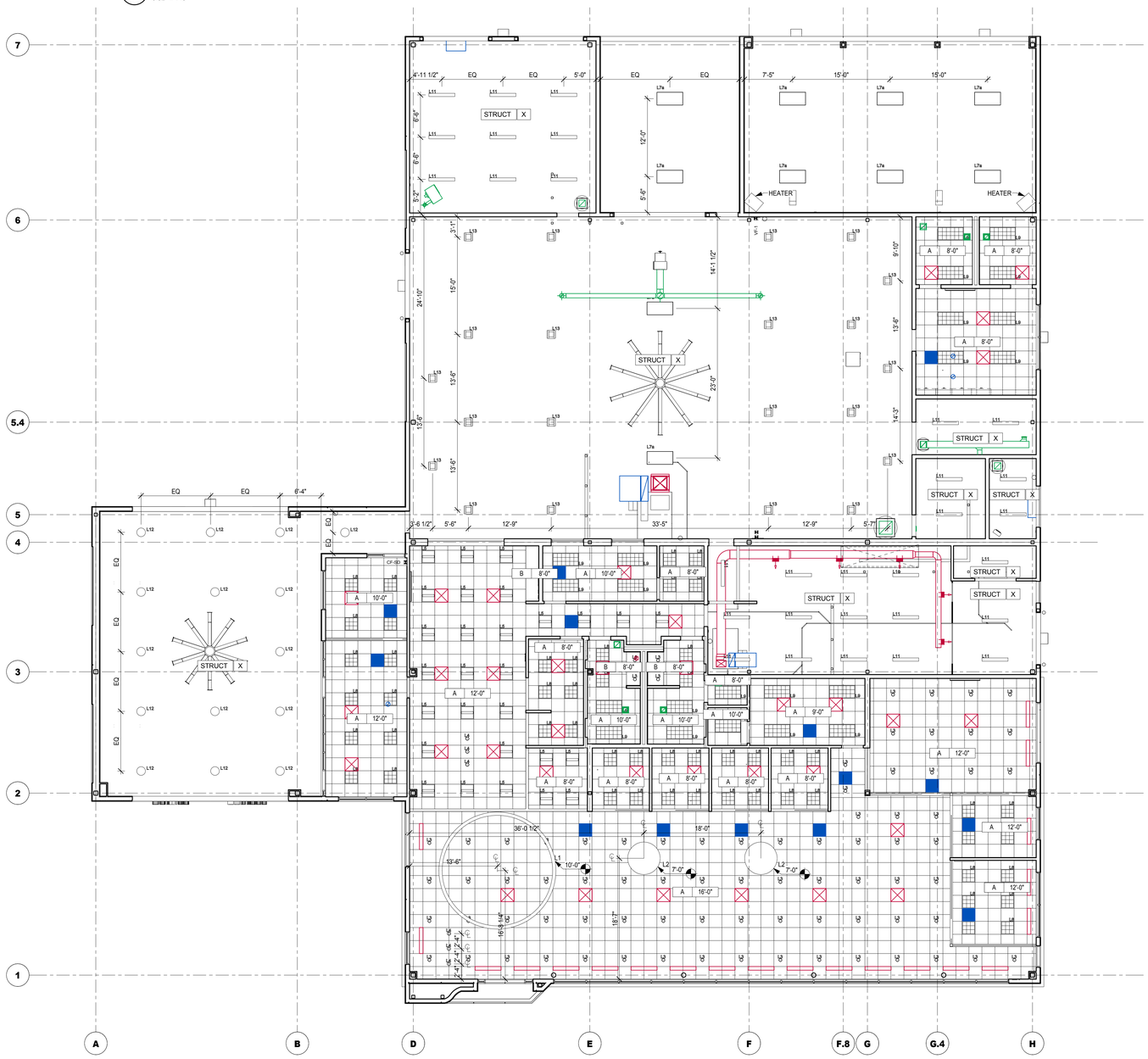
A	2' x 2' ACOUSTICAL PANEL (C-1)
B	GYPSUM WALL BOARD (C-5)
X	EXPOSED TO STRUCTURE (C-3)

Light Fixture Legend

- L1 - FEATURE VEHICLE HALO,
- L2 - RED PENDANT LAMP,
- L3 - RECESSED OPEN APERATURE DOWNLIGHT
- L4 - PENDANT OPEN APERATURE DOWNLIGHT
- L5 - 2'X2' RECESSED FIXTURE W/ DIFFUSER
- L7a 2'X4' SUSPENDED FIXTURE W/ PARABOLIC LOUVERS
- L8 - 2'X2' RECESSED FIXTURE W/ PARABOLIC LOUVERS
- L9 - 2'X4' RECESSED FIXTURE W/ PARABOLIC LOUVERS
- L11 - 1'4' SUSPENDED FIXTURE W/ PARABOLIC LOUVERS
- L12 - EXTERIOR
- L13 - PENDANT DOWNLIGHT W/ DIFFUSER @ 16'-0" A.F.F.



2 A301 Parts Platform - RCP
3/32" = 1'-0"



1 A301 Level 1
1/8" = 1'-0"

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Project Name:
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245 Robert Smalls Parkway,
Beaufort, SC 29906

Sheet Title:
RCP

Sheet Number:
A301

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EXTERIOR FINISH LEGEND

	CODE	MATERIAL	LOCATION	TYPE / PROPERTIES	COLOR	MANUFACTURER/ CONTACT
EIFS	ST-1	EIFS	EXTERIOR WALLS	FINE FINISH, PROVIDE REVEALS AS SHOWN	16296 (MATCH ACM-1)	STO CORP
	ST-2	EIFS	EXTERIOR WALLS	FINE FINISH, PROVIDE REVEALS AS SHOWN	16294 (MATCH ARM-1)	
	ST-3	EIFS	EXTERIOR WALLS	FINE FINISH, PROVIDE REVEALS AS SHOWN	16284 (MATCH P-1)	
	ST-4	STUCCO SYSTEM	EXTERIOR WALLS	FINE FINISH, PROVIDE REVEALS AS SHOWN	PAINT TO MATCH NISSAN RED	
MISC	GL-1	GLAZING	GLAZING, GLASS DOORS	GLASS PANELS WITH ALUM OR SILVER METALLIC FRAMING	CLEAR, LOW-E (INSULATED IN NON-DOOR LITES)	
	MC-1	METAL COPING	PARAPET	ALUMINUM, SEE SPECS	COLOR TO MATCH P-1	
PAINT	EP-1	ELASTOMERIC COATING	GENERAL EXTERIOR	SEE SPECS	TO MATCH P-1	
	P-1	PAINT	WALLS AS NOTED, WALL MOUNTED ELECTRICAL FIXTURES TO MATCH	SATIN, LOW LUSTER FINISH	SILVER HALF DOLLAR 2121-40	BENJAMIN MOORE 800-344-0400
	P-2	PAINT	DOORS, FRAMES, AND HANDRAILS	SEMI-GLOSS, TO MATCH P-1	SILVER HALF DOLLAR 2121-40	
	P-3	PAINT	UTILITY ITEMS, FENCES, GRATINGS & WALL BASE, BOLLARDS	SATIN, LOW LUSTER FINISH	STEEL WOOL 2121-20	

Elevation Legend

S-1 NISSAN ILLUMINATED BRAND SYMBOL, 70" DIAMETER, PACKAGE "D"

S-2 NISSAN ILLUMINATED WORDMARK SIGN, 24" LETTERING

S-3 "Grainger" - ILLUMINATED DEALER SIGN, 24" LETTERING

S-4 "SERVICE" & "EXPRESS - ILLUMINATED SIGNS, 15" LETTERING

NOTE:

1. ALL SIGNAGE SHOWN FOR INFORMATION AND LOCATION ONLY. SIGNAGE SHALL BE PERMITTED & INSTALLED BY OTHERS. G.C. SHALL INSTALL BLOCKING AND PROVIDE ELECTRIC CONDUITS AND J-BOXES AS NECESSARY.

2. S-2 AND S-3 TO BE INSTALLED WITH THE BOTTOM OF THE LETTERSETS ON THE SECOND LOUVER.

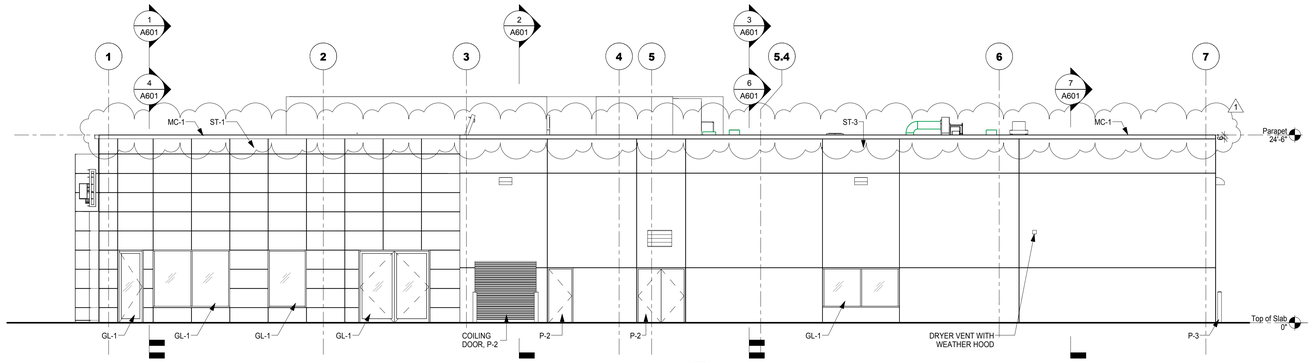
3. ALL EXTERIOR NON-STOREFRONT MAN DOORS TO BE PAINTED P-2.

4. ALL GLAZING TO BE CLEAR

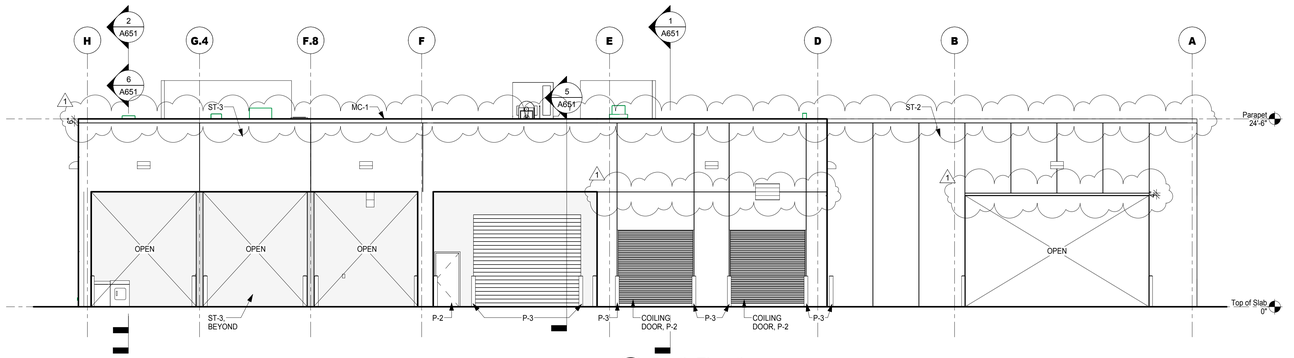
5. ALL STOREFRONT MULLIONS TO BE CLEAR ANODIZED ALUMINUM

6. ALL BUILDING MOUNTED LIGHT FIXTURES TO BE FINISHED P-1

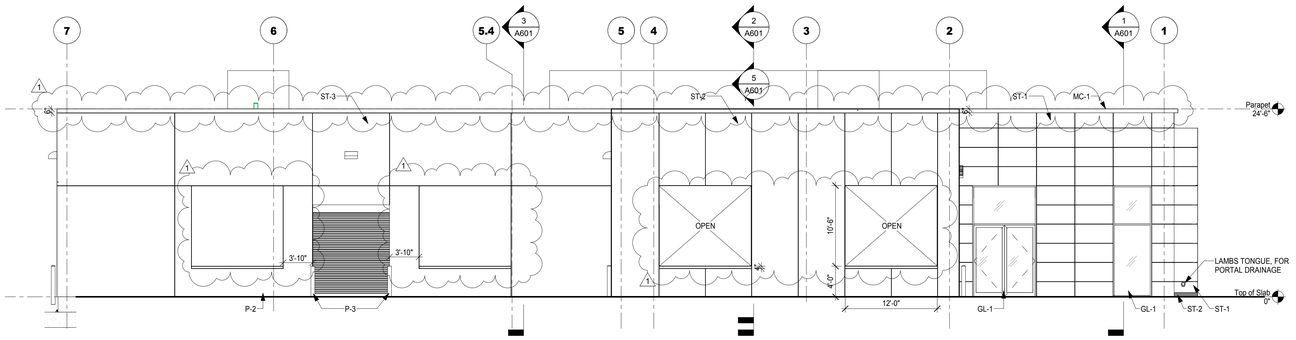
7. ALL MECHANICAL SCREENS TO BE P-1



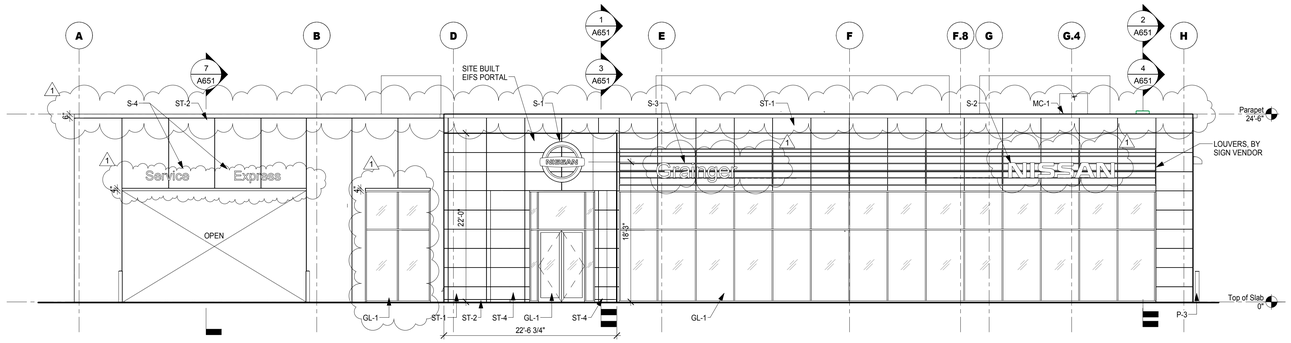
4 A400 West Elevation
1/8" = 1'-0"



3 A400 South Elevation
1/8" = 1'-0"



2 A400 East Elevation
1/8" = 1'-0"



1 A400 North Elevation
1/8" = 1'-0"

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245 Robert Smalls Parkway,
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Sheet Title:
Exterior Elevations

Sheet Number:
A400

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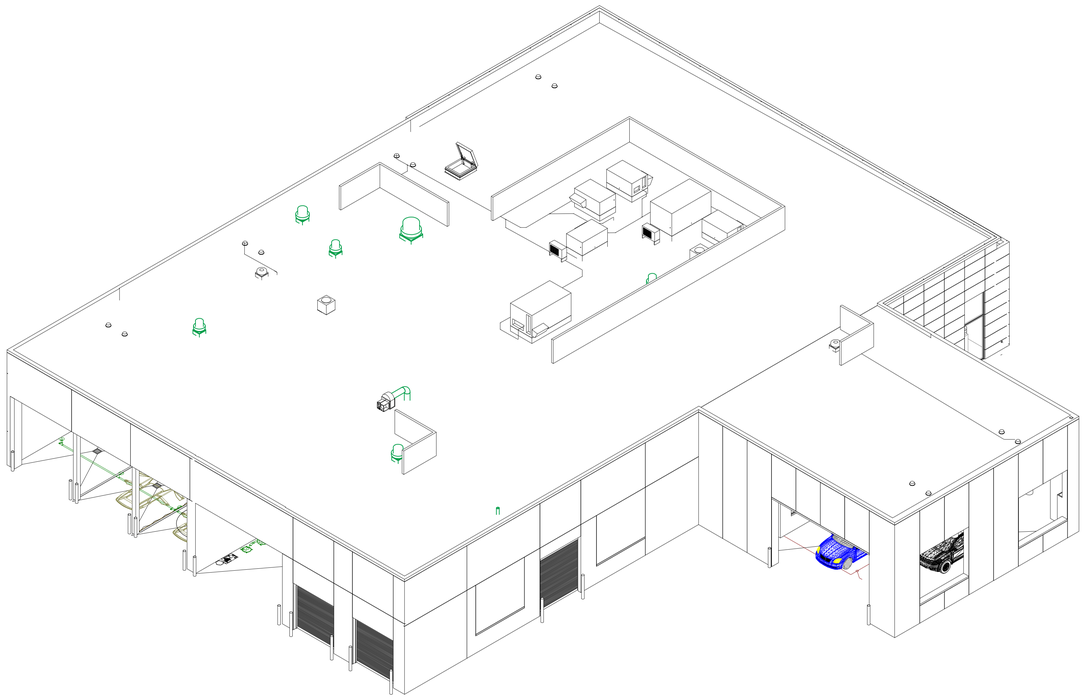
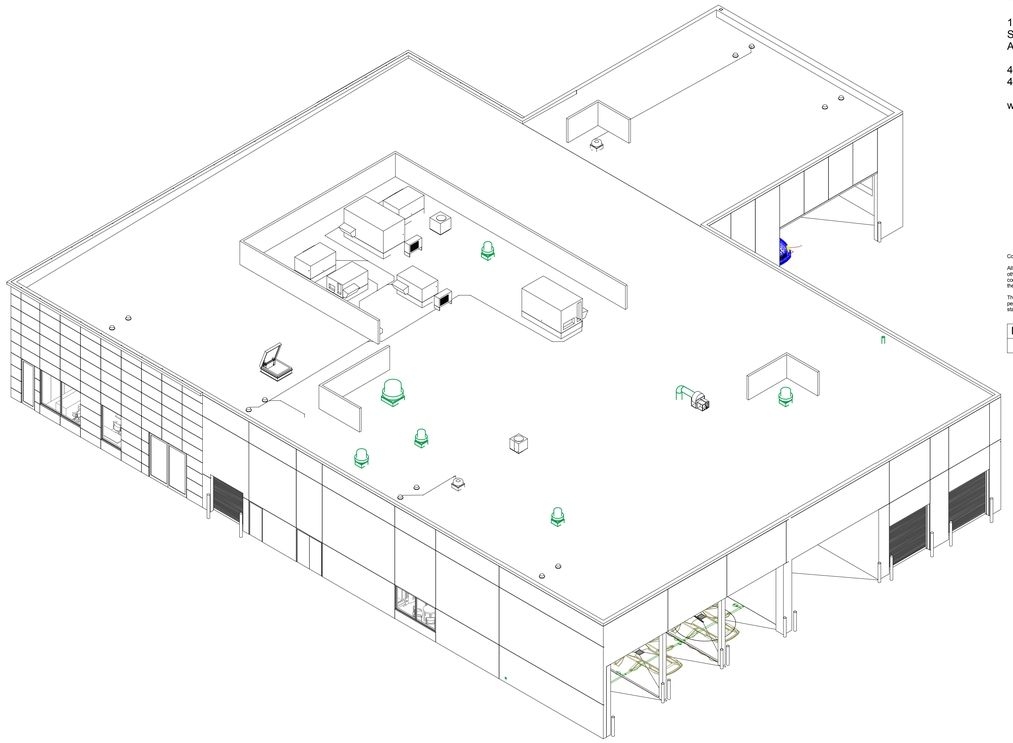
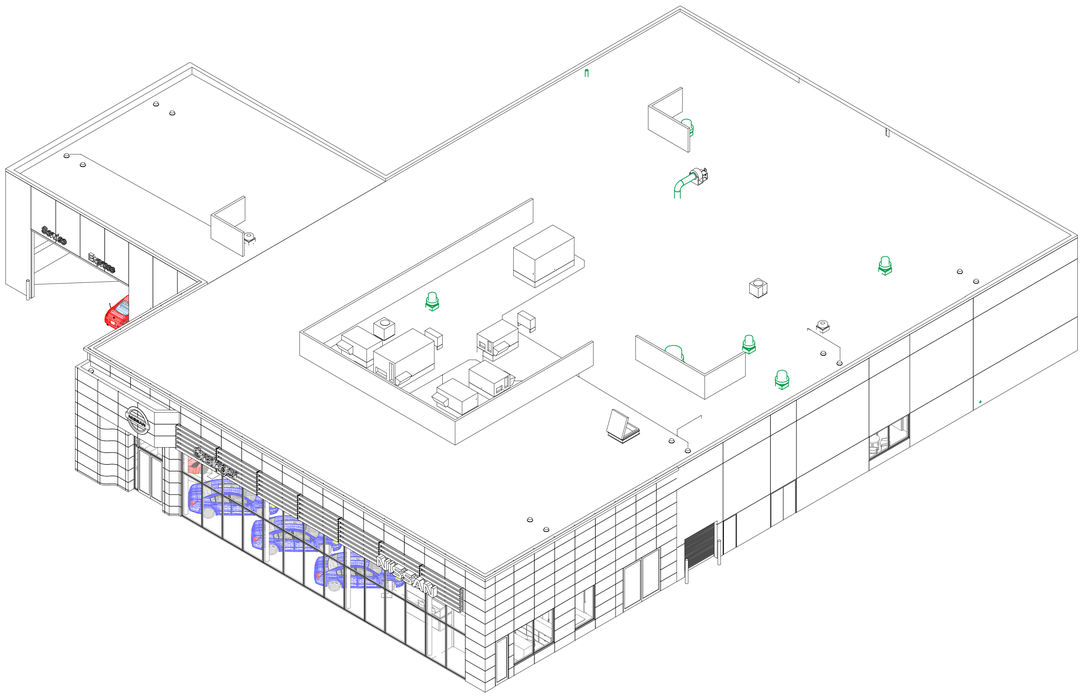


4 A410 Exterior Axonometric - Northeast
For Reference Only



3 A410 Exterior Axonometric - Southeast
For Reference Only

2 A410 Exterior Axonometric - Northwest
For Reference Only



1 A410 Exterior Axonometric - Southwest
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Rev	Date	Comments
	03.11.16	Bid/Permit

Client:
William L Grainger

P.O. BOX 7267
GARDEN CITY, GA 31408

Project Number: 15221
Project Name:
Grainger Nissan

245 Robert Smalls Parkway,
Beaufort, SC 29906

Sheet Title:
Exterior Axonometrics

Sheet Number:
A410

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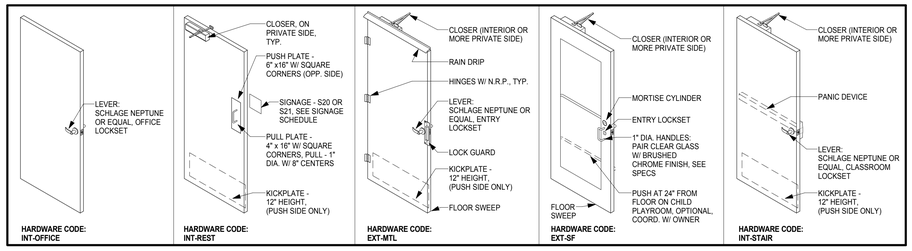
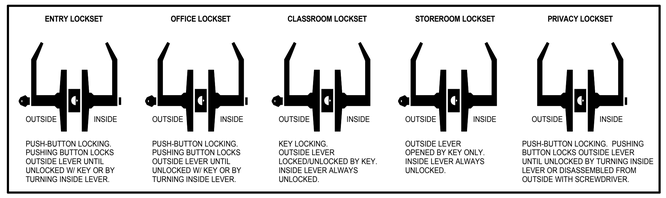
Standard Door Hardware Sets



Standard Locksets



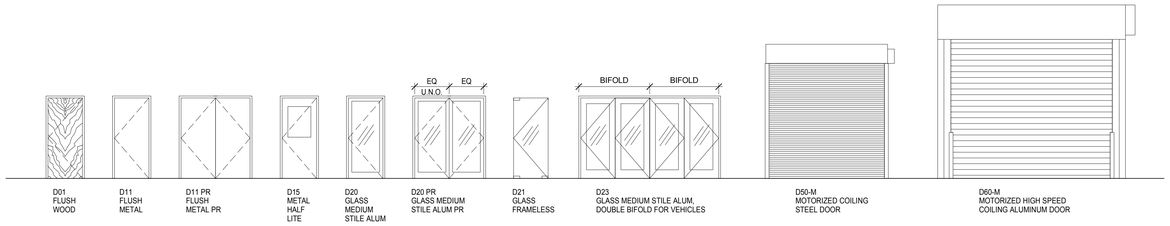
Door Schedule

DOOR NUMBER	TYPE	DOOR WIDTH	DOOR HEIGHT	DOOR FINISH	FRAME MATERIAL	FRAME FINISH	FRAME NUMBER	SIGNAGE	HARDWARE TYPE	RATING	COMMENTS
101a	D-20 PR	8'-0"	9'-4"	CLEAR	ALUM	CLEAR	F02		EXT-SF		UNEVEN LEAFS: 5'-0" & 3'-0" AS SHOWN IN F02 ON A520
101b	D-20 PR	6'-0"	9'-4"	CLEAR	ALUM	CLEAR	F04	S-27	EXT-SF		
101c	D-20	3'-0"	9'-4"	CLEAR	ALUM	CLEAR	F06	S-27	EXT-SF		
102	D-21	3'-0"	8'-0"	CLEAR	N/A	N/A	F22		INT-KEYPAD		
103a	D-21	3'-0"	8'-0"	CLEAR	N/A	N/A	F23		INT-KEYPAD 1		
103b	D-21	3'-0"	8'-0"	CLEAR	N/A	N/A			INT-OFFICE		
104a	D-21	3'-0"	8'-0"	CLEAR	N/A	N/A	F24		INT-OFFICE 1		
104b	D-20 PR	9'-0"	9'-4"	CLEAR	ALUM	CLEAR			EXT-SF		
110a	D-20	3'-0"	7'-0"	CLEAR	ALUM	CLEAR	F13		EXT-SF		
110b	D-20	3'-0"	7'-0"	CLEAR	ALUM	CLEAR	F13		EXT-SF		
111a	D-21	3'-0"	8'-0"	CLEAR	N/A	N/A	F27		INT-KEYPAD		
111b	D-20	3'-0 1/2"	7'-0"	CLEAR	ALUM	CLEAR	F11		EXT-SF		
112	D-20	3'-0"	7'-0"	CLEAR	N/A	N/A	F26		INT-OFFICE		
113	D-01	3'-0"	7'-0"	WD	HM	PT			INT-OFFICE		
114	D-01	3'-0"	7'-0"	WD	HM	PT			INT-OFFICE		
115	D-01	3'-0"	7'-0"	WD	HM	PT			INT-ST		
116	D-01	3'-0"	7'-0"	WD	HM	PT		S-20	INT-REST		
117	D-01	3'-0"	7'-0"	WD	HM	PT		S-21	INT-REST		
118	D-11	3'-0"	7'-0"	PT	HM	PT			JAN-TEL		
120a	D-01	3'-0"	7'-0"	WD	HM	PT			INT-OFFICE		
120b	D-01	3'-0"	7'-0"	WD	HM	PT			JAN-TEL		
121a	D-01	3'-0"	7'-0"	WD	HM	PT			TECH PARTS		
121b	D-11	3'-6"	7'-0"	PT	HM	PT			TECH PARTS		
121c	D-11	3'-6"	7'-0"	PT	HM	PT			TECH PARTS		
121d	CHAIN LINK	3'-0"	7'-0"						INT-STO		BY G.C.
122a	CHAIN LINK	6'-0"	8'-0"						INT-STO		BY G.C.
122b	D-50M	8'-6"	8'-6"	ALUM					OH-M-M		
122c	D-11	3'-0"	7'-0"	P-2	HM	P-2			EXT-MTL		
123	D-11 PR	6'-0"	7'-0"	PT	HM	PT			INT-STO		
124	D-11 PR	6'-0"	7'-0"	P-2	HM	P-2			EXT-MTL		
125	D-11	3'-0"	7'-0"	PT	HM	PT			INT-STO		
127	D-15	3'-0"	7'-0"	PT	HM	PT			TECH BRK		
128	D-11	3'-0"	7'-0"	PT	HM	PT		S-20	INT-REST		
129	D-11	3'-0"	7'-0"	PT	HM	PT		S-21	INT-REST		
130a	D-15	3'-0"	7'-0"	P-2	HM	P-2			EXT-MTL		
130b	D-50M	10'-6"	11'-0"						OH-M-M		
130c	D-60	14'-0"	12'-0"						OH-A		
130d	D-11	3'-0"	7'-0"	P-2	HM	P-2			EXT-MTL		
131a	D-11	3'-0"	7'-0"	P-2	HM	P-2			INT-STO		
131b	D-50	10'-0"	11'-0"						OH-M		
131c	D-50	10'-0"	11'-0"						OH-M		

Hardware Type Schedule

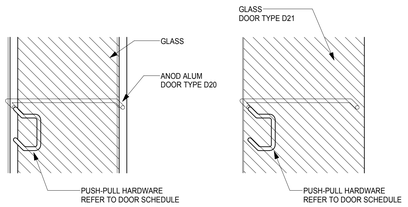
	HARDWARE CODE	HARDWARE SET NAME	SIGNAGE	CLOSER	SPRING CLOSER	BUMPERS / WEATHERSTRIP	THRESHOLD	FLOOR SWEEP	PANIC DEVICE	MORTISE CYLINDER	HINGE WITH N.R.P.	ENTRY LOCKSET	OFFICE LOCKSET	CLASSROOM LOCKSET	STOREROOM LOCKSET	PRIVACY LOCKSET	LOCK GUARD	DUMMY PULLS	PUSH PULLS	FLUSHBOLT	KICK PLATE	ARMOR PLATE	DOOR STOP	RAIN DRIP	MOTORIZED	FIRE SENTINEL	MAGNETIC LOOP - INTERIOR	MAGNETIC LOOP - EXTERIOR	OPTICAL SENSOR - INTERIOR	OPTICAL SENSOR - EXTERIOR	HARDWARE COMMENTS
EXTERIOR	EXT-SF	STOREFRONT DOOR	S-27	O		O	O	O		O									O					O								ON 5' LEAFS: (NO PUSH PULL, NO SIGN, ADD HOLD OPEN)
EXTERIOR	EXT-MTL	METAL DOOR		O		O	O	O			O	O					O				O		O	O								COORDINATE WITH OWNER
INTERIOR	INT-KEYPAD	ADMIN ENTRY/F+I/MGR OFFICES				O							O										O									COORDINATE WITH OWNER
INTERIOR	INT-OFFICE	OFFICE DOOR				O							O										O									
INTERIOR	INT-REST	PUBLIC RESTROOM DOOR	S-20/S-21	O		O													O		O		O									
INTERIOR	INT-REST-P	PRIVATE RESTROOM DOOR	S-20/S-21	O		O										O							O									
INTERIOR	INT-ST	STORAGE DOOR				O									O						O		O									
INTERIOR	INT-MTL	INTERIOR METAL DOOR				O		O							O								O									
INTERIOR	TECH BRK	TECH BREAKROOM		O		O													O		O		O									
INTERIOR	INT-STAIR	STAIR DOOR	S-25	O		O			O					O							O											
INTERIOR	TECH PARTS	TECH PARTS COUNTER DOOR		O		O			O				O									O	O									
INTERIOR	JAN-TEL	JANITORS CLOSET, TEL DATA		O		O									O						O		O									NO KICKPLATE AT TEL/DATA
OVERHEAD	OH-M	MANUAL DOOR																														
OVERHEAD	OH-M-M	MANUAL DOOR MOTORIZED																							O							
OVERHEAD	OH-A	AUTOMATIC DOOR																							O				O	O		

NOTES:
- USE HARDWARE TYPE SCHEDULE COMMENTS U.N.O. IN DOOR SCHEDULE.
- USE WEATHERSTRIP ON ALL EXTERIOR DOORS. USE BUMPERS WITH H.M. FRAMES, USE WEATHERSTRIP WITH ALUM FRAMES.
- G.C. TO PROVIDE CORRESPONDING DOOR STOP TYPE FOR EACH DOOR (FLOOR STOP, WALL STOP, OVERHEAD STOP), PLEASE REFER TO PROJECT MANUAL (SPECS)



DXX-M: INDICATES A MOTORIZED DOOR
DXX-L: INDICATES A DOOR WITH A LOUVER IN EACH LEAF. SEE DOOR SCHEDULE FOR LOUVER SIZE

1 / A510 Door Types
3/16" = 1'-0"



Interior Signage

THE FOLLOWING SIGNAGE TO BE ASI INTOUCH BY ASI SIGN SYSTEMS (OR APPROVED EQUAL)

S-20 WOMEN'S RESTROOM ID: SIGN WITH THE WORD "**WOMEN**", 1" HIGH RAISED HELVETICA LETTERS AND BRAILLE CHARACTERS WITH PICTOGRAM FOR A WOMAN AND A HANDICAP-ACCESSIBLE SYMBOL. LOCATION: MOUNT ON THE WALL (LATCH SIDE). CENTER SIGN AT 60" AFF, MAXIMUM.

S-21 MEN'S RESTROOM ID: SIGN WITH THE WORD "**MEN**", 1" HIGH RAISED HELVETICA LETTERS AND BRAILLE CHARACTERS WITH PICTOGRAM FOR A MAN AND A HANDICAP-ACCESSIBLE SYMBOL. LOCATION: MOUNT ON THE WALL (LATCH SIDE). CENTER SIGN AT 60" AFF, MAXIMUM.

S-27 EGRESS STOREFRONT DOORS: STENCILED LETTERS ADHERED TO GLASS "**THESE DOORS TO REMAIN UNLOCKED WHEN BUILDING IS OCCUPIED**" IN 1" HIGH HELVETICA LETTERS, COLOR: WHITE.

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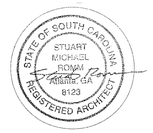

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1	03.30.16	Permit Comments

Client:
William L Grainger

P.O. BOX 7267
GARDEN CITY, GA 31408

Project Number: 15221
Project Name:
Grainger Nissan

245 Robert Smalls Parkway,
Beaufort, SC 29906

Sheet Title:
Door Schedule & Door Types

Sheet Number:
A510

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Glazing Legend

CODE	COLOR FINISH	MATERIAL
GL-1	CLEAR	1" INSULATED UNIT, IMPACT RESISTANT, U VALUE 0.46, SHGC 0.25
GL-2	CLEAR	1/2" CLEAR TEMPERED GLASS

T = INDICATES TEMPERED GLASS

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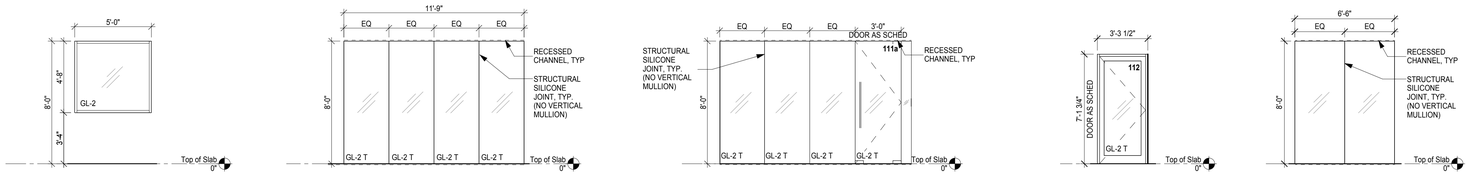
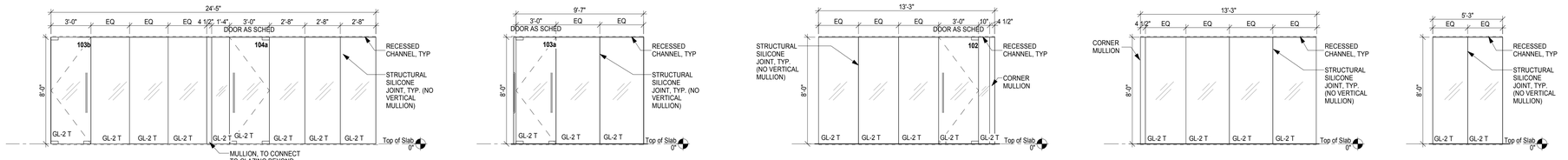
Interior Aluminum Frames: F20-F40

INTERIOR STOREFRONT TO HAVE CONCEALED TOP CHANNEL AND LOW PROFILE BOTTOM CHANNEL U.N.O.
SEE PARTITION TYPES

Scale 1/4" = 1'-0"



F29 1/4" = 1'-0" | F28 1/4" = 1'-0" | F27 1/4" = 1'-0" | F26 1/4" = 1'-0" | F25 1/4" = 1'-0"



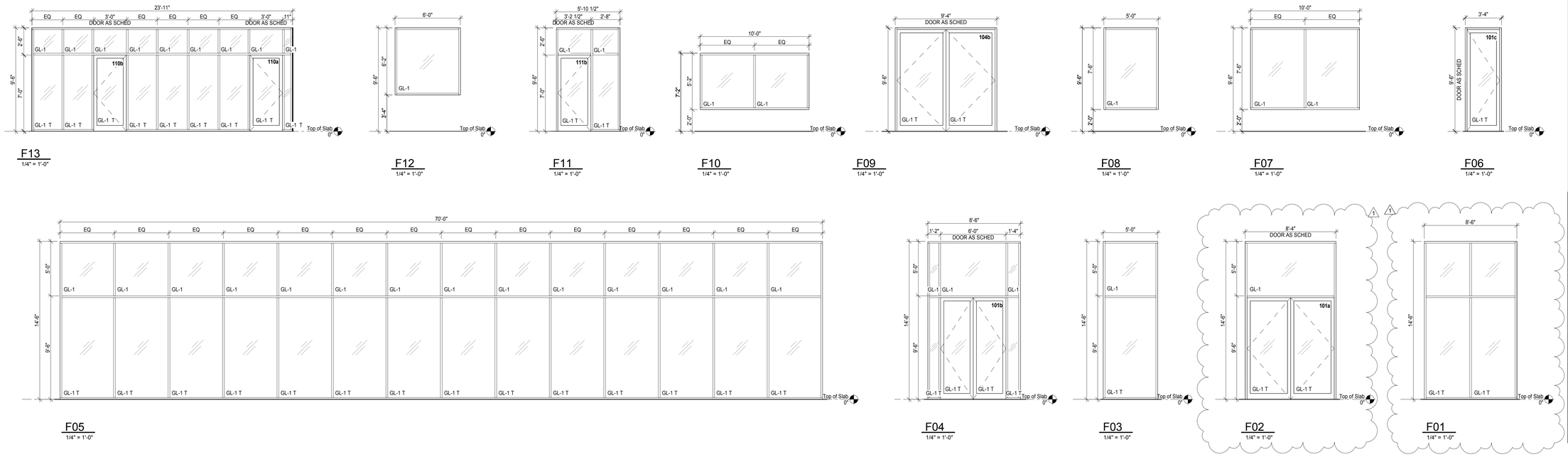
F24 1/4" = 1'-0" | F23 1/4" = 1'-0" | F22 1/4" = 1'-0" | F21 1/4" = 1'-0" | F20 1/4" = 1'-0"

Exterior Aluminum Frames: F01-F20

Sim. to Kawneer Trifab 451T

Scale 1/4" = 1'-0"

NOTE: Exterior glass to be impact resistant



F13 1/4" = 1'-0" | F12 1/4" = 1'-0" | F11 1/4" = 1'-0" | F10 1/4" = 1'-0" | F09 1/4" = 1'-0" | F08 1/4" = 1'-0" | F07 1/4" = 1'-0" | F06 1/4" = 1'-0"

F05 1/4" = 1'-0" | F04 1/4" = 1'-0" | F03 1/4" = 1'-0" | F02 1/4" = 1'-0" | F01 1/4" = 1'-0"

Client:
William L Grainger

P.O. BOX 7267
GARDEN CITY, GA 31408

Project Number: 15221
Project Name:
Grainger Nissan

245 Robert Smalls Parkway,
Beaufort, SC 29906

Sheet Title:
Frame Elevations

Sheet Number:
A520

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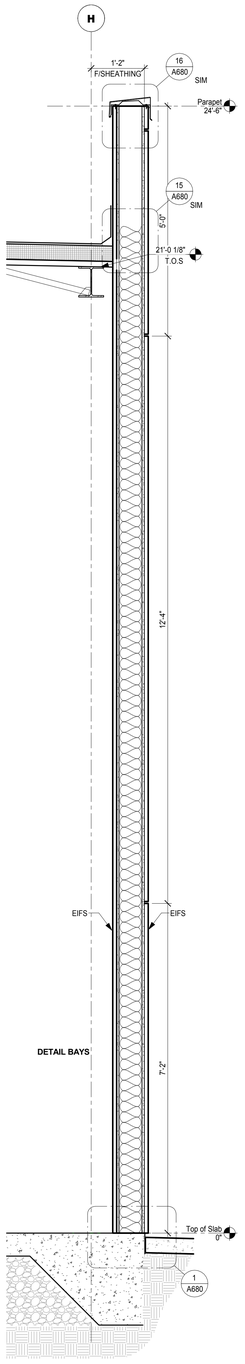
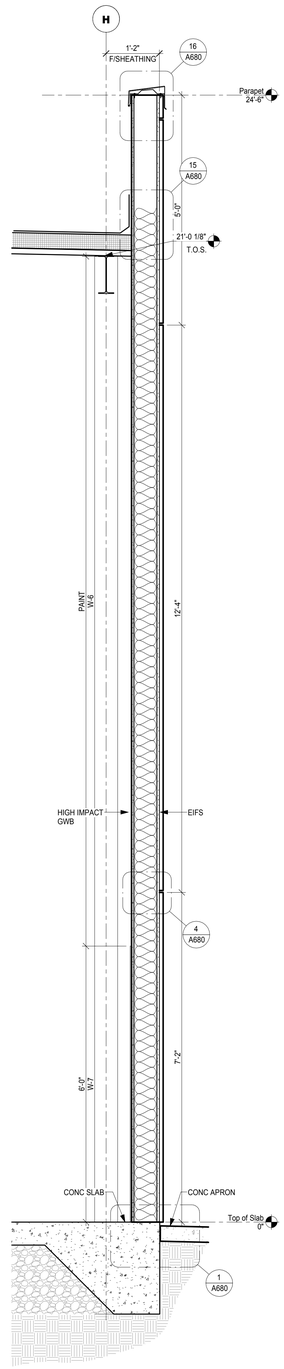
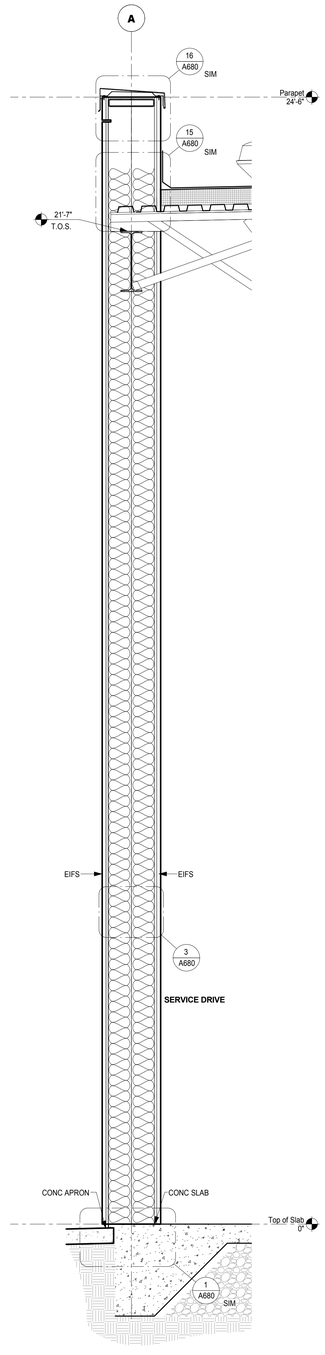


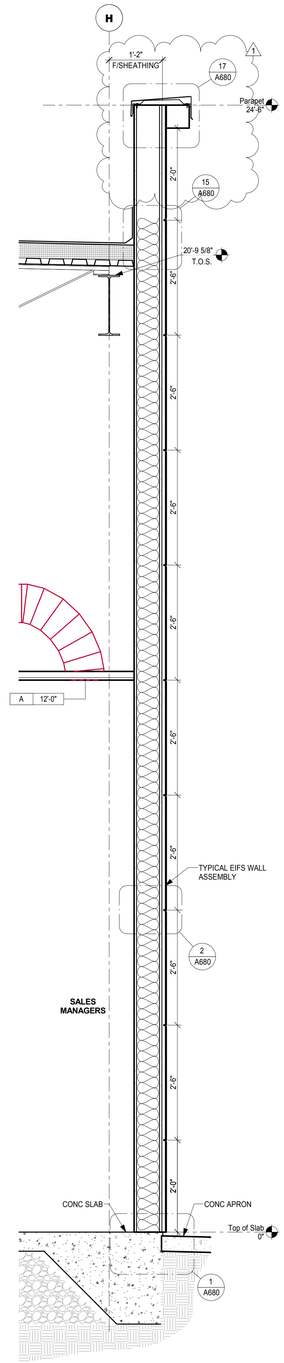
7 A601 E-W Wall Section - 4
3/4" = 1'-0"



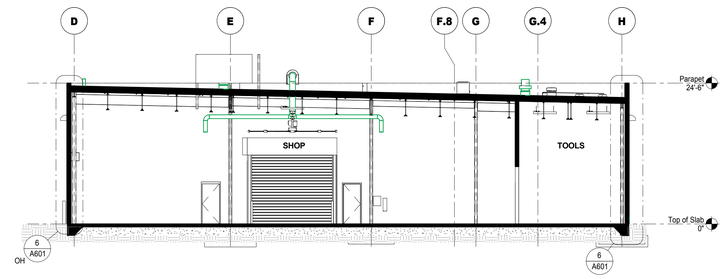
6 A601 E-W Wall Section 3
3/4" = 1'-0"



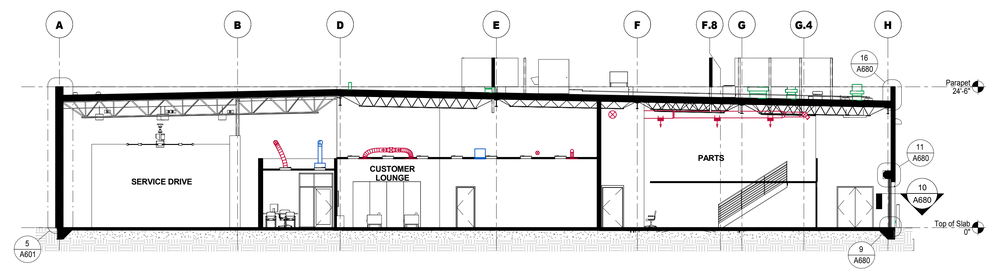
5 A601 E-W Wall Section 2
3/4" = 1'-0"



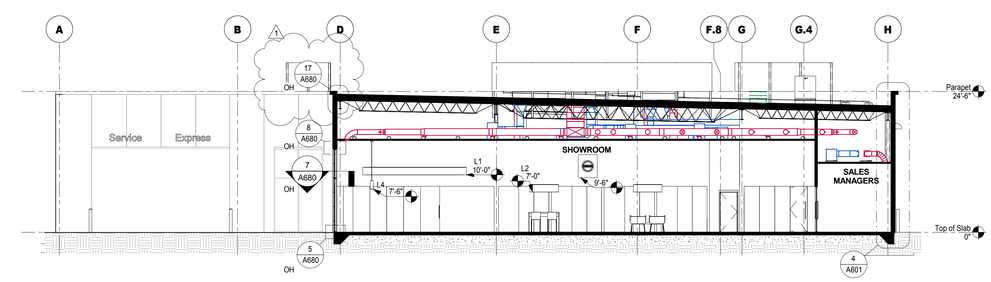
4 A601 E-W Wall Section 1
3/4" = 1'-0"



3 A601 E-W Building Section - 3
3/32" = 1'-0"



2 A601 E-W Building Section - 2
3/32" = 1'-0"



1 A601 E-W Building Section - 1
3/32" = 1'-0"

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Project Number: 15221
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Grainger Nissan

245 Robert Smalls Parkway,
Beaufort, SC 29906

Sheet Title:
EW Sections

Sheet Number:
A601

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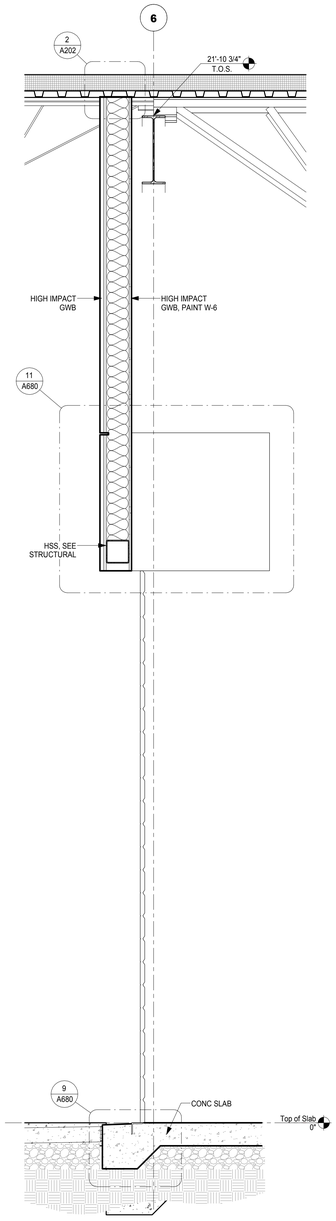
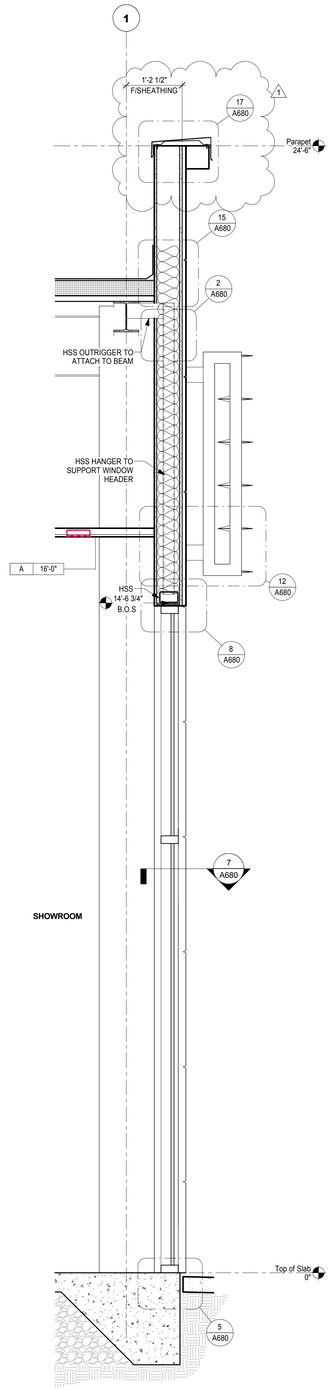
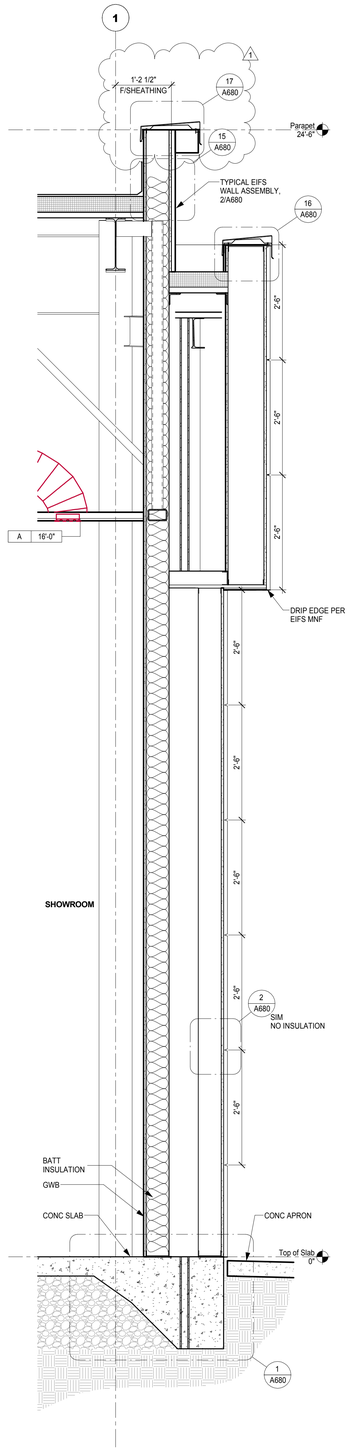


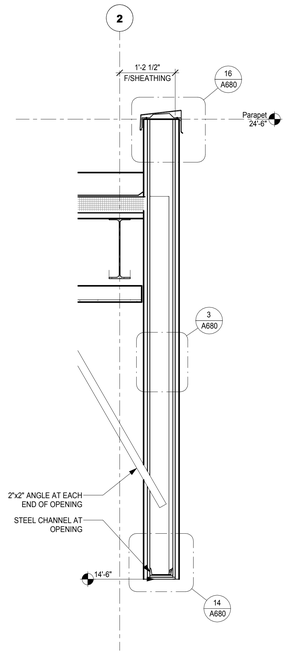
5 A651 N-S Wall Section - 3
3/4" = 1'-0"



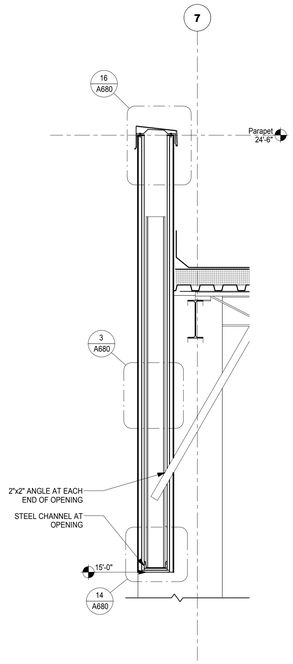
4 A651 N-S Wall Section - 2
3/4" = 1'-0"



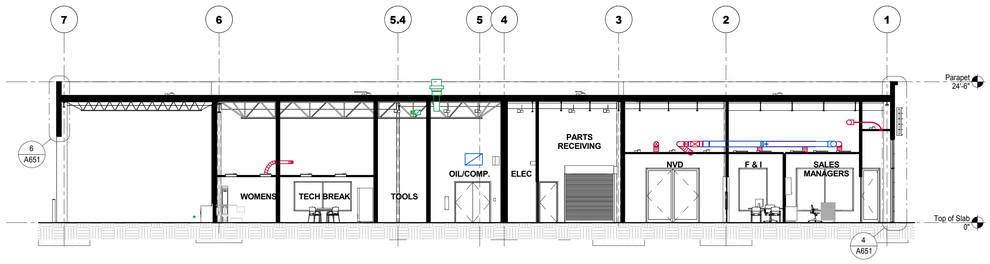
3 A651 N-S Wall Section - 1
3/4" = 1'-0"



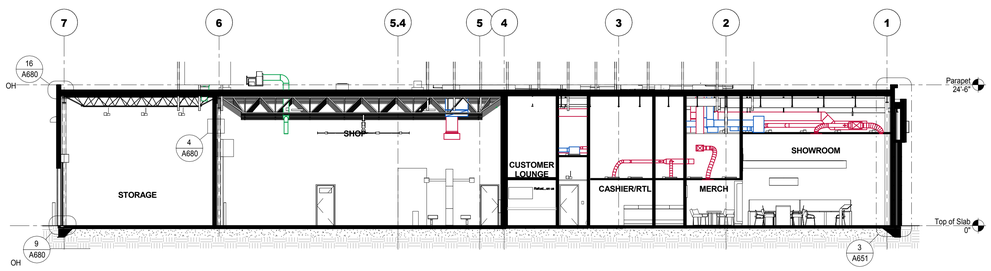
7 A651 N-S Wall Section - 5
3/4" = 1'-0"



6 A651 N-S Wall Section - 4
3/4" = 1'-0"



2 A651 N-S Building Section - 2
3/32" = 1'-0"



1 A651 N-S Building Section - 1
3/32" = 1'-0"

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Project Name:
Grainger Nissan

245 Robert Smalls Parkway,
Beaufort, SC 29906

Sheet Title:
NS Sections

Sheet Number:
A651

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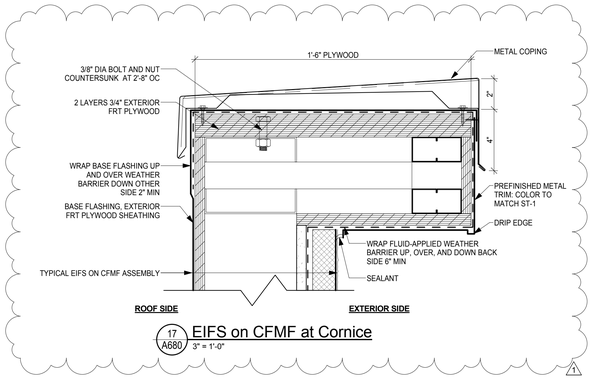
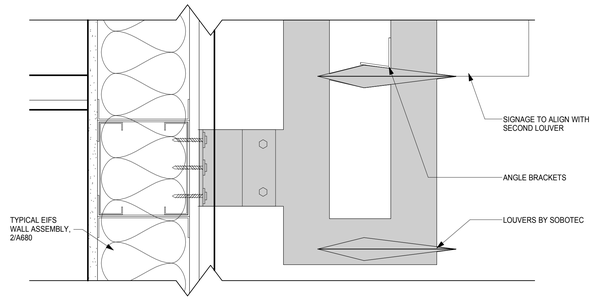
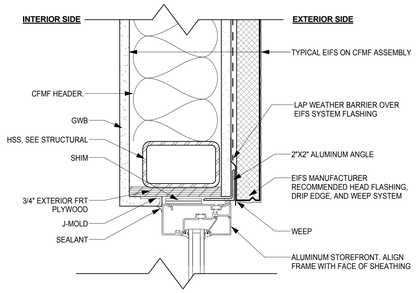


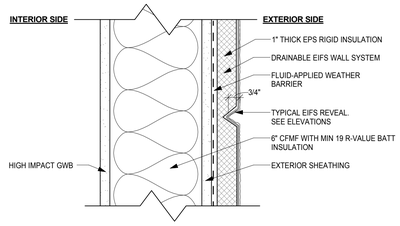
17 A680 EIFS on CFMF at Cornice
3" = 1'-0"



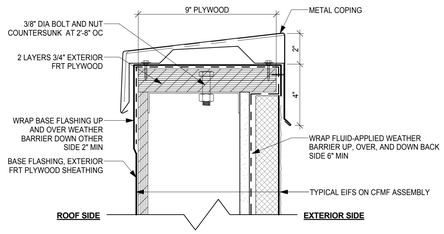
12 A680 Sec Dtl @ Louvers
3" = 1'-0"



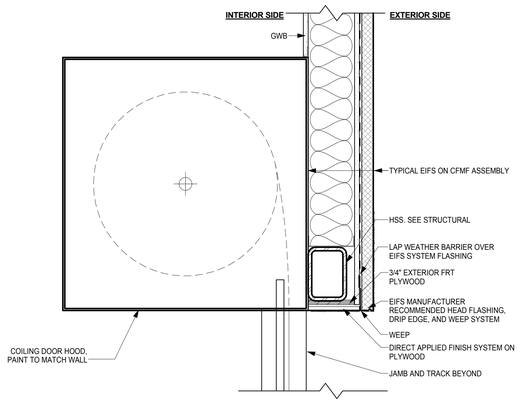
8 A680 EIFS on CFMF at SF Head
3" = 1'-0"



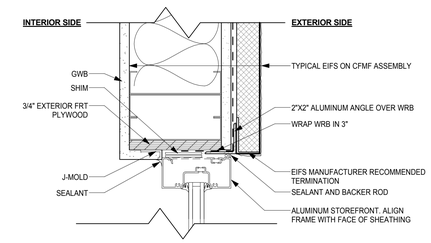
4 A680 EIFS Wall at Shop
3" = 1'-0"



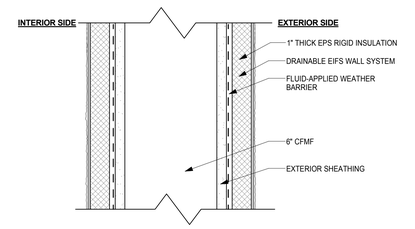
16 A680 EIFS on CFMF at Coping
3" = 1'-0"



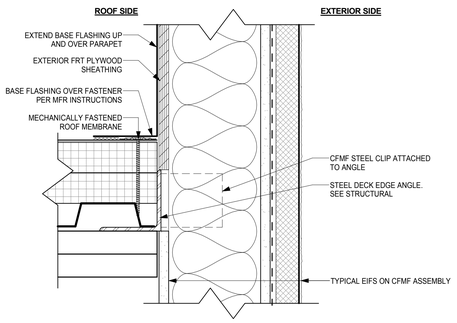
11 A680 EIFS on CFMF at Coiling Door Head
1 1/2" = 1'-0"



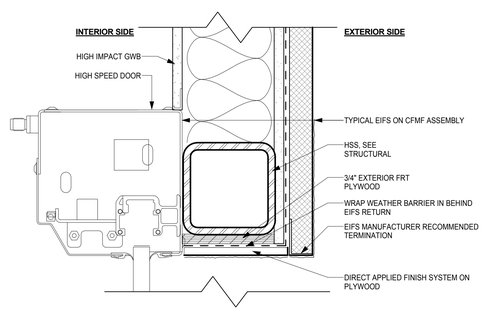
7 A680 EIFS on CFMF at SF Jamb
3" = 1'-0"



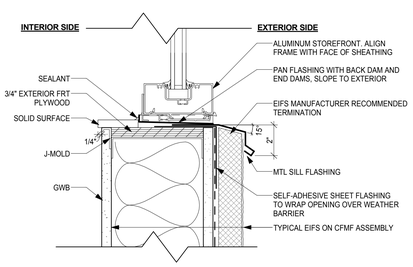
3 A680 EIFS Wall at Service Reception
3" = 1'-0"



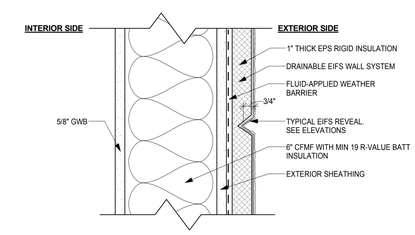
15 A680 EIFS on CFMF at Roof Bearing
3" = 1'-0"



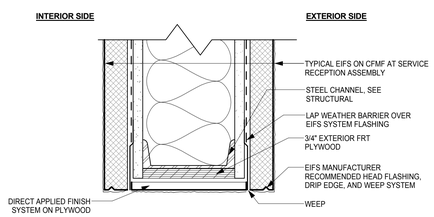
10 A680 EIFS on CFMF at High Speed Door Jamb
3" = 1'-0"



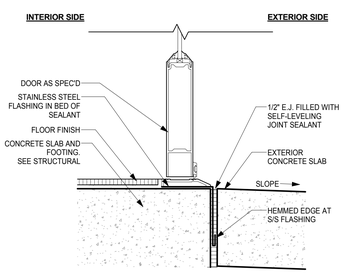
6 A680 EIFS on CFMF at SF Sill
3" = 1'-0"



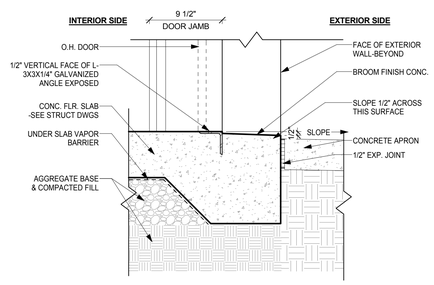
2 A680 Typical EIFS Wall Assembly
3" = 1'-0"



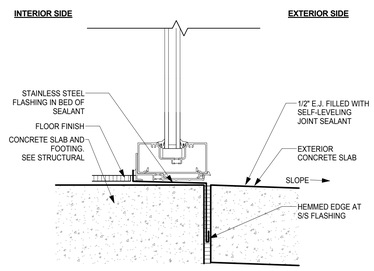
14 A680 EIFS on CFMF at Detail Bay Header
3" = 1'-0"



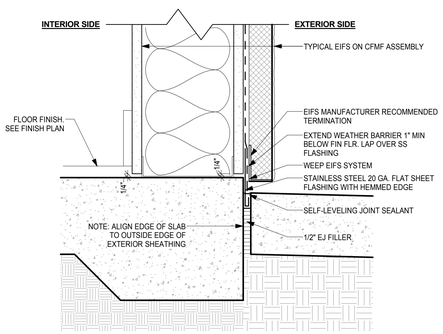
13 A680 SF Door & Slab Threshold
3" = 1'-0"



9 A680 Typ. Sec. Dtl @ OH Door & Slab
1 1/2" = 1'-0"



5 A680 Typ. Sec. Dtl. @ SF & Slab
3" = 1'-0"



1 A680 EIFS on CFMF at Exterior Conc
3" = 1'-0"

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ATLANTA, GA
8123
REGISTERED ARCHITECT

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Rev	Date	Comments
	03.11.16	Bid/Permit
1	03.30.16	Permit Comments

Client:
William L Grainger

P.O. BOX 7267
GARDEN CITY, GA 31408

Project Number: 15221
Project Name:
Grainger Nissan

245 Robert Smalls Parkway,
Beaufort, SC 29906

Sheet Title:
Section Details

Sheet Number:
A680

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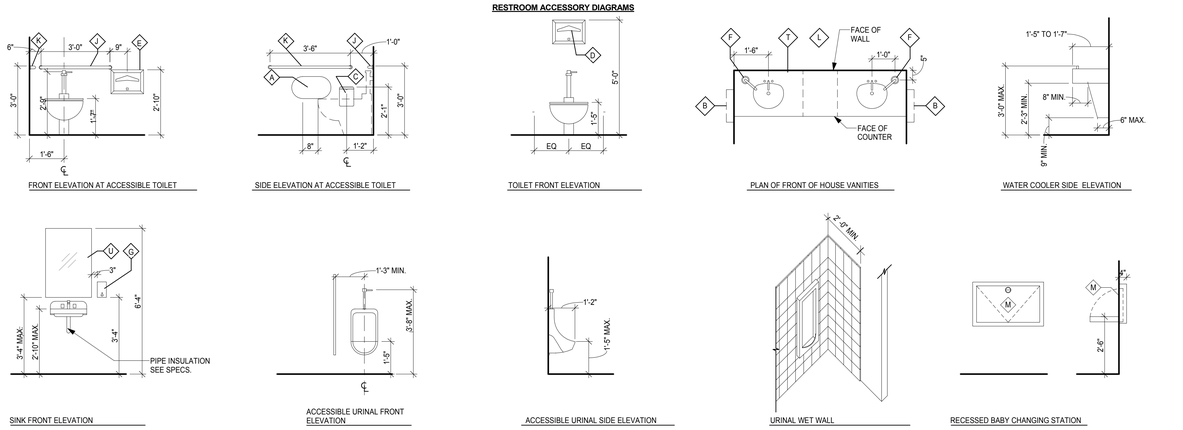
4/13/2016 2:58:36 PM

Restroom Accessory Schedule

ACCESSORY CODE	DESCRIPTION	MODEL BOBRICK, U.N.O.	TYPICAL LOCATION (U.N.O.)	
			ELEVATION	PLAN
A	TWIN JUMBO-ROLL TISSUE DISPENSER	B-2892	BOTTOM @ 1' - 7" A.F.F.	CENTERLINE TO BE WITHIN 7" to 9" OF FRONT OF TOILET SEAT
B	RECESSED PAPER TOWEL DISPENSER USE AT CUSTOMER VANITY LOCATIONS W/ CIRCULAR WASTE CHUTE	B-359	44" MAX A.F.F. WHERE PAPER IS DISPENSED	
C	SURFACE-MOUNTED SANITARY NAPKIN DISPOSAL	B-270	TOP @ 2' - 1" A.F.F.	
D	SURFACE-MOUNTED SEAT COVER DISPENSER	B-221	TOP @ 5' - 0" A.F.F.	
E	SURFACE-MOUNTED SEAT COVER DISPENSER (ADA)	B-221	TOP @ 2' - 10"	NOTE: ADA CANNOT HAVE SEAT-COVER BEHIND TOILET.
F	LAVATORY-MOUNTED SOAP DISPENSER	B-8221	-	CENTERLINE TO BE 1'-0" FROM CENTERLINE OF SINK & 5" FROM MIRROR WALL
G	SURFACE-MOUNTED SOAP DISPENSER	B-2111	44" MAX A.F.F @ DISPENSER CONTROLS	-
J	36" GRAB BAR (SATIN FINISH)	B-6806 X 36"	TOP @ 3' - 0" A.F.F.	6" FROM FACE OF WALL TO C.L. OF FIRST TUBE
K	42" GRAB BAR (SATIN FINISH)	B-6806 X 42"	TOP @ 3' - 0" A.F.F.	1'-0" FROM FACE OF WALL TO C.L. OF FIRST TUBE
L	RECESSED TRASH RECEPTCALE	B-3644	46" MAX A.F.F. TO TOP OF UNIT	-
M	KOALA HORIZ. STAINLESS STL., RECESSED BABY CHANGING STATION	KB110-SSRE	TOP HOLE @ 3' - 7 3/4" A.F.F.	-
N	SURFACE-MOUNTED ROLL TOWEL DISPENSER (NOT FOR PUBLIC RESTROOMS)	B-2860	TOP @ 5' - 0" A.F.F.	(NON-PUBLIC AREAS) MOUNT ABOVE B-2111
Q	SURFACE-MOUNTED WASTE RECEPTACLE (NOT FOR PUBLIC RESTROOMS)	B-275	TOP @ 2' - 6" TO 3' - 3" A.F.F.	(NON-PUBLIC AREAS) MOUNT BELOW B-2860
S	MOP AND BROOM HOLDER	B-223	TOP @ 6' - 0" A.F.F.	-
T	SURFACE MOUNTED MIRROR	-	STARTS @ BACKSPLASH	24" LONG (3 HOLDERS); 36" LONG (4 HOLDERS); USE MAX LENGTH POSSIBLE
U	24" X 36" MIRROR	B-165	BOTTOM @ 3' - 4" A.F.F	TO BE CENTERED OVER SINK

RESTROOM ACCESSORY DIAGRAMS



General Toilet Room Notes

FLUSH CONTROLS AT WATER CLOSETS SHALL BE MOUNTED ON "WIDE" SIDE AND NOT EXCEED 42" AFF

TOE CLEARANCES AT TOILET STALLS SHALL BE 9" MIN.

SEE SPEC FOR TOILET STALL DOOR AND PANEL DIMENSIONS

THE BOTTOM OF MIRRORS SHALL BE NO HIGHER THAN 40" AFF, TOP OF MIRRORS SHALL BE AT LEAST 74" AFF

ALL CONTROLS, DISPENSERS & RECEPTACLES SHALL BE LOCATED NO HIGHER THAN 48" AFF

DEPTH OF SINKS SHALL BE A MAX OF 6-1/2"

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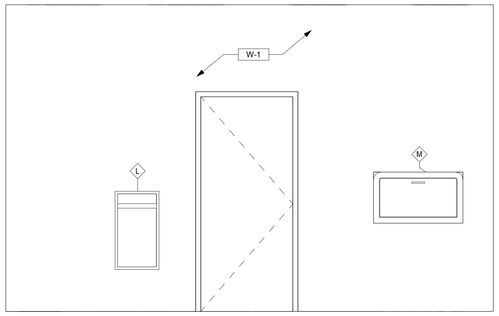
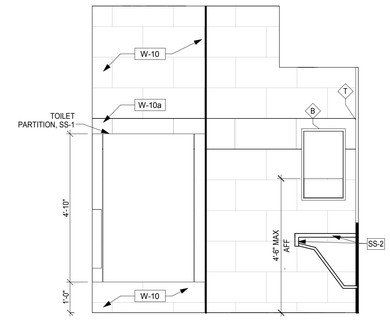
ALL SIGNAGE SHALL COMPLY WITH ACCESSIBILITY STANDARDS.

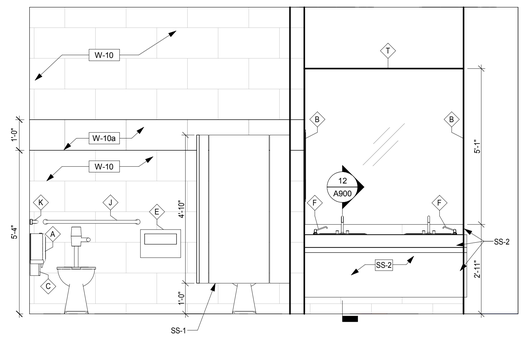
ALL CONSTRUCTION IS TO COMPLY WITH LOCAL ACCESSIBILITY STANDARDS AND CODES. IF A CONFLICT EXISTS BETWEEN THE ACCESSIBILITY STANDARDS AND DRAWINGS, THE ACCESSIBILITY STANDARDS OVERRULE. CONTRACTOR IS TO NOTIFY ARCHITECT OF CONFLICT THAT MAY ARISE, PRIOR TO MAKING CHANGES IN FIELD.



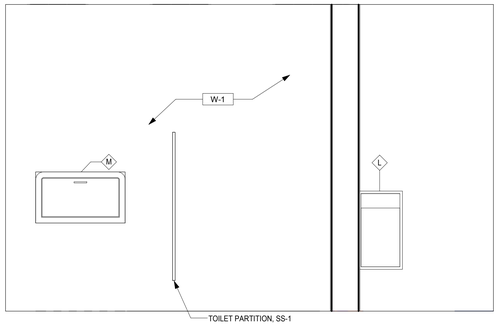
9 A810 Women's Restroom - 3
1/2" = 1'-0"



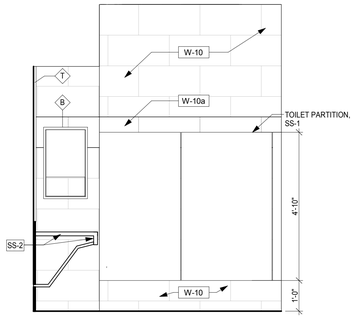
8 A810 Women's Restroom - 2
1/2" = 1'-0"



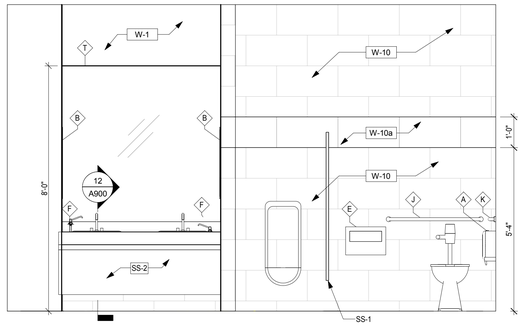
7 A810 Women's Restroom - 1
1/2" = 1'-0"



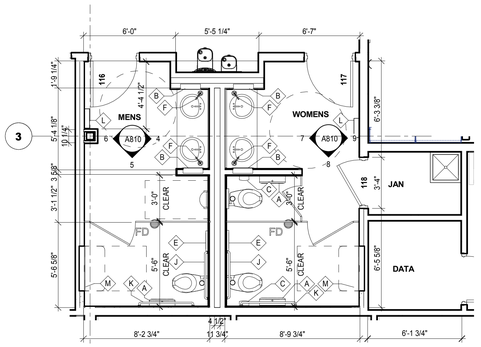
6 A810 Men's Restroom - 3
1/2" = 1'-0"



5 A810 Men's Restroom - 2
1/2" = 1'-0"



4 A810 Men's Restroom - 1
1/2" = 1'-0"



3 E 2 A810 Enlarged Restroom Plan
1/4" = 1'-0"

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ATLANTA, GA
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REGISTERED ARCHITECT

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Rev	Date	Comments
	03.11.16	Bid/Permit

Client:
William L Grainger

P.O. BOX 7267
GARDEN CITY, GA 31408

Project Number: 15221
Project Name:
Grainger Nissan

245 Robert Smalls Parkway,
Beaufort, SC 29906

Sheet Title:
Enlarged Restroom Plans & Elevations - Customer

Sheet Number:
A810

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Restroom Accessory Schedule

ACCESSORY CODE	DESCRIPTION	MODEL BOBRICK, U.N.O.	TYPICAL LOCATION (U.N.O.) ELEVATION	PLAN
A	TWIN JUMBO-ROLL TISSUE DISPENSER	B-2892	BOTTOM @ 1' - 7" A.F.F.	CENTERLINE TO BE WITHIN 7" to 9" OF FRONT OF TOILET SEAT
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D	SURFACE-MOUNTED SEAT COVER DISPENSER	B-221	TOP @ 5' - 0" A.F.F.	
E	SURFACE-MOUNTED SEAT COVER DISPENSER (ADA)	B-221	TOP @ 2' - 10"	NOTE: ADA CANNOT HAVE SEAT-COVER BEHIND TOILET.
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G	SURFACE-MOUNTED SOAP DISPENSER	B-2111	44" MAX A.F.F @ DISPENSER CONTROLS	-
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M	KOALA HORIZ. STAINLESS STL., RECESSED BABY CHANGING STATION	KB110-SSRE	TOP HOLE @ 3' - 7 3/4" A.F.F.	-
N	SURFACE-MOUNTED ROLL TOWEL DISPENSER (NOT FOR PUBLIC RESTROOMS)	B-2860	TOP @ 5' - 0" A.F.F.	(NON-PUBLIC AREAS) MOUNT ABOVE B-2111
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T	SURFACE MOUNTED MIRROR	-	STARTS @ BACKSPLASH	24" LONG (3 HOLDERS); 36" LONG (4 HOLDERS); USE MAX LENGTH POSSIBLE
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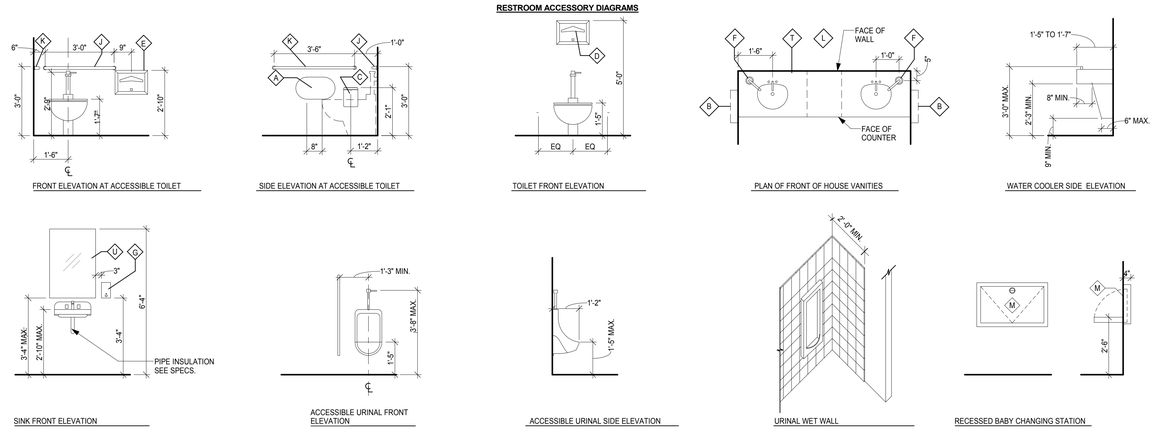
RESTROOM ACCESSORY DIAGRAMS



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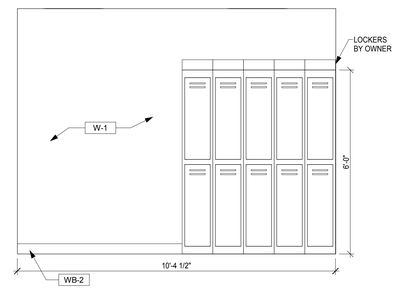
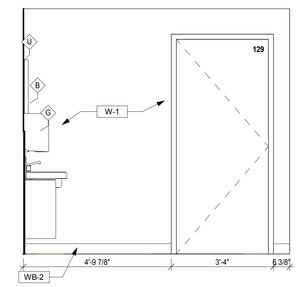
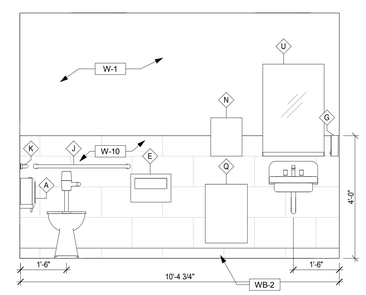


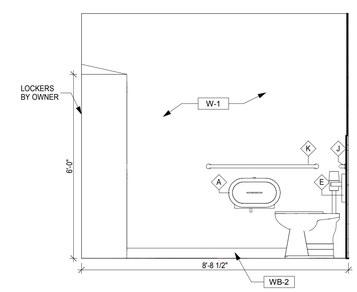
9 A811 Men's Tech Restroom - 4
1/2" = 1'-0"



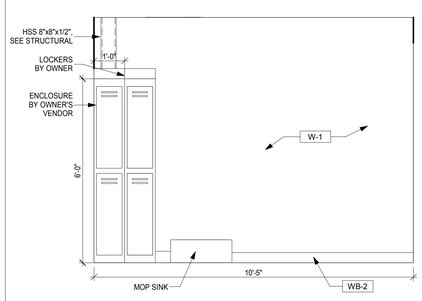
8 A811 Men's Tech Restroom - 3
1/2" = 1'-0"



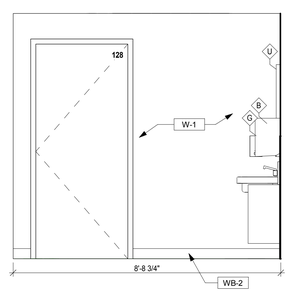
7 A811 Men's Tech Restroom - 2
1/2" = 1'-0"



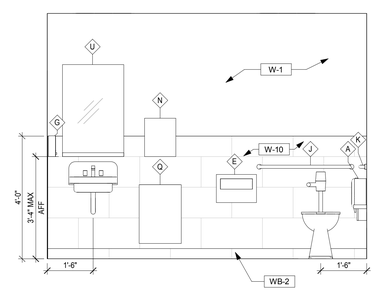
6 A811 Men's Tech Restroom - 1
1/2" = 1'-0"



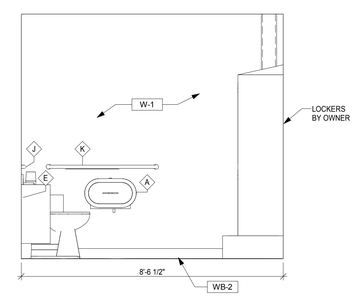
5 A811 Women's Tech Restroom - 4
1/2" = 1'-0"



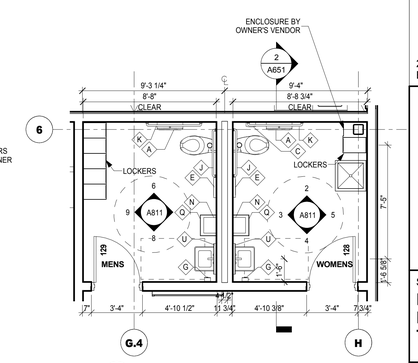
4 A811 Women's Tech Restroom - 3
1/2" = 1'-0"



3 A811 Women's Tech Restroom - 2
1/2" = 1'-0"



2 A811 Women's Tech Restroom - 1
1/2" = 1'-0"



1 A811 Enlarged Tech Restroom Plan
1/4" = 1'-0"

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Rev	Date	Comments
	03.11.16	Bid/Permit

Client:
William L Grainger

P.O. BOX 7267
GARDEN CITY, GA 31408

Project Number: 15221
Project Name:
Grainger Nissan

245 Robert Smalls Parkway,
Beaufort, SC 29906

Sheet Title:
Enlarged Restroom Plans & Elevations - Tech

Sheet Number:
A811

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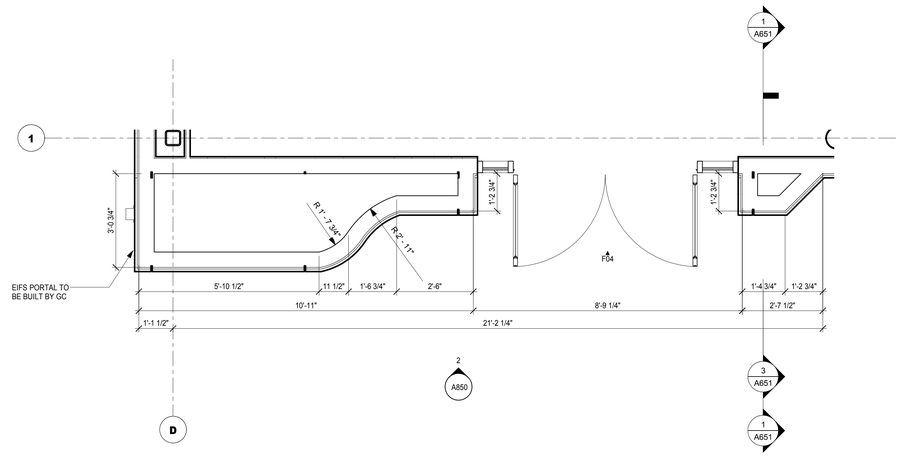
2 A850 Portal Elevation
1/2" = 1'-0"



1 A850 Enlarged Portal Plan
1/2" = 1'-0"

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Grainger Nissan

245 Robert Smalls Parkway,
Beaufort, SC 29906

Sheet Title:
Portal Details

Sheet Number:
A850

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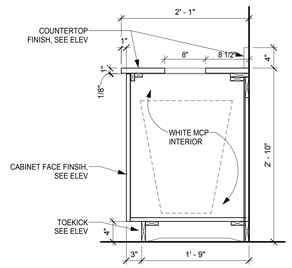
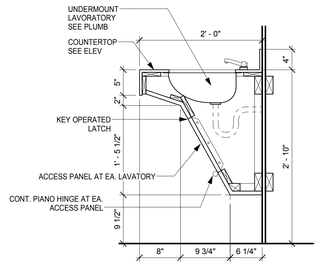
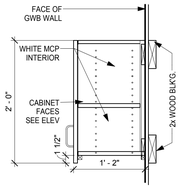


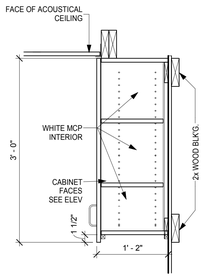
13 A900 Hospitality Trash Cabinet
1" = 1'-0"



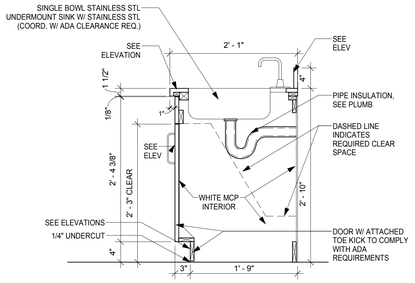
12 A900 Restroom Lavatory Cabinet ADA
1" = 1'-0"



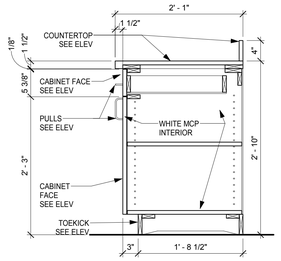
11 A900 Cabinet - Upper 2' Height
1" = 1'-0"



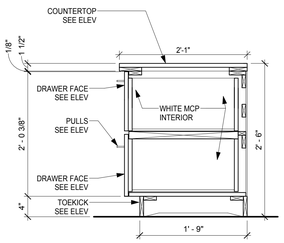
10 A900 Cabinet - Upper
1" = 1'-0"



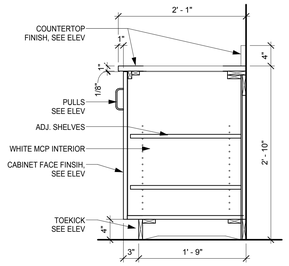
9 A900 ADA Sink Cabinet
1" = 1'-0"



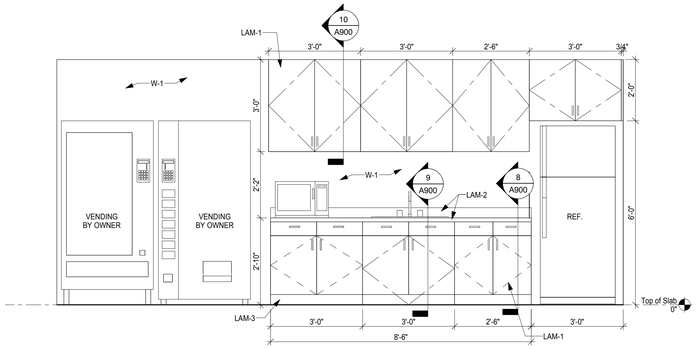
8 A900 Cabinet - Base w/Drawer ADA
1" = 1'-0"



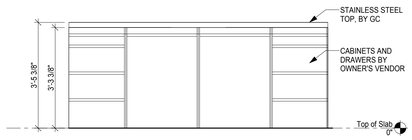
7 A900 Cabinet File Two Drawers
1" = 1'-0"



6 A900 Base Cabinet
1" = 1'-0"

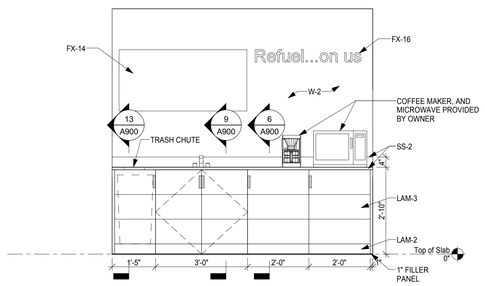


5 A900 Tech Breakroom Counter
1/2" = 1'-0"

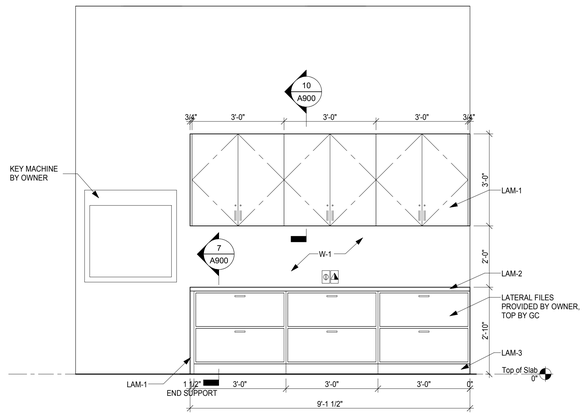


4 A900 Tech Parts - Elevation 2
1/2" = 1'-0"

3 A900 Tech Parts - Elevation 1
1/2" = 1'-0"



2 A900 Hospitality Bar
1/2" = 1'-0"



1 A900 Sales Managers - Elevation 3
1/2" = 1'-0"

Client:
William L Grainger

P.O. BOX 7267
GARDEN CITY, GA 31408

Project Number: 15221
Project Name:
Grainger Nissan

245 Robert Smalls Parkway,
Beaufort, SC 29906

Sheet Title:
Millwork Elevations & Details

Sheet Number:
A900

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GENERAL NOTES

CONCRETE NOTES

- REINFORCING STEEL FOR ALL MEMBERS SHALL HAVE A YIELD STRENGTH OF 60,000 PSI MINIMUM, EXCEPT FOR STIRRUPS, TIES AND HOOPS, WHICH SHALL HAVE A YIELD. STRENGTH OF 40,000 PSI MINIMUM.
- UNLESS SHOWN OTHERWISE, FRAMED CONCRETE SLABS SHALL BE 4" THICK REINFORCED WITH #4 @ 8" o.c. EACH WAY.
- WHERE MAIN REINFORCING IN A SOLID SLAB IS ONE DIRECTION, PROVIDE #3 BARS AT 12" o.c. IN THE OTHER DIRECTION, UNLESS SHOWN OTHERWISE.
- BACKFILL SHALL NOT BE PLACED AGAINST BASEMENT WALLS UNTIL THE BASEMENT FLOOR SLAB AND THAT PORTION OF THE FIRST SLAB OVER THE BASEMENT ARE IN PLACE.
- UNLESS SHOWN OTHERWISE, CONCRETE WALLS 8" THICK OR LESS SHALL BE REINFORCED WITH #4 @ 8" o.c. EACH WAY. WALLS OVER 8" THICK SHALL BE REINFORCED WITH #4 @ 12" o.c. EACH WAY, EACH FACE.
- WHERE THE LENGTH OF A BAR IS GIVEN, AND IT IS TO BE HOOKED, THE HOOK SHALL BE IN ADDITION TO THE LENGTH GIVEN.
- WHERE OPENINGS OCCUR IN SLABS, PLACE THE REINFORCING THAT WOULD OCCUR IN LINE WITH THE OPENING EQUALLY TO EITHER SIDE OF THE OPENING. CUT NO STEEL IN THE FIELD.
- REINFORCING BARS THAT ARE TO BE WELDED SHALL BE OF A WELDABLE GRADE AND WELDED IN ACCORDANCE WITH A.W.S. RECOMMENDATIONS.
- PROTECTIVE COVERING OF REINFORCEMENT (SEE DETAILS) SHALL BE AS FOLLOWS : FOOTINGS AND GRADE BEAMS 3" CLEAR BOTTOM AND SIDES, 1 1/2" CLEAR SIDES. BEAMS 1 1/2" CLEAR TO STIRRUPS. CONCRETE COLUMNS AND PIERS 1 1/2" CLEAR TO TIES. 3/4" CLEAR FOR CONCRETE JOIST TOP BARS
- ALL CONCRETE FOR TOPPING SLAB SHALL BE REGULAR WEIGHT CONCRETE.

CONTRACTOR'S NOTES

- SEE ARCHITECTURAL, MECHANICAL, PLUMBING AND ELECTRICAL DRAWING. AND SPECIFICATIONS FOR SIZE AND LOCATION OF DRIPS, CHAMFERS, SLEEVES, ANCHORS, INSERTS AND OPENINGS REQUIRED. THE LOCATION AND SIZE OF SLEEVES OR OPENINGS NOT SHOWN ON THE DRAWINGS IN STRUCTURAL MEMBERS SHALL BE SUBJECT TO THE APPROVAL OF THE ARCHITECT. ANY CONFLICT SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT BEFORE PROCEEDING WITH THE WORK AFFECTED. PRINCIPAL OPENINGS IN THE STRUCTURE ARE INDICATED ON THE CONTRACT DRAWINGS. ANY SUBSTITUTIONS RESULTING IN REVISIONS TO THE STRUCTURE SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH THE ARCHITECT.
- THE CONTRACTOR SHALL NOT SCALE THE CONTRACT DRAWINGS FOR THE PURPOSE OF ESTABLISHING CORRECT DIMENSIONS.
- U.N.O. DENOTES: "UNLESS NOTED OTHERWISE".
- GENERAL CONTRACTOR SHALL FIELD VERIFY EXISTING SIZES, DIMENSIONS, NOTES OR CONDITIONS PRIOR TO ANY DETAILING, OR FABRICATION OF MATERIALS.

DECKING NOTES

- NO PIPING, DUCTWORK, OR CONDUIT LARGER THAN 3/4" DIAMETER OR STUD WALLS SHALL BE SUPPORTED DIRECTLY FROM METAL DECK OR PERMANENT METAL FORM.
- ALL METAL ROOF DECKS SHALL BE WIDE RIB AND GALVANIZED TYPE "B" DECKS UNLESS NOTED OTHERWISE.

FOUNDATION NOTES

- BUILDING FOOTINGS ARE DESIGNED TO BEAR ON ORIGINAL EARTH OR LABORATORY CONTROLLED COMPACTED FILL WITH AN ALLOWABLE BEARING CAPACITY OF 1,500 PSF. SOIL BEARING CAPACITY SHALL BE VERIFIED BY A REGISTERED GEOTECHNICAL ENGINEER AT THE TIME OF EXCAVATION. ELEVATIONS GIVEN ARE FOR PURPOSES OF CONTRACT AND SHALL BE ADJUSTED AT THE TIME OF EXCAVATION TO MEET SOILS CONDITIONS. SITE SHALL BE PREPARED IN ACCORDANCE TO THE GEOTECHNICAL REPORT PREPARED BY "WHITAKER LABORATORY, INC." DATED 14 SEPTEMBER 2015. PROJECT NO . 9-14-15-1. WE RECOMMEND FOLLOWING THE GEOTECHNICAL ENGINEERS REQUEST OF SURCHARGING THE SITE AND INSTALLING THE EARTHQUAKE DRAINS.
- WALL FOOTINGS, UNLESS SHOWN OTHERWISE, SHALL BE 12" THICK WITH A 6" SPREAD EACH SIDE OF MASONRY WALL, REINFORCED WITH 2 #6 CONTINUOUS. (UNLESS NOTED OTHERWISE)
- THE MAXIMUM WALL FOOTING STEP-OFF SHALL BE 2'-0" VERTICAL SPACED NOT LESS THAN: 4'-0"o.c. FOOTING STEP-OFFS ARE INDICATED BY THE SYMBOL:
- WHERE PIPES OR CONDUITS RUN PERPENDICULAR TO A FOOTING, STEP TOP OF FOOTING DOWN TO ALLOW PIPES OR CONDUIT TO RUN OVER TOP OF FOOTINGS.
- WHERE PIPES OR CONDUIT RUN PARALLEL TO A FOOTING, STEP DOWN BOTTOM OF FOOTING SO THAT A LINE DRAWN BETWEEN INVERT OF PIPE AND BOTTOM OF FOOTING SHALL NOT EXCEED 30 DEGREES, SEE "TRENCHES NEAR FOOTINGS" DETAIL.
- NO PIPES OR CONDUIT SHALL BE PLACED IN THE FOOTINGS, OR SLAB ON GRADE.

SLAB-ON-GRADE NOTES

- WHERE SLABS REST ON FILL, FILL SHALL BE COMPACTED IN ACCORDANCE WITH THE SPECIFICATIONS.
- SLABS ON GROUND MAY BE PLACED IN LANE FASHION USING GALVANIZED STEEL, PREFORMED KEYED FORMS AT FLOOR JOINT LOCATION INDICATED. REINFORCING SHALL NOT CROSS CONSTRUCTION OR KEYED JOINTS.
- SEE CIVIL AND ARCH. DRAWINGS AND SPECIFICATIONS FOR EXTERIOR SLAB WORK AND JOINTING. HORIZONTAL RUNS OF CONDUIT AND PIPE SHALL NOT BE PLACED IN SLABS ON GROUND, PLACE IN SUB-GRADE.

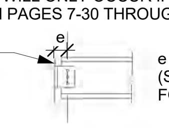
STEEL BAR JOIST NOTES

- JOIST BRIDGING SHALL NOT BE USED TO SUPPORT CONDUIT, PIPING, DUCTWORK, ETC.
- JOISTS SHALL NOT BE FIELD MODIFIED EXCEPT AS SHOWN.
- WHERE JOISTS CANNOT ACHIEVE THE REQUIRED BEARING ON STEEL BEAMS, STAGGER JOISTS TO PROVIDE ADEQUATE BEARING.
- STEEL JOISTS SHALL BE OPEN WEB STEEL JOISTS OF THE SIZES AND SERIES SHOWN ON THE DRAWINGS. JOISTS, BRIDGING AND SPACING OF BRIDGING SHALL MEET THE REQUIREMENTS OF THE LATEST EDITION OF THE "STANDARD SPECIFICATIONS" OF THE STEEL JOIST INSTITUTE, EXCEPT WHERE OTHERWISE INDICATED BY THE DRAWINGS OR SPECIFICATIONS.
- WHERE ANGLE BRACES ARE SHOWN ON STRUCTURAL SECTIONS, JOIST MANUFACTURER SHALL RESOLVE AN AXIAL LOAD OF 2000 POUNDS FROM THE BRACE INTO THE JOIST - TYPICAL UNLESS NOTED OTHERWISE.
- IN ADDITION TO WHAT IS CALLED FOR ON PLAN, BAR JOISTS SHALL BE DESIGNED TO SUPPORT AN ADDITIONAL CONCENTRATED LOAD OF 300 POUNDS AT TOP OR BOTTOM CHORD AT ANY ONE LOCATION ALONG THE SPAN.
- AT THE END OF EACH ROOF JOIST, PROVIDE A CONTINUOUS ROW OF BRIDGING AT THE LAST BOTTOM CHORD PANEL POINT FOR UPLIFT. TYPICAL AT EACH END OF JOIST.

STRUCTURAL STEEL NOTES

- FABRICATION AND ERECTION OF ALL STEEL SHALL BE IN ACCORDANCE WITH THE AISC SPECIFICATIONS.
- ALL BOLTS SHALL BE ASTM A-325 HIGH STRENGTH BOLTS U.N.O. (T.C. BOLTS)
- WHERE BEAMS REST ON MASONRY OR CONCRETE WALLS THEY SHALL BEAR A MINIMUM OF 8" AND SHALL HAVE BEARING PLATES AND ANCHORS.
- WHERE NOT SHOWN OTHERWISE, ALL COLUMNS SHALL HAVE BASE PLATES AND (4) 3/4" DIAMETER x 1'-2" LONG+HOOK ANCHOR BOLTS.
- UNLESS SHOWN OTHERWISE, PROVIDE 5/8"x12"x7-1/2" BEARING PLATES ON 1" GROUT WITH (2) 3/4" DIAMETER ANCHOR BOLTS UNDER ALL STEEL BEAMS THAT BEAR ON MASONRY WALLS.
- COLUMN BASES ARE DESIGNED AS UNRESTRAINED, THEREFORE COLUMNS MUST BE BRACED DURING ERECTION.
- AS ERECTION PROGRESSES, FRAMING SHALL BE ADEQUATELY GUYED AND BRACED AND CONNECTIONS SHALL BE SECURELY BOLTED OR WELDED.
- NO SHOP SPLICE OR OTHER CONNECTION WILL BE PERMITTED UNLESS THIS SPLICE OR DETAIL IS SHOWN ON SHOP DRAWINGS AND REVIEWED BY THE ENGINEERS.
- ALL STEEL SHALL CONFORM TO ASTM A992, 50 KSI STEEL UNLESS SHOWN OTHERWISE. TUBE STEEL SHALL CONFORM TO ASTM A-500, GRADE B (Fy = 46 KSI MINIMUM) ALL MISC. PLATES, CONNECTION PLATES AND ANGLES SHALL BE 36 KSI STEEL.
- ALL FASTENERS SHALL CONSIST OF ONE NUT, ONE BOLT, AND ONE WASHER.
- ALL BEAM SHOP CONNECTIONS SHALL BE WELDED. BEAM SHOP CONNECTIONS MAY BE BOLTED IN LIEU OF WELDING PROVIDED THAT THE CONTRACTOR ASKS AND RECEIVES AN AFFIRMATIVE ANSWER BY THE ENGINEER OF RECORD IN WRITING. FURTHERMORE, ACCEPTANCE OF A BOLTED CONNECTION WILL ONLY OCCUR IF THE FABRICATOR FOLLOWS THE ECCENTRIC LOAD TABLES PROVIDED ON PAGES 7-30 THROUGH 7-53 OF THE AISC MANUAL.

FACE OF FRAMING MEMBER



e = ECCENTRICITY (SEE 7-30 - 7-53, AISC FOURTEENTH EDITION)

- ALL WELDING SHALL CONFORM TO THE "STRUCTURAL WELDING CODE - AMERICAN WELDING SOCIETY." FOR WELD TESTING REQUIREMENTS, SEE SPECIFICATIONS.
- ALL ANCHOR BOLTS SHALL BE ASTM F-1554.
- NO SLOTTED HOLES ARE PERMITTED UNLESS SPECIFICALLY DETAILED BY THE ENGINEER OF RECORD.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO SECURE STEEL AGAINST DISPLACEMENT DURING ERECTION AND TO MAINTAIN IT AGAINST DISPLACEMENT UNTIL THE ERECTION OF ALL STEEL IS COMPLETED, ALL FLOOR AND ROOF DECKS ARE IN PLACE, AND ALL EXTERIOR MASONRY IS COMPLETED. ALL STRUCTURAL METAL WORK SHALL HAVE TEMPORARY GUYS, BRACES AND STAYS TO HOLD IT IN POSITION UNTIL IT IS PERMANENTLY SECURE.
- ALL GROUT UNDER BASE PLATES AND BEAM BEARING PLATES SHALL BE NON SHRINK GROUT. (5,000 PSI)
- WHERE ROOF DECKS FRAME ONTO A ROOF MEMBER, AND DECK IS IN A DIFFERENT PLANE THAN THE ROOF MEMBER, PROVIDE A 3/16" CONTINUOUS BENT PLATE WELDED ACROSS THE TOP OF THE ROOF MEMBER SLOPED TO MATCH PLANE OF ROOF DECK.
- FILL ALL CMU CELLS WITH GROUT WHERE REINFORCING AND/OR ANCHORS OCCUR.
- HEADED CONCRETE ANCHORS SHALL BE NELSON OR K.S.M. HEADED CONCRETE ANCHORS (OR APPROVED EQUAL), AND SHALL CONFORM TO ASTM A-108.
- ANCHORS SHALL BE AUTOMATICALLY END WELDED WITH SUITABLE STUD WELDING EQUIPMENT IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE MANUFACTURER.
- WHERE A ROOF FRAMING MEMBER DOES NOT FRAME OVER A COLUMN, PROVIDE A 1/2" THICK CAP PLATE (i.e. TUBES AND PIPES)
- FABRICATOR SHALL SUBMIT COMPLETE CALCULATIONS OF ALL CONNECTIONS, STRUCTURAL STEEL, AND JOIST SEALED BY THE REGISTERED DESIGN ENGINEER
- WHERE HSS OUTLOOKERS OCCUR PROVIDE 1/4" CAP PLATE AT END

SUBMITTAL NOTES

- THE GENERAL CONTRACTOR SHALL SUBMIT A SCHEDULE OF SUBMITTALS PRIOR TO CONSTRUCTION BEGINNING ON THE PROJECT. THE SCHEDULE SHOULD DESCRIBE WHAT EACH SUBMITTAL IS, WHETHER IT IS THE ENTIRE PACKAGE, OR BROKEN INTO PHASES FOR REVIEW.
- THE GENERAL CONTRACTOR SHALL ALLOW FOR 10 BUSINESS DAYS OF ALL STRUCTURAL SUBMITTALS. IF THE CONTRACTOR WISHES TO EXPEDITE OR REDUCE THE REVIEW TIME, IT SHALL BE DONE FOR AN ADDITIONAL CHARGE AND MUST BE NEGOTIATED WITH THE ARCHITECT AND ENGINEER PRIOR TO THE SUBMISSION OF THE PACKAGE.
- IN THE EVENT THE CONTRACTOR ATTEMPTS TO SUBMIT THE ENTIRE PROJECT AT THE SAME TIME FOR SUBMISSION, ADDITIONAL TIME WILL BE REQUIRED BEYOND THE STANDARD 10 DAY REVIEW TIME.
- WHERE GLASS REQUIRES ADDITIONAL DESIGN OF MISCELLANEOUS STEEL AND MULLIONS, CONTRACTOR SHALL FURNISH DETAILED DESIGN CALCULATIONS SEALED BY A REGISTERED ENGINEER IN THE STATE IN WHICH THE PROJECT IS BUILT.

COLD-FORMED STEEL NOTES

- ALL EXTERIOR METAL STUDS ARE TO BE C.S.J. (U.N.O.)
- ALL EXTERIOR METAL STUDS SHALL BE DESIGNED FOR LATERAL WIND PRESSURE BASED UPON ULTIMATE DESIGN WIND SPEED AS SHOWN ON DESIGN NOTES AND SHOULD BE LIMITED TO LATERAL DEFLECTION OF L/600 WHEN BACKING MASONRY, AND L/360 WHEN BACKING E.I.F.S., AND METAL PANELS
- ALL EXTERIOR FLANGES OF STUD WALLS SHALL BE BRACED BY SHEATHING PROPERLY ATTACHED TO THEM.
- CONTRACTOR SHALL FURNISH DETAILED DESIGN CALCULATIONS INCLUDING CONNECTION AND GAUGE OF ALL EXTERIOR METAL STUDS, METAL STUD TRUSSES AND METAL STUD TRUSS GIRDERS SEALED BY A REGISTERED ENGINEER IN THE STATE IN WHICH THE PROJECT IS BUILT.
- THE TOP COMPRESSION FLANGES OF JOISTS & TRUSSES ARE TO BE LATERALLY BRACED BY PROPER ATTACHMENT OF THE DECKING.
- THE TOP FLANGES OF BOTTOM CHORDS OF TRUSSES, SHALL BE BRACED LATERALLY AT INTERVALS NOT EXCEEDING 3'-0" o.c. BY CONTINUOUS C STUDS WELDED TO TOP FLANGES OR BY SHEATHING ATTACHED DIRECTLY TO BOTTOM FLANGE.
- TOP FLANGE OF CEILING STUD SHALL BE BRACED LATERALLY BY CONTINUOUS C STUDS WELDED TO EACH JOIST. EACH BRACE SHALL BE CAPABLE OF TRANSMITTING A MINIMUM OF 200 POUNDS IN TENSION OR COMPRESSION. BOTTOM FLANGE OF CEILING SHALL BE BRACED BY SHEATHING PROPERLY ATTACHED TO BOTTOM FLANGE.
- ALL INTERIOR FLANGES OF STUD WALLS SHALL BE BRACED EITHER BY SHEATHING OR BY CONTINUOUS CHANNELS WELDED TO FLANGE AT INTERVALS NOT EXCEEDING 2'-0" o.c. OR AS DETERMINED BY DETAIL DESIGN DOCUMENTS FURNISHED BY A REGISTERED ENGINEER IN THE STATE IN WHICH THE PROJECT IS BUILT.
- ALL NON-LOAD-BEARING METAL STUD WALLS (INTERIOR AND EXTERIOR) SHALL BE CONNECTED TO ALLOW FOR 3/4" VERTICAL MOVEMENT BETWEEN STUD WALL AND STRUCTURE.
- ALL OTHER INTERIOR METAL STUD PARTITIONS, BULKHEADS, CEILING STUDS AND ECT. SHALL BE FURNISHED UNDER THE DIRECTION OF THE ARCHITECTURAL DOCUMENTS . ANY ADDITIONAL STUD DESIGN REQUIREMENTS SHALL BE PROVIDED BY THE GENERAL CONTRACTOR'S METAL STUD DESIGN ENGINEER.
- METAL STUD WALLS SHALL NOT BE ERECTED UNTIL AFTER DEAD LOADS AND ALL CONCRETE FLOORS ON FRAMING ABOVE ABOVE ARE IN PLACE.

POST-INSTALLED ANCHOR NOTES

- THE BELOW PRODUCTS ARE THE DESIGN BASIS FOR THIS PROJECT. PRODUCT DIAMETER AND EMBEDMENT SHALL BE AS SHOWN IN THE DETAILS. INSTALL PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS (MPII). SUBSTITUTION REQUESTS FOR PRODUCTS OTHER THAN THOSE LISTED BELOW MAY BE SUBMITTED BY THE CONTRACTOR TO THE ENGINEER-OF-RECORD (EOR) FOR REVIEW. SUBSTITUTIONS WILL ONLY BE CONSIDERED FOR PRODUCTS HAVING A CODE REPORT RECOGNIZING THE PRODUCT FOR THE APPROPRIATE APPLICATION. SUBSTITUTION REQUESTS SHALL INCLUDE CALCULATIONS THAT DEMONSTRATE THE SUBSTITUTED PRODUCT IS CAPABLE OF ACHIEVING THE EQUIVALENT PERFORMANCE VALUES OF THE DESIGN BASIS PRODUCT. CONTRACTOR SHALL CONTACT MANUFACTURER'S REPRESENTATIVE (800-999-5099) FOR PRODUCT INSTALLATION TRAINING AND A LETTER SHALL BE SUBMITTED TO THE EOR INDICATING TRAINING HAS TAKEN PLACE. SPECIAL INSPECTIONS ARE REQUIRED PER THE IBC AND ICC-ES REPORTS.

A. FOR ANCHORING INTO CONCRETE

I. MECHANICAL ANCHORS SHALL HAVE BEEN TESTED AND QUALIFIED FOR USE IN ACCORDANCE WITH ACI 355.2 AND ICC-ES AC193 FOR CRACKED CONCRETE AND SEISMIC APPLICATIONS. PRE-APPROVED ANCHORS INCLUDE:

(1) SIMPSON STRONG TIE "STRONG-BOLT 2" (IAPMO-UES ESR ER-240)

II. ADHESIVE FOR REBAR AND ANCHORS SHALL HAVE BEEN TESTED AND QUALIFIED FOR USE IN ACCORDANCE WITH ACI 355.4 AND ICC-ES AC308 FOR CRACKED CONCRETE AND SEISMIC APPLICATIONS. ADHESIVE ANCHORS SHALL BE INSTALLED BY A CERTIFIED ADHESIVE ANCHOR INSTALLER PER ACI 318-11 D.9.2.2 WHERE INDICATED ON THE CONTRACT DOCUMENTS. INSTALLATIONS REQUIRING CERTIFIED INSTALLERS SHALL BE INSPECTED PER ACI 318-11 D.9.2.4. PRE-APPROVED ANCHORS INCLUDE:

(1) SIMPSON STRONG TIE "SET-XP" (ICC-ES ESR-2508)
(2) SIMPSON STRONG TIE "AT-XP" (IAPMO-UES ESR-263)

III. POWER-ACTUATED FASTENERS SHALL HAVE BEEN TESTED IN ACCORDANCE WITH ICC-ES AC70. PRE-APPROVED ANCHORS INCLUDE:

(1) SIMPSON STRONG TIE "GAS ACTUATED PINS" (ICC-ES ESR-2811)
(2) SIMPSON STRONG TIE "POWDER ACTUATED PINS" (ICC-ES ESR-2138)

B. FOR ANCHORING INTO MASONRY

I. ANCHORAGE TO SOLID-GROUTED CONCRETE MASONRY

(1) MECHANICAL ANCHORS SHALL HAVE BEEN TESTED AND QUALIFIED FOR USE IN ACCORDANCE WITH ICC ES AC01 OR ICC-ES AC106 PRE-APPROVED ANCHORS INCLUDE:

(A) SIMPSON STRONG TIE "TITEN-HD" (ICC-ES ESR-1056)
(B) SIMPSON STRONG TIE "STRONG-BOLT 2" (IAPMO-ES ER-240)

(2) ADHESIVE FOR REBAR AND ANCHORS SHALL HAVE BEEN TESTED AND QUALIFIED FOR USE IN ACCORDANCE WITH ICC-ES AC58. PRE-APPROVED ANCHORS INCLUDE:

(A) SIMPSON STRONG TIE "AT-XP" (IAPMO-UES ER-281)
(B) SIMPSON STRONG TIE "SET-XP" (IAPMO-UES ER-265)

(3) POWER-ACTUATED FASTENERS SHALL HAVE BEEN TESTED IN ACCORDANCE WITH ICC-ES AC70. PRE-APPROVED ANCHORS INCLUDE:

(A) SIMPSON STRONG TIE "GAS ACTUATED PINS" (ICC-ES ESR-2811)
(B) SIMPSON STRONG TIE "POWDER ACTUATED PINS" (ICC-ES ESR-2138)

II. ANCHORAGE TO HOLLOW CONCRETE MASONRY

(1) MECHANICAL ANCHORS SHALL HAVE BEEN TESTED AND QUALIFIED FOR USE IN ACCORDANCE WITH ICC-ES AC106 PRE-APPROVED ANCHORS INCLUDE:

(A) SIMPSON STRONG TIE "TITEN-HD"

(2) ADHESIVE FOR REBAR AND ANCHORS WITH SCREEN TUBES SHALL HAVE BEEN TESTED AND QUALIFIED FOR USE IN ACCORDANCE WITH ICC-ES AC58. THE APPROPRIATE SCREEN TUBE SHALL BE USED AS RECOMMENDED BY THE ADHESIVE MANUFACTURER. PRE-APPROVED ANCHORS WITH SCREEN TUBES INCLUDE:

(A) SIMPSON STRONG TIE "SET" (ICC-ES ESR-1772)

(3) POWER-ACTUATED FASTENERS SHALL HAVE BEEN TESTED IN ACCORDANCE WITH ICC-ES AC70. PRE-APPROVED ANCHORS INCLUDE:

(A) SIMPSON STRONG TIE "GAS ACTUATED PINS" (ICC-ES ESR-2811)
(B) SIMPSON STRONG TIE "POWDER ACTUATED PINS" (ICC-ES ESR-2138)

C. FOR ANCHORING INTO STEEL POWER-ACTUATED FASTENERS SHALL HAVE BEEN TESTED IN ACCORDANCE WITH ICC-ES AC70. PRE-APPROVED ANCHORS INCLUDE:

I. SIMPSON STRONG TIE "GAS ACTUATED PINS" (ICC-ES ESR-2811)
II. SIMPSON STRONG TIE "POWDER ACTUATED PINS" (ICC-ES ESR-2138)

REPAIR, PROTECT, AND STRENGTHENING NOTES

- THE BELOW PRODUCTS ARE THE DESIGN BASIS FOR THIS PROJECT. CONTRACTOR SHALL FOLLOW MANUFACTURER'S INSTALLATION INSTRUCTIONS AND CONTACT MANUFACTURER'S REPRESENTATIVE (800-999-5099) WITH PRODUCT RELATED QUESTIONS. SUBSTITUTION REQUESTS FOR PRODUCTS OTHER THAN THOSE LISTED BELOW MAY BE SUBMITTED BY THE CONTRACTOR TO THE ENGINEER-OF-RECORD (EOR) FOR REVIEW AND APPROVAL. SUBSTITUTIONS WILL ONLY BE CONSIDERED FOR PRODUCTS HAVING INDEPENDENT TEST RESULTS OR OTHER DOCUMENTATION INDICATING THE PRODUCT IS APPROPRIATE FOR THE INTENDED APPLICATION.

A. REBAR PRIMER: REBAR PRIMER SHALL BE USED TO PROTECT EXISTING STEEL REINFORCING AND ENCOURAGE POSITIVE BOND FROM EXISTING STEEL REINFORCING TO NEW REPAIR MATERIAL. PRE-APPROVED PRODUCTS INCLUDE:

I. SIMPSON STRONG TIE "FX-406"

B. BONDING AGENTS: BONDING AGENTS SHALL BE USED TO ENCOURAGE POSITIVE BOND OF NEW REPAIR MATERIAL TO EXISTING CONCRETE. PRE-APPROVED PRODUCTS INCLUDE:

I. SIMPSON STRONG TIE "FX-762"

C. REPAIR MORTARS: REPAIR MATERIAL SHALL BE USED TO REPAIR AREAS OF DAMAGED CONCRETE. PRE-APPROVED PRODUCTS INCLUDE:

I. SIMPSON STRONG TIE "FX-263" (FOR USE IN OVERHEAD AND VERTICAL APPLICATIONS)
II. SIMPSON STRONG TIE "FX-261" (FOR USE IN HORIZONTAL AND FORM & POUR APPLICATIONS)

D. CRACK REPAIR SYSTEM: CRACK REPAIR SYSTEM SHALL CONSIST OF CRACK INJECTION MATERIAL AND PASTE OVER ADHESIVE AND SHALL BE USED TO PRESSURE INJECT CRACKS. PRE-APPROVED SYSTEMS INCLUDE:

I. SIMPSON STRONG TIE "FX-751 LV" INJECTION MATERIAL WITH "FX-763" PASTE OVER ADHESIVE

E. NON-SHRINK GROUT MATERIAL: NON-SHRINK GROUT MATERIAL SHALL BE USED TO GROUT BENEATH BASEPLATES, BEARING PLATES AND EQUIPMENT BASES. PRE-APPROVED PRODUCTS INCLUDE:

I. SIMPSON STRONG TIE "FX-228"

STEEL STAIR AND ALL RAILING NOTES

- SUBMIT COMPLETE ERECTION, FABRICATION DRAWINGS AND CALCULATIONS SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE IN WHICH THIS PROJECT IS BUILT WHICH ADDRESSES THE DESIGN FOR ALL STEEL STAIRS, GUARD RAILS AND HANDRAILS. DETAILS SHALL BE FURNISHED OF ALL STEEL STAIRS. STAIRS SHALL MEET THE SPECIFICATIONS FOR ARCHITECTURALLY EXPOSED STRUCTURAL STEEL (AESS) OF THE AISC CODE OF STANDARD PRACTICE. ALLOW TEN (10) BUSINESS DAYS FOR REVIEW OF SUBMITTED STRUCTURAL DRAWINGS.
- TREADS AND RISERS SHALL BE PREFORMED OF 14 GAUGE METAL. LANDING PAN SHALL BE 12 GAUGE MINIMUM.
- STRINGERS, LANDING BEAMS, CLOSURE PLATES, STIFFENERS AND CONNECTION ANGLES SHALL BE OF SIZES DESIGNED BY THE STAIR PROVIDER AND SHALL RESIST A MINIMUM OF SELF WEIGHT OF STEEL, CONCRETE, ARCHITECTURAL FINISHES AND 100 PSF LIVE LOAD.
- AT LOWEST LEVEL, STAIRS MAY BE SUPPORTED FROM POST BEARING ON A FOOTING, THICKENED SLAB, OR CONCRETE WALL PROVIDED SUPPORT BASE PLATE CAN REMAIN CONCEALED WITHIN ARCHITECTURAL ELEMENTS WITHOUT BEING EXPOSED.
- WHERE STAIR LANDINGS ARE SUSPENDED FROM FLOORS ABOVE, USE A MINIMUM OF DOUBLE ANGLE 3x3x1/4" HANGERS. HANG CONCENTRICALLY FROM FLOOR BEAM. CONTRACTOR SHALL COORDINATE WITH THE ARCHITECTURAL PARTITION SCHEDULE TO ENSURE HANGERS ARE CONCEALED WITHIN PARTITIONS. DO NOT USE ROD HANGERS.
- INTERMEDIATE LANDINGS SHALL BE COMPRISED OF CHANNELS SPANNING BETWEEN SUPPORT STRINGERS SPACED AT A MAXIMUM OF 2'-0" o.c. MAX.
- AT ORNAMENTAL STAIRS, STRINGERS SHALL BE COMPRISED OF TUBE STEEL OR CHANNELS WITH CONTINUOUS COVER PLATES TO FORM A TUBE. IN THIS CASE WELDS SHALL BE CONTINUOUS AND GROUND SMOOTH.
- SEE ARCHITECTURAL DRAWINGS FOR ALL STAIR LAYOUTS, DIMENSIONS AND SECTIONS.

STRUCTURAL STEEL STRENGTHS

STEEL SHAPE	ASTM	Fy (ksi)	Fu (ksi)
ANGLES,PLATES, S SHAPE, AND MISC. CHANNELS MC15 AND SMALLER, AND CHANNELS C8 AND SMALLER	A36	36	58
W SHAPES, MISC CHANNELS MC18 AND LARGER, CHANNELS C10 AND LARGER	A992	50	65
HSS RECTANGULAR AND SQUARE	A500 GRADE B	46	58
HSS ROUND	A500 GRADE B	42	58
SHEAR STUDS	A108	——	65
ANCHOR RODS (A.BOLTS)	F1554	36	58
HIGH STRENGTH BOLTS 3/4" TO 1" DIAM. INCLUSIVE 1-1/8" TO 1-1/2" DIAM. INCL. 1-1/8" TO 1-1/2" DIAM. INCL.	 A325 A325 A490	 —— —— ——	 120 105 150
WELDED WIRE FABRIC 6x6-W.9xW2.9	A185		
REINFORCING STEEL	A615	60	——

MINIMUM REINFORCED CONCRETE STRENGTHS
f 'c AT 28 DAYS (U.N.O. ON SCHEDULES)
(TYPE 1 CEMENT ONLY. DO NOT SUBSTITUTE FLYASH OR SLAG FOR CEMENT)

LOCATION	DENSITY	STRENGTH
SLAB SUPPORTED ON GRADE	145 P.C.F.	3000 PSI
FOOTINGS SUPPORTING WOOD, MASONRY, AND STEEL STRUCTURES	145 P.C.F.	3000 PSI
CONCRETE PIERS SUPPORTING STEEL OR MASONRY COLUMNS	145 P.C.F.	3000 PSI
SLAB ON GRADE AT BIN-SUPPORTED MEZZANINE	145 P.C.F.	5000 PSI
FRAMED SLABS IN COMPOSITE STEEL CONSTRUCTION	115 P.C.F.	4000 PSI
FRAMED SLABS IN BAR JOIST FLOOR CONSTRUCTION	145 P.C.F.	3500 PSI
STAIR TREADS AND LANDINGS	145 P.C.F.	3000 PSI
BASEMENT, TIEBACK, AND RETAINING WALLS	145 P.C.F.	3000 PSI
NON-SHRINK GROUT AT STEEL COLUMN BASEPLATES	145 P.C.F.	5000 PSI
CAISSONS, DRILLED PIERS, AND AUGER CAST PILES	145 P.C.F.	4000 PSI (SEE SPECIFICATIONS)
GRADE BEAMS OR TIE STRAPS	145 P.C.F.	4000 PSI

MINIMUM LAP SPLICE LENGTH SCHEDULE

BAR TYPE	3000 PSI CONC.								
	#3	#4	#5	#6	#7	#8	#9	#10	#11
TOP BARS	29"	38"	47"	56"	82"	94"	105"	118"	131"
OTHER BARS	22"	29"	36"	43"	62"	72"	81"	91"	101"
BAR TYPE	4000 PSI CONC.								
	#3	#4	#5	#6	#7	#8	#9	#10	#11
TOP BARS	25"	33"	40"	48"	70"	81"	91"	103"	113"
OTHER BARS	20"	25"	31"	38"	55"	62"	70"	79"	87"

MINIMUM PRETENSION OF BOLTS (KIPS)

BOLT DIAMETER	A325 BOLTS	A490 BOLTS
3/4" DIAMETER	28	35
7/8" DIAMETER	39	49
1" DIAMETER	51	64

DESIGN NOTES

REFERENCE CODES

INTERNATIONAL BUILDING CODE	IBC 2012
MINIMUM DESIGN LOADS	ASCE 7-10
MASONRY STRUCTURES	ACI 530-11
STRUCTURAL CONCRETE	ACI 318-11
STRUCTURAL STEEL	AISC 360-10

LIVE LOADS

OCCUPANCY OR USE	UNIFORM (PSF)	CONC. (LBS)	OCCUPANCY OR USE	UNIFORM (PSF)	CONC. (LBS)
ROOF	20	300	OFFICES & CORRIDORS	80	2,000
LIGHT STORAGE	125		HANDRAILS AND GUARDS		200
STAIRS AND EXIT WAYS	100	300	GRAB BARS		250

ROOF SNOW LOAD

FLAT-ROOF SNOW LOAD (P_f) : 5 PSF
SNOW EXPOSURE FACTOR (C_e) : 0.9
SNOW IMPORTANCE FACTOR (I_s) : 1.0
THERMAL FACTOR (C_t) : 1.0

DESIGN FROST DEPTH 12"

WIND DESIGN CRITERIA

DESIGN WIND SPEED
ULTIMATE (V_{ult}) : 139 MPH
NOMINAL (V_{asd}) : 108 MPH

INTERNAL PRESSURE COEFFICIENT ±0.18

RISK CATEGORY : 2
WIND EXPOSURE (X-X) : C
WIND EXPOSURE (Y-Y) : C

COMPONENTS AND CLADDING WIND PRESSURES: SEE TABLES, THIS SHEET

SEISMIC DESIGN CRITERIA

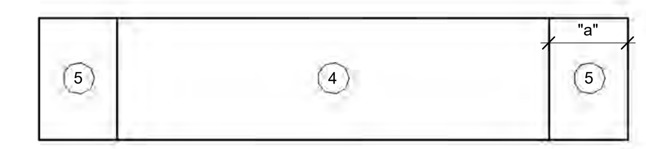
RISK CATEGORY : 2
SEISMIC IMPORTANCE FACTOR (I_s) : I_s = 1.0
MAPPED SPECTRAL RESPONSE ACCELERATIONS : S_s = 0.520 g, S_1 = 0.175 g
SITE CLASS: D
MAPPED SPECTRAL RESPONSE ACCELERATIONS : S_{ds} = 0.480 g, S_{d1} = 0.245 g
SEISMIC DESIGN CATEGORY : D
BASIC SEISMIC-FORCE-RESISTING SYSTEM(S) : STEEL SYSTEMS NOT SPECIFICALLY DETAILED FOR SEISMIC RESISTANCE
DESIGN BASE SHEAR : $F_x = F_y$ = 66.7 k
RESPONSE MODIFICATION FACTOR(S) : R = 3
ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE

COMPONENTS AND CLADDING ROOF (ENCLOSED) 139 MPH EXP. "C" 'ULT' EXTERNAL PRESSURES (PSF)

A_e (EFFECTIVE AREA)	ZONE 1	ZONE 2	ZONE 3
A_e = 10 SQ. FT.	+18.9, -46.5	+18.9, -78.0	+18.9, -117.4
A_e = 20 SQ. FT.	+17.7, -45.3	+17.7, -69.7	+17.7, -97.3
A_e = 50 SQ. FT.	+16.2, -43.7	+16.2, -58.7	+16.2, -70.6
A_e = 100 SQ. FT.	+15.0, -42.6	+15.0, -50.4	+15.0, -50.4

COMPONENTS AND CLADDING ROOF (ENCLOSED) 108 MPH EXP. "C" 'ASD' EXTERNAL PRESSURES (PSF)

A_e (EFFECTIVE AREA)	ZONE 1	ZONE 2	ZONE 3
A_e = 10 SQ. FT.	+11.4, -28.1	+11.4, -47.1	+11.4, -70.9
A_e = 20 SQ. FT.	+10.7, -27.4	+10.7, -42.1	+10.7, -58.7
A_e = 50 SQ. FT.	+10.0, -26.4	+10.0, -35.5	+10.0, -42.6
A_e = 100 SQ. FT.	+10.0, -25.7	+10.0, -30.4	+10.0, -30.4



WALL ELEVATION

COMPONENTS AND CLADDING WALL (ENCLOSED) 139 MPH EXP. "C" 'ULT' EXTERNAL PRESSURES (PSF)

A_e (EFFECTIVE AREA)	ZONE 4	ZONE 5	
A_e = 10 SQ. FT.	+42.6, -46.1	+42.6, -56.7	
A_e = 20 SQ. FT.	+40.7, -44.2	+40.7, -53.0	
A_e = 50 SQ. FT.	+38.2, -41.7	+38.2, -48.0	
A_e = 100 SQ. FT.	+36.3, -39.8	+36.3, -44.2	

COMPONENTS AND CLADDING WALL (ENCLOSED) 108 MPH EXP. "C" 'ASD' EXTERNAL PRESSURES (PSF)

A_e (EFFECTIVE AREA)	ZONE 4	ZONE 5	
A_e = 10 SQ. FT.	+25.7, -27.8	+25.7, -34.3	
A_e = 20 SQ. FT.	+24.6, -26.7	+24.6, -32.0	
A_e = 50 SQ. FT.	+23.0, -25.2	+23.0, -29.0	
A_e = 100 SQ. FT.	+21.9, -24.1	+21.9, -26.7	

NOTES:
1. *INTERPOLATION MAY BE UTILIZED FOR EFFECTIVE AREAS THAT OCCUR BETWEEN VALUES SHOWN ON THE TABLE.*
2. *PLUS AND MINUS SIGN INDICATES THE PRESSURE ACTING TOWARD AND AWAY FROM THE SURFACES, RESPECTIVELY.*
3. *FORCES AND DIAGRAMS ARE BASED ON IBC / ASCE 7.*

End zone width, a = 9' - 7"

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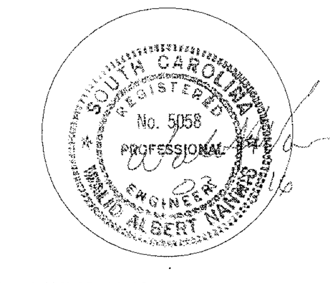

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Rev	Date	Comments
	03.11.16	Bid/Permit

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Project Number: 15221

Site Key Plan:

Sheet Title:
General Notes

Sheet Number:
S100

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SPECIAL INSPECTIONS SCHEDULES

1704.2.5 Inspection of Fabricators

MATERIAL / ACTIVITY	SERVICE	APPLICABLE TO THIS PROJECT Y/N	EXTENT	AGENT*	DATE COMPLETED
Verify fabrication/quality control procedures	In-plant review (3)	Y	Periodic - If fabricator is not AISC certified, (structural steel) or certified by the standard code/spec. for the fabricated assembly or material, special inspection required as indicated within structural steel welding portion of this document or applicable code/specification. If fabricator is approved as specified in section 1704.2.5.2, fabricator inspection is not required. At completion of fabrication, fabricator shall submit certificate of compliance to building official in accordance with Section 1704.2.5.2.	1	

1705.1.1 Special Cases

MATERIAL / ACTIVITY	SERVICE	APPLICABLE TO THIS PROJECT Y/N	EXTENT	AGENT*	DATE COMPLETED
HY-150 (or equal epoxy system/anchor)	The special inspector must record product description (including product name), adhesive expiration date, concrete or masonry type and strength, anchor diameter and steel grade, compliance of drill bit with this report, hole diameter and location, cleanliness of hole and anchor adhesive application, and anchor embedment. Additionally, the special inspector must state in the report supplied to the building official whether the anchor installation is in accordance with the manufacturer's published instructions and this evaluation report.	Y	Continuous during the first 36-hour period of anchor installation for each anchor type (special inspector must be on site and observing installation of operations while installations are taking place). Remaining anchor installations: periodic - random 25% of anchor installation inspected. If any installations do not meet specifications, all anchors/installations will be inspected (anchors installed and remaining anchors to be installed). Inspections may require continuous inspection if required by building official - special inspector to confirm prior to inspections.	1	
Kwik Bolt 3 (or equal wedge/expansion anchor system/anchor)	The special inspector must record product description (including product name), masonry type and condition, anchor type, diameter and steel grade, compliance of the drill bit with this report, hole diameter and location; and anchor embedment. Additionally, the special inspector must state in the report supplied to the building official whether the anchor installation is in accordance with the manufacturer's published instructions and this evaluation report.	Y	Continuous during the first 36-hour period of anchor installation for each anchor type (special inspector must be on site and observing installation of operations while installations are taking place). Remaining anchor installations: periodic - random 25% of anchor installation inspected. If any installations do not meet specifications, all anchors/installations will be inspected (anchors installed and remaining anchors to be installed). Inspections may require continuous inspection if required by building official - special inspector to confirm prior to inspections.	1	

1705.2 Steel Construction

MATERIAL / ACTIVITY	SERVICE	APPLICABLE TO THIS PROJECT Y/N	EXTENT	AGENT*	DATE COMPLETED
1. Fabricator and erector documents (Verify reports and certificates as listed in AISC 360, chapter N, paragraph 3.2 for compliance with construction documents)	Submittal Review	Y	Each submittal	1&2	
2. Material verification of structural steel	Shop (3) and field inspection	Y	Periodic		
3. Embedments (Verify diameter, grade, type, length, embedment. See 1705.3 for anchors)	Field inspection	Y	Periodic	1	
4. Verify member locations, braces, stiffeners, and application of joint details at each connection comply with construction documents	Field inspection	Y	Periodic - random selection of 25% of all frame joints.	1	
5. Structural steel welding:					
a. Inspection tasks Prior to Welding (Observe, or perform for each welded joint or member, the QA tasks listed in AISC 360, Table N5.4-1)	Shop (3) and field inspection	Y	Observe or Perform as noted (4)	1	
b. Inspection tasks During Welding (Observe, or perform for each welded joint or member, the QA tasks listed in AISC 360, Table N5.4-2)	Shop (3) and field inspection	Y	Observe (4)	1	
c. Inspection tasks After Welding (Observe, or perform for each welded joint or member, the QA tasks listed in AISC 360, Table N5.4-3)	Shop (3) and field inspection	Y	Observe or Perform as noted (4)	1	
d. Nondestructive testing (NDT) of welded joints: *see Commentary*					
1) Complete penetration groove welds 5/16" or greater in risk category III or IV	Shop (3) or field ultrasonic testing - 100%	N	Periodic	1	
2) Complete penetration groove welds 5/16" or greater in risk category II	Shop (3) or field ultrasonic testing - 10% of welds minimum	Y	Periodic	1	
3) Thermally cut surfaces of access holes when material t > 2"	Shop (3) or field magnetic Partical or Penetrant testing	N	Periodic	1	
4) Welded joints subject to fatigue when required by AISC 360, Appendix 3, Table A-3.1	Shop (3) or field radiographic or Ultrasonic testing	N	Periodic	1	
5) Fabricator's NDT reports when fabricator performs NDT	Verify reports	N	Each submittal (5)	1	
6. Structural steel bolting:					
a. Inspection tasks Prior to Bolting (Observe, or perform tasks for each bolted connection, in accordance with QA tasks listed in AISC 360, Table N5.6-1)	Shop (3) and field inspection	N	Observe or Perform as noted (4)	1	
b.Inspection tasks during bolting (observe the QA tasks listed in AISC 360, Table N5.6-2)	Shop (3) and field inspection	Y	Observe (4)	1	
1) Pre-tensioned and slip-critical joints					
a) Turn-of-nut with matching markings	Shop (3) and field inspection	N	Periodic	1	
b) Direct tension indicator	Shop (3) and field inspection	Y	Periodic - observe all connections; measure 10% of connections	1	
c) Twist-off type tension control bolt	Shop (3) and field inspection	Y	Periodic - observe all connections	1	
d) Turn-of-nut without matching markings	Shop (3) and field inspection	N	Continuous	1	
e) Calibrated wrench	Shop (3) and field inspection	Y	Continuous	1	
2) Snug-tight joints	Shop (3) and field inspection	N	Periodic	1	
c. Inspection tasks After Bolting (Perform tasks for each bolted connection in accordance with QA tasks listed in AISC 360, Table N5.6-3)	Shop (3) and field inspection	Y	Perform (4)	1	
7. Inspection of steel elements of composite construction prior to concrete placement in accordance with QA tasks listed in AISC 360, Table N6.1	Shop (3) and field inspection and testing	N	Observe or Perform as noted (4)	1	

1705.2.2 Steel Construction Other Than Structural Steel

MATERIAL / ACTIVITY	SERVICE	APPLICABLE TO THIS PROJECT Y/N	EXTENT	AGENT*	DATE COMPLETED
1. Material verification of cold-formed steel deck:					
a. Identification markings	Field inspection	Y	Periodic	1	
b. Manufacturer's certified test reports	Submittal Review	Y	Each submittal	1	
2. Connection of cold-formed steel deck to supporting structure:		Y		1	
a. Welding	Shop (3) and field inspection	Y	Periodic - inspect all deck welds & side laps	1	
b. Other fasteners (in accordance with AISC 360,Section N6)					
1) Verify fasteners are in conformance with approved submittal	Shop (3) and field inspection	Y	Periodic	1	
2) Verify fastener installation is in conformance with approved submittal and manufacturer's recommendations	Shop (3) and field inspection	Y	Periodic	1	
3. Reinforcing steel					
a. Verification of weldability of steel other than ASTM A706	Shop (3) and field inspection	Y	Periodic - verify correct, specified weld electrodes and reinforcing steel for each material shipment. Verify compliance with specified connection, construction for each connection type at the start of construction for that connection type.	1	
b. Reinforcing steel resisting flexural and axial forces in intermediate and special moment frames, boundary elements of special concrete structural walls and shear reinforcement	Shop (3) and field inspection	N	Continuous	1	
c. Shear reinforcement	Shop (3) and field inspection	N	Continuous	1	
d. Other reinforcing steel	Shop (3) and field inspection	N	Periodic - verify correct, specified weld electrodes and reinforcing steel for each material shipment. Verify compliance with specified connection, construction for each connection type at the start of construction for that connection type.	1	
4. Cold-formed steel trusses spanning 60 feet or greater					
a. Verify temporary and permanent restraint/bracing are installed in accordance with the approved truss submittal package	Field inspection	N	Periodic	1	

1705.3 Concrete Construction

MATERIAL / ACTIVITY	SERVICE	APPLICABLE TO THIS PROJECT Y/N	EXTENT	AGENT*	DATE COMPLETED
1. Inspection of reinforcing steel installation (see 1705.2.2 for welding)	Shop (3) and field inspection	Y	Periodic - before each concrete pour of ftgs., walls, columns, and elevated slabs with sufficient time allowed for inspection of completed installed reinforcing prior to pour.	1	
2. Inspection of prestressing steel installation	Shop (3) and field inspection	N	Periodic - before each concrete pour of ftgs., walls, columns, and elevated slabs with sufficient time allowed for inspection of completed installed reinforcing prior to pour.		
3. Inspection of anchors cast in concrete where allowable loads have been increased per Section 1908.5 or where strength design is used	Shop (3) and field inspection	N	Periodic		
4. Inspection of anchors and reinforcing steel post-installed in hardened concrete: Per research reports including verification of anchor type, anchor dimensions, hole dimensions, hole cleaning procedures, anchor spacing, edge distances, concrete minimum thickness, anchor embedment and tightening torque	Field inspection	Y	Periodic or as required by the research report issued by an approved source	1	
5. Verify use of approved design mix	Shop (3) and field inspection	Y	Periodic	1 & 2	
6. Fresh concrete sampling, perform slump and air content tests and determine temperature of concrete	Shop (3) and field inspection	Y	Continuous - sample every 75 cubic yds or each day (whichever is more stringent) and each change in concrete strength.	1	
7. Inspection of concrete and shotcrete placement for proper application techniques	Shop (3) and field inspection	Y	Continuous	1	
8. Inspection for maintenance of specified curing temperature and techniques	Shop (3) and field inspection	Y	Periodic	1	
9. Inspection of prestressed concrete:					
a. Application of prestressing force	Shop (3) and field inspection	N	Continuous	1	
b. Grouting of bonded prestressing tendons in the seismic-force-resisting system	Shop (3) and field inspection	N	Continuous	1	
10. Erection of precast concrete members					
a. Inspect in accordance with construction documents	Field inspection	N	In accordance with construction documents - 1) Sample grout: (3) test samples every day of masonry construction for first three days of masonry construction with additional (3) samples every 30 cubic yards placed/once per week/every 5000 SF of wall, whichever is most stringent. 2) Inspect erection, bearing conditions and general conformance to erection drawings (2) times per week minimum.	1	
b. Perform inspections of welding and bolting in accordance with Section 1705.2	Field inspection	N	In accordance with Section 1705.2 - (1) time per week minimum	1	
11. Verification of in-situ concrete strength, prior to stressing of tendons in post tensioned concrete and prior to removal of shores and forms from beams and structural slabs	Review field testing and laboratory reports	Y	Periodic - additional cylinder for 3-day/7-day tests (contractor's option) on time of testing with same sampling frequency as typical fresh concrete sampling. Verify that adequate concrete strength has been obtained on concrete test cylinders.	1	
12. Inspection of formwork for shape, lines, location, and dimensions	Field inspection	Y	Periodic - inspect prior to each concrete placement.	1	
13. Concrete strength testing and verification of compliance with construction documents	Field testing and review of laboratory reports	Y	Periodic	1 & 2	

1705.6 Soils

MATERIAL / ACTIVITY	SERVICE	APPLICABLE TO THIS PROJECT Y/N	EXTENT	AGENT*	DATE COMPLETED
1. Verify materials below shallow foundations are adequate to achieve the design bearing capacity.	Field inspection	Y	Periodic	1	
2. Verify excavations are extended to proper depth and have reached proper material.	Field inspection	Y	Periodic	1	
3. Perform classification and testing of controlled fill materials.	Field inspection	Y	Periodic	1	
4. Verify use of proper materials, densities, and lift thicknesses during placement and compaction of controlled fill	Field inspection	Y	Continuous	1	
5. Prior to placement of controlled fill, observe subgrade and verify that site has been prepared properly	Field inspection	Y	Periodic	1	

1705.10.2 Cold-formed Steel Special Inspections For Wind Resistance

MATERIAL / ACTIVITY	SERVICE	APPLICABLE TO THIS PROJECT Y/N	EXTENT	AGENT*	DATE COMPLETED
1.Inspection during welding operations of elements of the main windforce-resisting system	Shop (3) and field inspection	Y	Periodic	1	
2.Inspections for screw attachment, bolting, anchoring and other fastening of components within the main windforce-resisting system	Shop (3) and field inspection	Y	Periodic	1	

1705.10.3 Wind-resisting Components

MATERIAL / ACTIVITY	SERVICE	APPLICABLE TO THIS PROJECT Y/N	EXTENT	AGENT*	DATE COMPLETED
1. Roof cladding	Shop (3) and field inspection	Y	Periodic	1	
2. Wall cladding	Shop (3) and field inspection	Y	Periodic	1	

1705.11.1 Structural Steel Special Inspections for Seismic Resistance

MATERIAL / ACTIVITY	SERVICE	APPLICABLE TO THIS PROJECT Y/N	EXTENT	AGENT*	DATE COMPLETED
Inspection of structural steel in accordance with AISC 341	Shop (3) and field inspection	Y	In accordance with AISC 341	1	

1705.11.4 Designated Seismic Systems Verification (SDC = C, D, E, or F)

MATERIAL / ACTIVITY	SERVICE	APPLICABLE TO THIS PROJECT Y/N	EXTENT	AGENT*	DATE COMPLETED
Inspect and verify that that the component label, anchorage or mounting conforms to the certificate of compliance in accordance with Section 1705.12.3	Field inspection	Y	Periodic	1	

1705.12.1 Concrete Reinforcement Testing and Qualification for Seismic Resistance

MATERIAL / ACTIVITY	SERVICE	APPLICABLE TO THIS PROJECT Y/N	EXTENT	AGENT*	DATE COMPLETED
1. Review certified mill test reports for each shipment of reinforcement used to resist earthquake-induced flexural and axial forces in reinforced concrete special moment frames, special structural walls, and coupling beams connecting special structural walls	Review certified mill test reports	Y	Each shipment	1	
2. Verify reinforcement weldability of ASTM A615 reinforcement used to resist earthquake-induced flexural and axial forces in reinforced concrete special moment frames, special structural walls, and coupling beams connecting special structural walls	Review test reports	Y	Each shipment	1	

1705.12.2 Structural Steel Testing and Qualification for Seismic Resistance

MATERIAL / ACTIVITY	SERVICE	APPLICABLE TO THIS PROJECT Y/N	EXTENT	AGENT*	DATE COMPLETED
Test in accordance with the quality assurance requirements of AISC 341	Shop (3) and field testing	Y	Per AISC 341	1	

*Inspection Agents

FIRM	ADDRESS	TELEPHONE NO.
1. Special Inspector (TBD)		
2. Structural Engineer (Walid A. Nannis, P.E., F.ASCE)	5608 Battle Ridge Drive, Flowery Branch, GA 30542	(770) 614-6114
3. Architect (Praxis3)	100 Peachtree St NW, Suite 1450, Atlanta, GA 30303	(404) 875-4500
4. Mech. & Plumbing (MEHA Engineering, Inc.)	2837 Peterson Place, Norcross, GA 30071	(770) 441-0019

Notes:

1. *The inspection and testing agent(s) shall be engaged by the Owner or the Owner's Agent, and not by the Contractor or Subcontractor whose work is to be inspected or tested. Any conflict of interest must be disclosed to the Building Official prior to commencing work. The qualifications of the Special Inspector(s) and/or testing agencies may be subject to the approval of the Building Official and/or the Design Professional.*
2. *The list of Special Inspectors may be submitted as a separate document, if noted so above.*
3. *Special Inspections as required by Section 1704.2.5 are not required where the fabricator is approved in accordance with IBC Section 1704.2.5.2*
4. *Observe on a random basis, operations need not be delayed pending these inspections. Perform these tasks for each welded joint, bolted connection, or steel element.*
5. *NDT of welds completed in an approved fabricator's shop may be performed by that fabricator when approved by the AHJ. Refer to AISC 360, N7.*
6. *For all other disciplines refer to relevant documents provided by the design professional.*

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architecture + multidisciplinary design

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Rev	Date	Comments
	03.11.16	Bid/Permit

Walid. Nannis, P.E., F. ASCE
Structural Engineer

5608 Battle Ridge Drive
Flowery Branch, GA 30542

770-614-6114 tel
678-765-7966 fax

All drawings, specifications, and other work product of Walid A. Nannis for this project are instruments of service for this project only and shall remain the property of Walid A. Nannis whether the project is complete or not. Reuse of any of the instruments of service of Walid A. Nannis by the owner or extensions of this project without the written permission of Walid A. Nannis shall be at the owner's risk and the owner agrees to defend, indemnify, and hold harmless Walid A. Nannis from all claims, damages, and expenses including attorney's fees arising out of such unauthorized reuse of Walid A. Nannis' instruments of service by the owner or others acting through the owner. ©2015

Client:

William L Grainger

P.O. BOX 7267
GARDEN CITY, GA 31408

Project:

Grainger Nissan

245 Robert Smalls Parkway,
Beaufort, SC 29906

Project Number: 15221

Site Key Plan:

Sheet Title:

Special Inspections

Sheet Number:

S101

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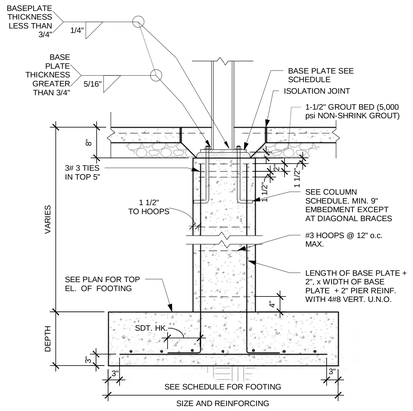
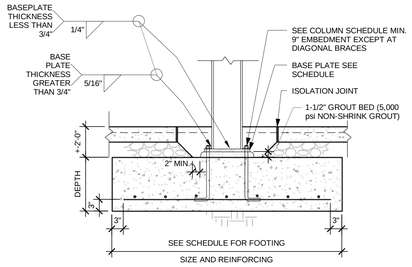


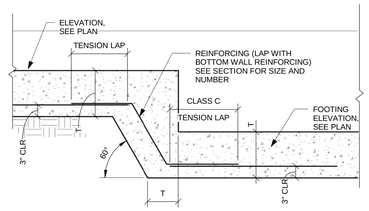
TYPICAL DETAIL OF STEEL COLUMN, PIER AND FOOTING WHERE FOOTINGS ARE MORE THAN 2'-0" BELOW FLOOR

1 S102 Typical Steel Column Connection to Footing

3/4" = 1'-0"

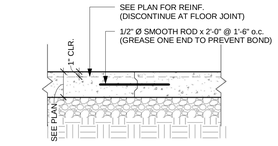


TYPICAL DETAIL OF STEEL COLUMN AND FOOTING WHERE FOOTING IS UP TO 2'-0" BELOW FLOOR



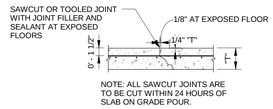
2 S102 Typical Step in Footing

3/4" = 1'-0"



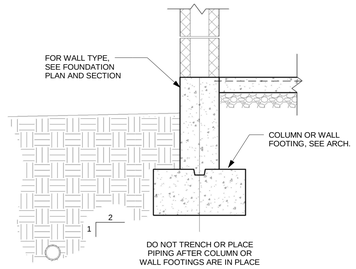
3 S102 Typical Detail of Floor Joint (F.J.)

1" = 1'-0"



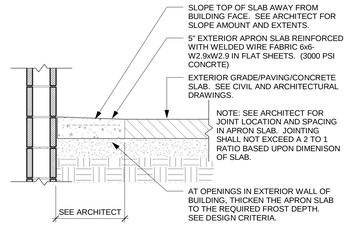
5 S102 Typical Detail of Dummy Joint (D.J.)

1" = 1'-0"



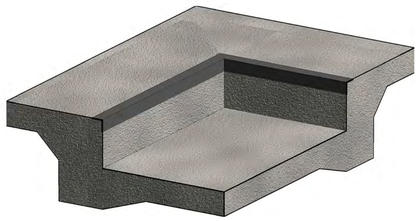
4 S102 Typical Detail of Trenches Near Footings

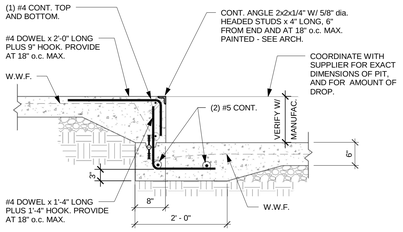
1" = 1'-0"



6 S102 Typical Detail at Apron Slab at Building Perimeter

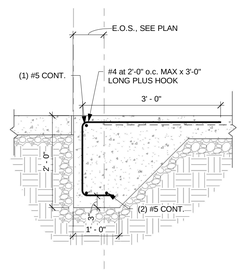
3/4" = 1'-0"





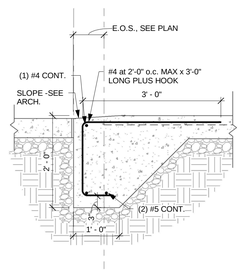
7 S102 Typical Section at Pit Drop

3/4" = 1'-0"



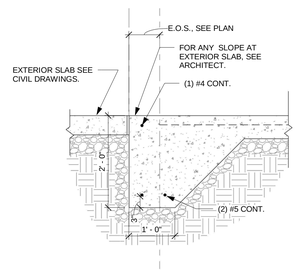
8 S102 Typical Section at Turndown at Opening (No Slope)

3/4" = 1'-0"



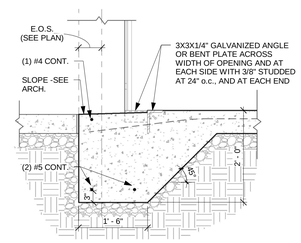
9 S102 Typical Section at Turndown at Opening

3/4" = 1'-0"



10 S102 Typical Turndown (2'-0" x 1'-0")

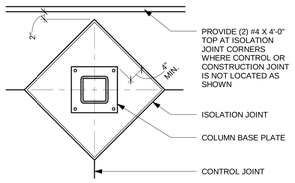
3/4" = 1'-0"



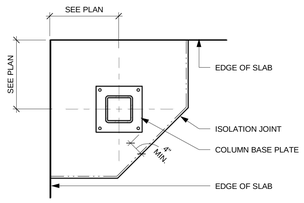
11 S102 Typical Section at Turndown at OH Door

3/4" = 1'-0"

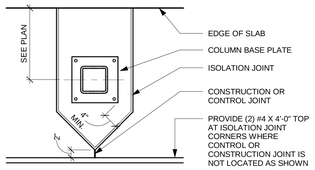
INTERIOR SLAB ISOLATION JOINT



SLAB ISOLATION JOINT AT CORNER

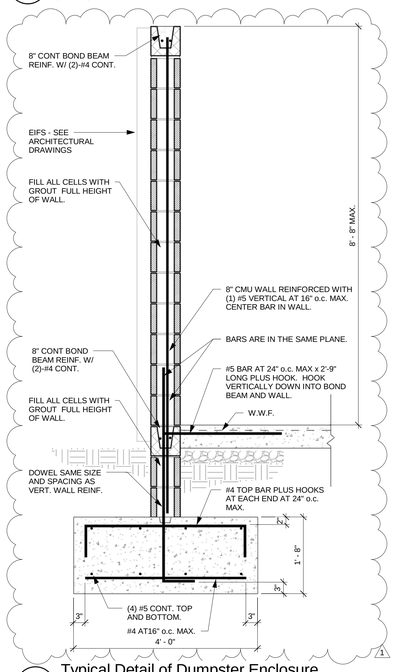


SLAB ISOLATION JOINT AT EDGE



12 S102 Typical Detail of Slab Isolation Joints

3/4" = 1'-0"



13 S102 Typical Detail of Dumpster Enclosure

3/4" = 1'-0"

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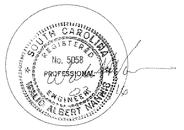

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Rev	Date	Comments
	03.11.16	Bid/Permit
1	04.04.16	Revision 1

Walid. Nannis, P.E., F. ASCE
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William L Grainger

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Project:

Grainger Nissan

245 Robert Smalls Parkway,
Beaufort, SC 29906

Project Number: 15221

Site Key Plan:

Sheet Title:

Typical Details (Foundation)

Sheet Number:

S102

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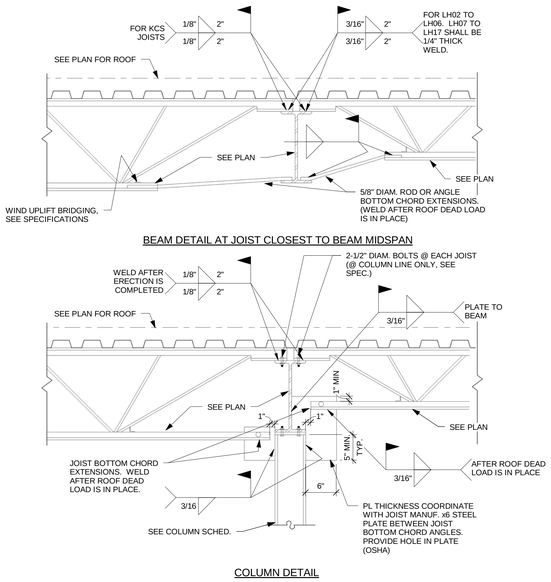
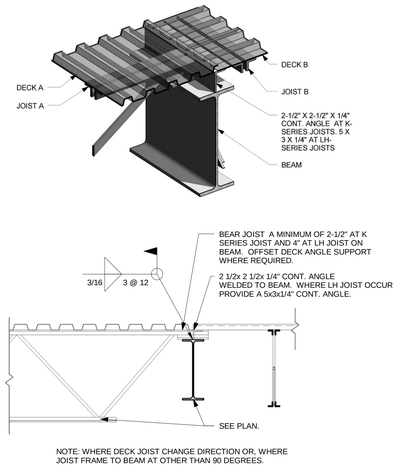


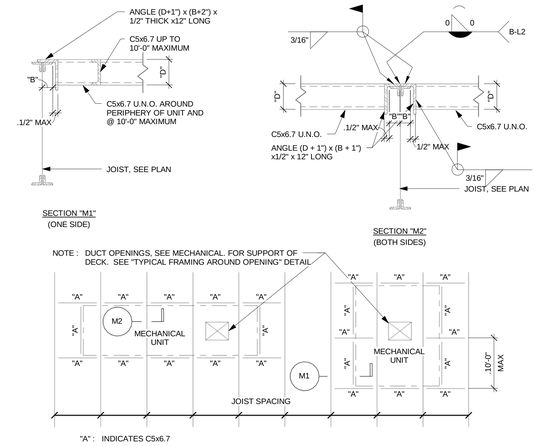
1 S103 Typical Detail of Bar Joist Roof Construction

1" = 1'-0"



2 S103 Typical Detail Where Joist Changes Direction

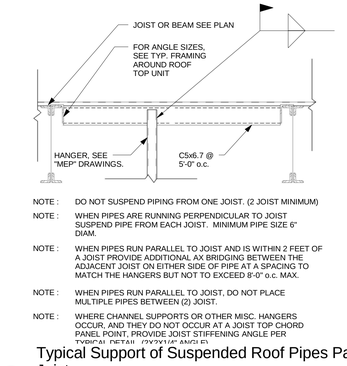
3/4" = 1'-0"



NOTE: FOR MECHANICAL UNIT CURB ATTACHMENT TO STRUCTURE AND TIE DOWN CONNECTION OF UNIT SEE MECHANICAL

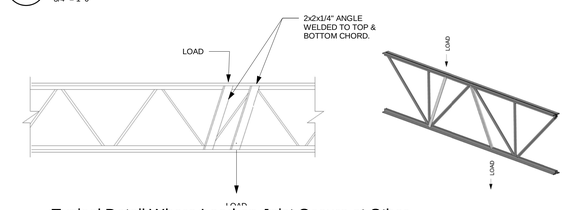
3 S103 Typical Framing for Mechanical Units Detail

1" = 1'-0"



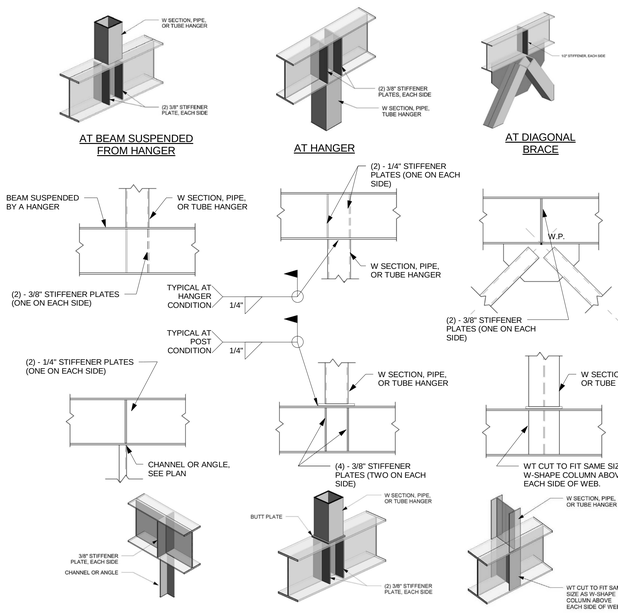
4 S103 Typical Support of Suspended Roof Pipes Parallel to Joist

3/4" = 1'-0"



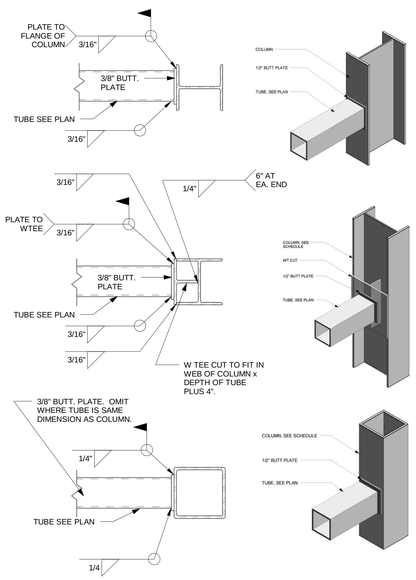
5 S103 Typical Detail Where Load on Joist Occurs at Other than Panel Joint

1" = 1'-0"



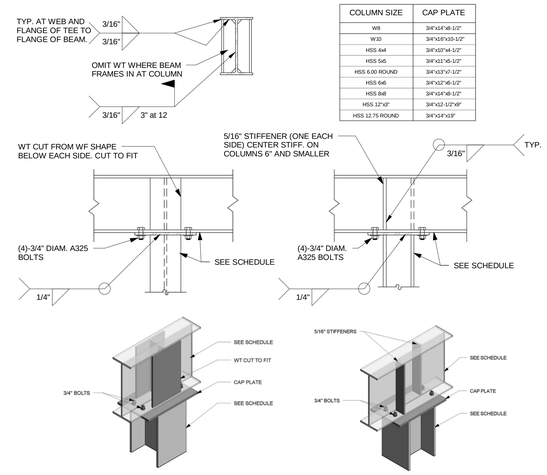
6 S103 Typical Beam Stiffener at Steel Hangers or Steel Posts (U.N.O.)

3/4" = 1'-0"



7 S103 Typical Connection of Tube Steel to Steel Columns

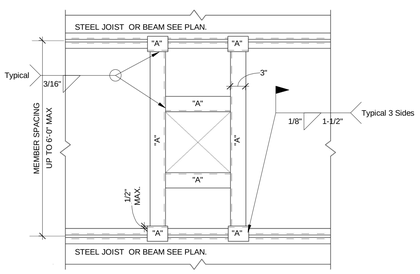
1" = 1'-0"



8 S103 Typical Cap Plate Detail

1" = 1'-0"

COLUMN SIZE	CAP PLATE
W8	3/4"x14"x8-1/2"
W10	3/4"x16"x10-1/2"
HSS 4x4	3/4"x10"x4-1/2"
HSS 5x5	3/4"x11"x5-1/2"
HSS 6.00 ROUND	3/4"x13"x5-1/2"
HSS 6x6	3/4"x12"x6-1/2"
HSS 8x8	3/4"x14"x8-1/2"
HSS 12"x5"	3/4"x12-1/2"x9"
HSS 12.75 ROUND	3/4"x14"x10"



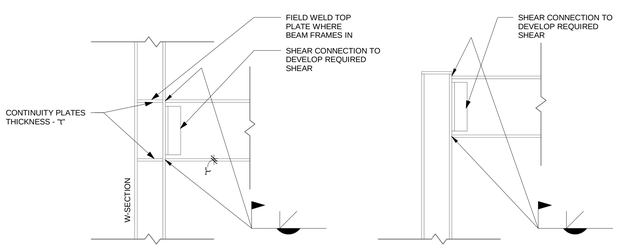
NOTE "A" : INDICATES ANGLE 4" x 3" x 1/4", LONG LEG DOWN. WHERE BEAM SPACING IS 6'-1" AND GREATER, PROVIDE A W6 x 9 FOR THE "A" MEMBERS SPANNING BETWEEN THE JOIST OR BEAMS.

NOTE : GENERAL CONTRACTOR COORDINATE ROOF OPENING REQUIREMENTS WITH MECHANICAL, ELECTRICAL AND PLUMBING PLANS.

NOTE : PROVIDE AT ALL ROOF DRAIN LOCATIONS

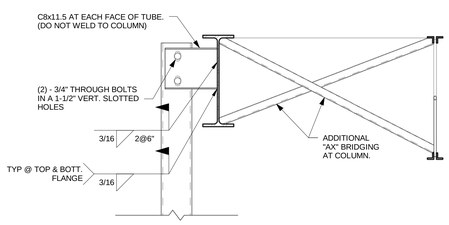
9 S103 Typical Framing Around Roof Opening Detail

1" = 1'-0"



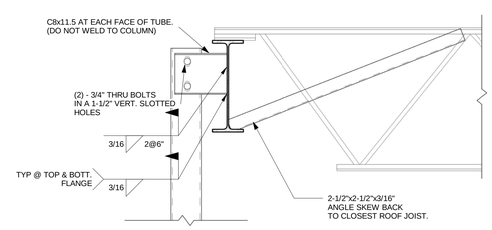
10 S103 Typical Moment Connection of Steel Beam to Column

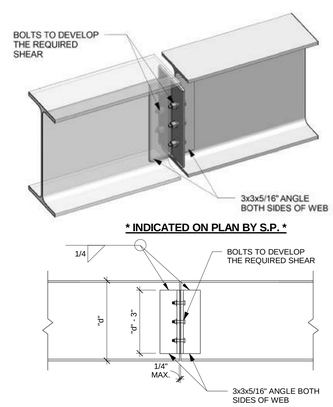
1" = 1'-0"



11 S103 Typical Roof Bracing of Wind Column (Column)

1" = 1'-0"





12 S103 Typical Splice Point Detail

1" = 1'-0"

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Client:

William L Grainger

P.O. BOX 7267
GARDEN CITY, GA 31408

Project:

Grainger Nissan

245 Robert Smalls Parkway,
Beaufort, SC 29906

Project Number: 15221

Site Key Plan:

Sheet Title:

Typical Details (Steel)

Sheet Number:

S103

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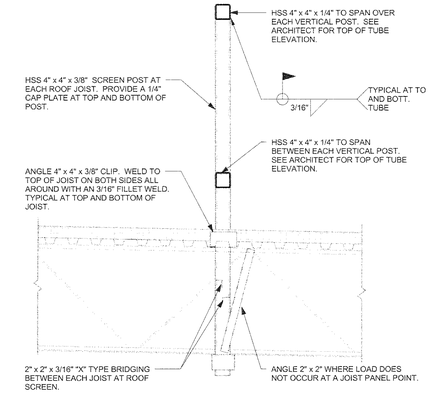
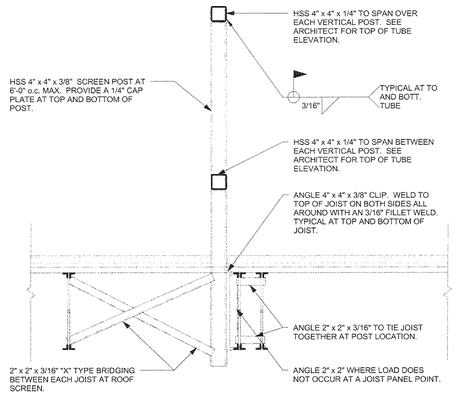
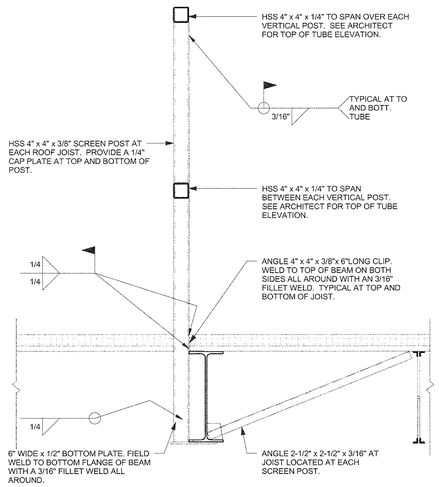


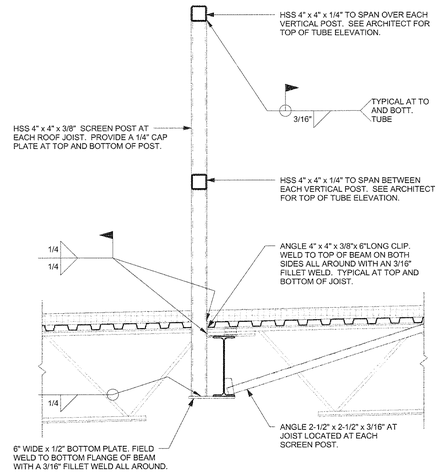
1 S104 Typical Section at Mechanical Screen (Perpendicular Condition)
3/4" = 1'-0"



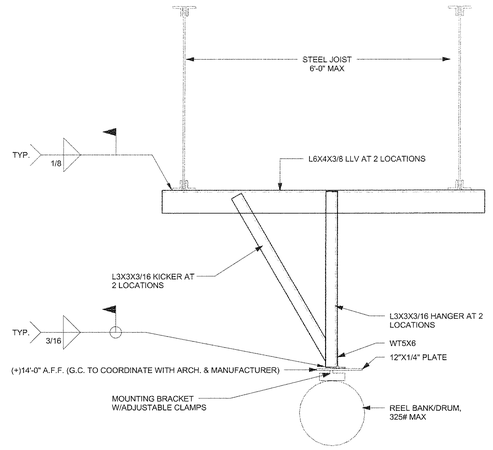
2 S104 Typical Section at Mechanical Screen (Parallel Condition)
3/4" = 1'-0"

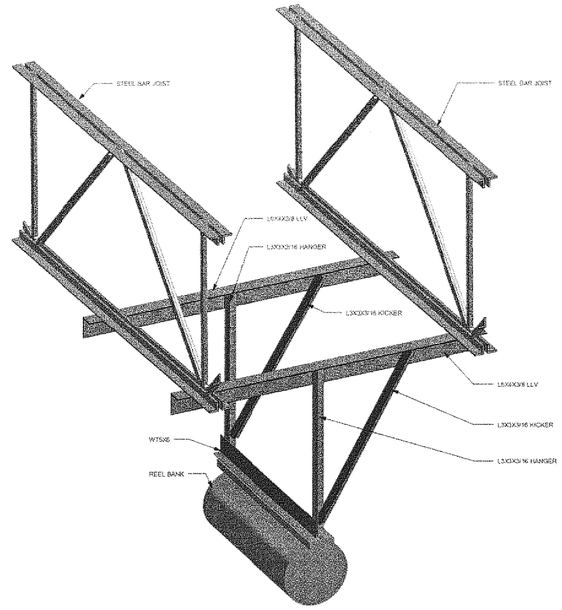


4 S104 Typical Section at Mechanical Screen (Parallel Condition)
3/4" = 1'-0"

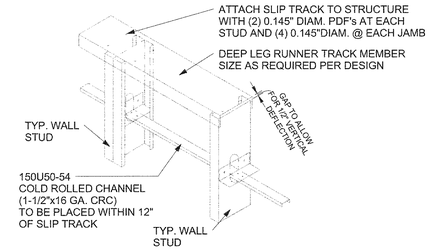


5 S104 Typical Section at Mechanical Screen (Perpendicular Condition)
3/4" = 1'-0"



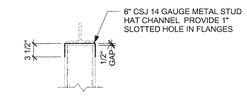


3 S104 Typical Detail of Hose Reel Support
3/4" = 1'-0"

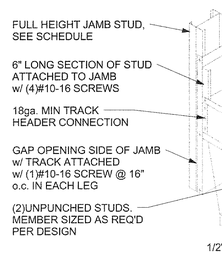


SLIP TRACK DETAIL

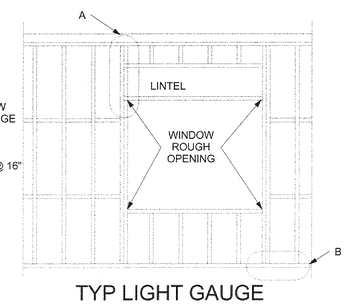
JAMB AND HEADER SCHEDULED (EXTERIOR)		
SPAN (FT)	HEADER	JAMB STUDS
≤ 4	(2) 60S200-43	1
6	(2) 60S200-43	2
8	(2) 725S200-54	2
10	(2) 800s200-68	3
12	(2) 800s200-97	3



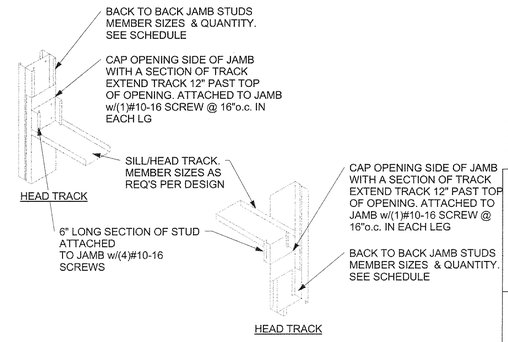
6 S104 Typical Stud-to-Beam Slip Connection
3/4" = 1'-0"



HEADER DETAIL (A)

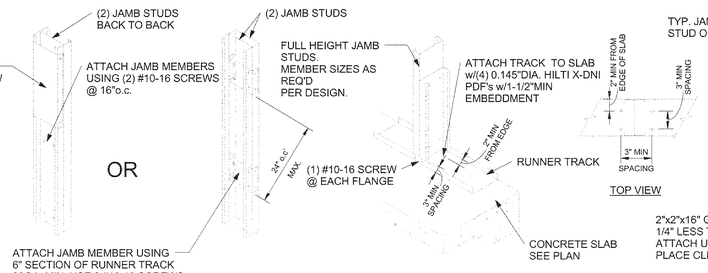


TYP LIGHT GAUGE STEEL WALL FRAMING

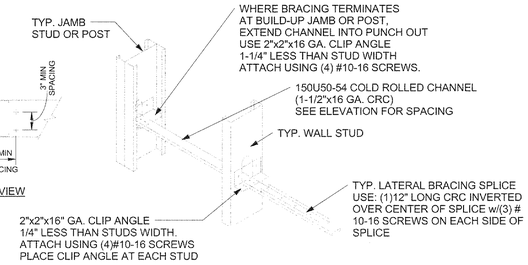


SILL HEAD TRACK CONNECTION

TIED JAMB STUDS



STUD TO TRACK DETAIL (B)



BRIDGING DETAIL

8 S104 Typical Metal Stud Detail
12" = 1'-0"

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Project:

Grainger Nissan

245 Robert Smalls Parkway,
Beaufort, SC 29906

Project Number: 15221

Site Key Plan:

Sheet Title:

Typical Details (Steel)

Sheet Number:

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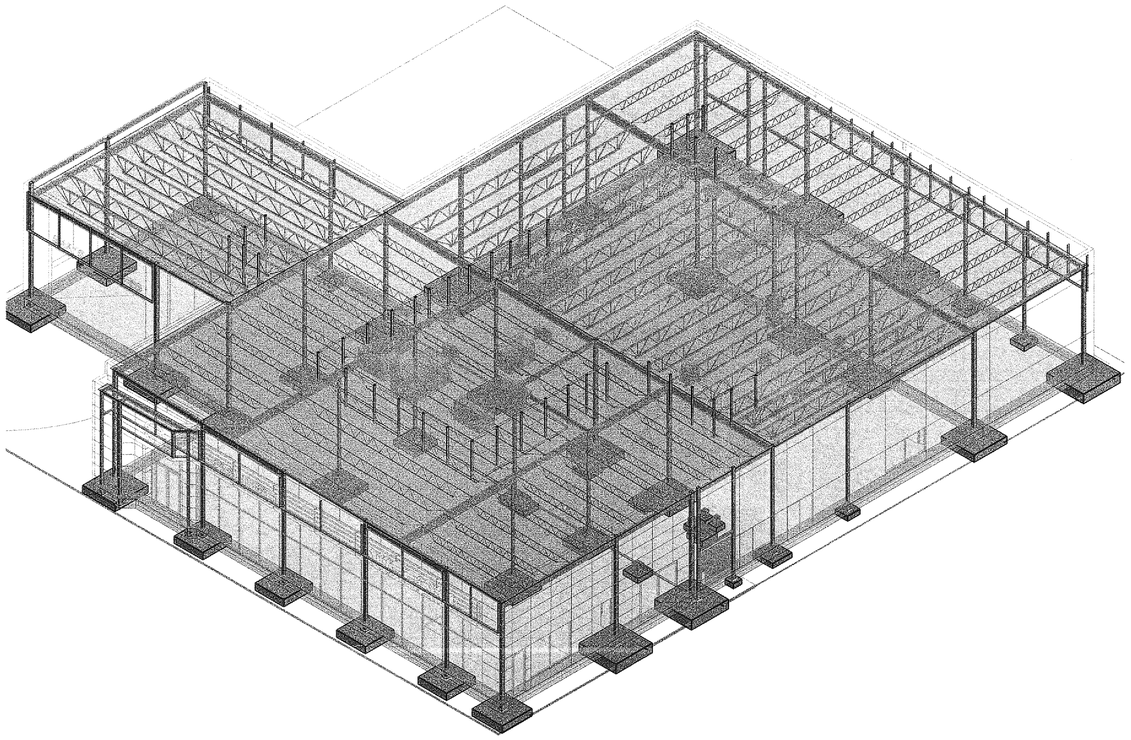
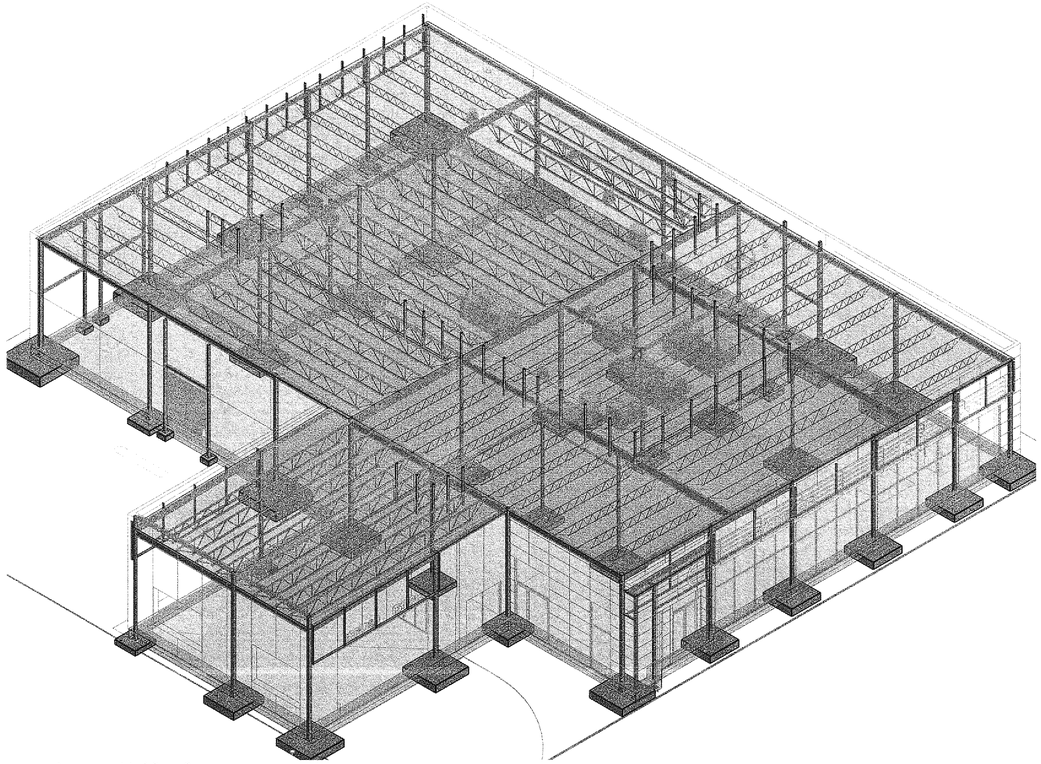
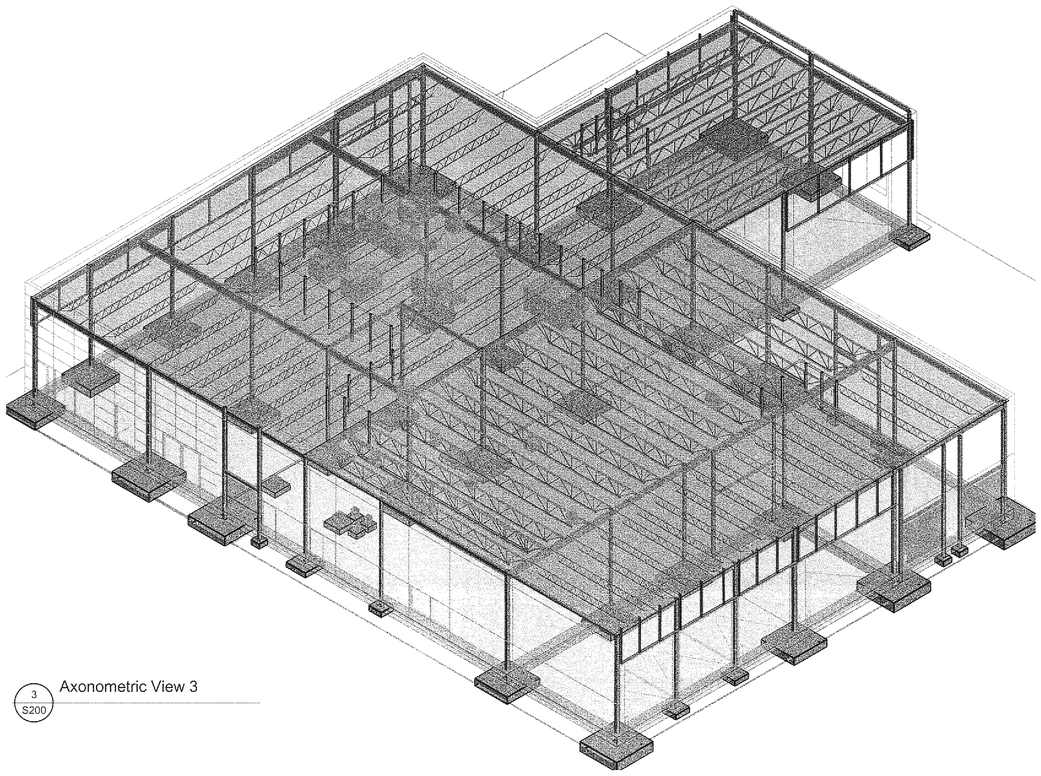


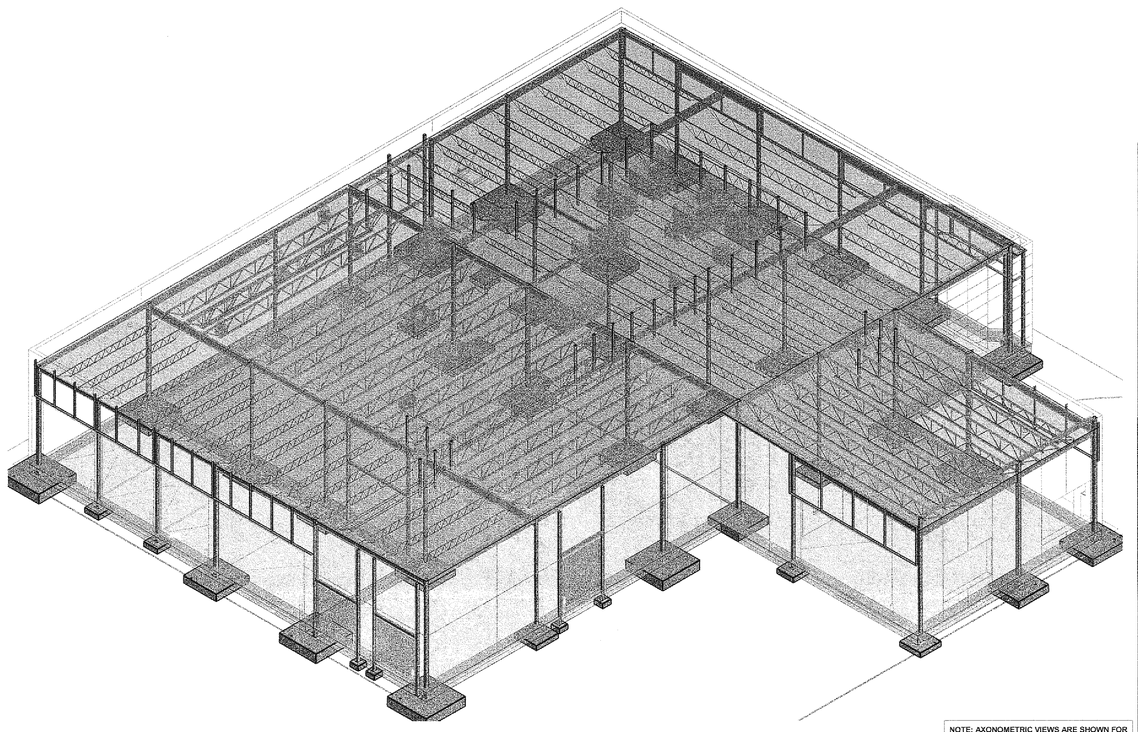
1 S200 Axonometric View 1



2 S200 Axonometric View 2



3 S200 Axonometric View 3



4 S200 Axonometric View 4

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Site Key Plan:

Sheet Title:

Axonometric Views

Sheet Number:

S200

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STEEL COLUMN SCHEDULE

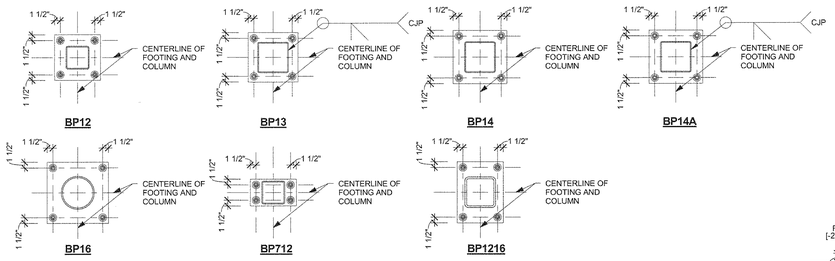
Roof																								Roof
23' - 0"																								23' - 0"
Foundation	HSS6X6X1/2	HSS6X6X1/4	HSS6X6X1/2	HSS6X6X1/4	HSS6X6X3/8	HSS6X6X1/4	HSS8X8X1/2	HSS6X6X1/4	HSS8X8X1/2	HSS6X6X1/4	HSS6X6X1/4	HSS6X6X1/4	Pipe8STD	HSS6X6X5/16	HSS6X6X1/4	HSS6X6X5/16	HSS6X6X5/16	HSS8X8X1/2	HSS6X6X5/16	Pipe8STD	HSS8X8X1/4	HSS8X8X1/2	HSS8X8X1/4	HSS8X8X3/8	Foundation
0' - 0"																									0' - 0"
Column Locations	A-2, A-3	A-5	B-2	B-5	C-5.9, C-6.8, D.1-7.1, D.4-7.1, D.6-7.1, D.9-7.1, H.1-3.2, H.1-3.5	D-0.2	D-1, D-2, D-4	D-3	D-5.4, D-7	D-6	D.2-0.2	D.7-0.4	D.8-1	E-2	E-3	E-4	E-6	E-7	E.2-6.1, E.7-6.1	E.6-1	F-3	F-4	F-6	F-7	

STEEL COLUMN SCHEDULE

Roof												Roof
23' - 0"												23' - 0"
Foundation	Pipe8STD	HSS6X6X1/4	HSS6X6X1/4	HSS6X6X1/4	HSS8X8X1/2	HSS8X8X5/16	HSS6X6X3/8	Pipe8STD	HSS8X8X1/2	HSS6X6X1/4	HSS8X8X1/4	HSS8X8X1/2	Foundation
0' - 0"													0' - 0"
Column Locations	F.6-1	F.8-7	G-2	G-3	G-4	G-6	G.4-7	G.5-1	H-1, H-2, H-3	H-4	H-5.4	H-6, H-7	

BASE PLATE SCHEDULE (36 KSI)

MARK	WIDTH	LENGTH	THICKNESS	ANCHOR BOLTS	LENGTH + HK.	EMBEDMENT	COUNT
BP12	12"	12"	3/4"	BOLT : 3/4"Ø	1' - 2"	0' - 9"	18
BP13	13"	13"	1 1/4"	BOLT : 1-1/4"Ø	1' - 2"	0' - 9"	1
BP14	14"	14"	3/4"	BOLT : 3/4"Ø	1' - 2"	0' - 9"	3
BP14A	14"	14"	1 1/2"	BOLT : 1-1/4"Ø	1' - 2"	0' - 9"	17
BP16	16"	16"	1 1/4"	BOLT : 1"Ø	1' - 2"	0' - 9"	4
BP712	12"	7"	5/8"	BOLT : 3/4"Ø	1' - 2"	0' - 9"	8



CONCRETE PIER SCHEDULE

MARK	SIZE (x,y)	VERT. REINF. DOWELED FROM FTG.	HOOPS @ 12" o.c.	TOP OF PIER ELEV.	COUNT
CP12	12 x 12	4 #7	#4	0' - 0"	3
CP18	18 x 18	4 #7	#4	0' - 0"	5
CP20	20 x 20	4 #7	#4	0' - 0"	1

NOTES:
1. AT ALL CONCRETE PIERS, PROVIDE (3) #3 HOOPS IN THE TOP 5" OF THE CONCRETE PIER.
2. WHERE WALLS OCCUR, POUR PIERS MONOLITHIC WITH WALLS.
3. ALL ANCHOR SETTINGS FOR COLUMNS SHALL FALL WITHIN THE CAGED PIER REINFORCEMENT.

SPREAD FOOTING SCHEDULE

MARK	LENGTH	WIDTH	THICKNESS	BOTTOM REINFORCEMENT	TOP REINFORCEMENT	COUNT
F20	2' - 0"	2' - 0"	1' - 0"	3 #4 EA. WAY		10
F30	3' - 0"	3' - 0"	1' - 0"	4 #4 EA. WAY		1
F34	3' - 4"	3' - 4"	1' - 0"	4 #4 EA. WAY		2
F38	3' - 8"	3' - 8"	1' - 0"	4 #4 EA. WAY		4
F40	4' - 0"	4' - 0"	1' - 0"	5 #4 EA. WAY		3
F48	4' - 8"	4' - 8"	1' - 0"	5 #4 EA. WAY		1
F50	5' - 0"	5' - 0"	1' - 0"	6 #4 EA. WAY		1
F54	5' - 4"	5' - 4"	1' - 0"	7 #4 EA. WAY		2
F60	6' - 0"	6' - 0"	1' - 0"	9 #4 EA. WAY		1
F64	6' - 4"	6' - 4"	1' - 0"	8 #5 EA. WAY		1
F64A	6' - 4"	6' - 4"	1' - 6"	7 #5 EA. WAY	6 #4 EA. WAY	1
F70	7' - 0"	7' - 0"	1' - 2"	8 #6 EA. WAY		5
F70A	7' - 0"	7' - 0"	1' - 6"	9 #4 EA. WAY	6 #4 EA. WAY	6
F74	7' - 4"	7' - 4"	1' - 2"	10 #5 EA. WAY		1
F74A	7' - 4"	7' - 4"	1' - 6"	9 #5 EA. WAY	6 #4 EA. WAY	3
F80A	8' - 0"	8' - 0"	1' - 6"	9 #5 EA. WAY	7 #4 EA. WAY	4
F86A	8' - 6"	8' - 6"	1' - 6"	10 #6 EA. WAY	7 #4 EA. WAY	1
F90A	9' - 0"	9' - 0"	2' - 0"	11 #6 EA. WAY	8 #4 EA. WAY	5
F96A	9' - 6"	9' - 6"	2' - 0"	10 #7 EA. WAY	8 #4 EA. WAY	1

SLAB AND DECK SCHEDULE

MARK	DESCRIPTION
RD-1.5W	1-1/2" 20 GAUGE WIDE RIB TYPE B METAL ROOF DECK. SEE SPECIFICATION FOR FINISH. ATTACH BASED UPON A 36/7/9 PATTERN.
SOG-5	5" CONCRETE SLAB ON A VAPOR RETARDER ON A GRAVEL BED OR SAND CUSHION AS RECOMMENDED BY THE GEOTECHNICAL REPORT. REINFORCE SLAB WITH WELDED WIRE FABRIC 6/6-W2.9xW2.9 IN FLAT SHEETS. FINISH FLOOR SLAB ELEVATION SEE CIVIL FOR DATUM
SOG-6	6" CONCRETE SLAB ON A VAPOR RETARDER ON A GRAVEL BED OR SAND CUSHION AS RECOMMENDED BY THE GEOTECHNICAL REPORT. REINFORCE SLAB WITH WELDED WIRE FABRIC 6/6-W2.9xW2.9 IN FLAT SHEETS. FINISH FLOOR SLAB ELEVATION SEE CIVIL FOR DATUM

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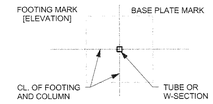
FOUNDATION PLAN NOTES



FOOTING KEY

INDICATES TO SLOPE SLAB. SEE ARCHITECTURAL FOR AMOUNT OF SLOPE AND EXACT LOCATION.

[0'-0"] INDICATES ELEVATION OF FINISH FLOOR SLAB. SEE CIVIL DRAWINGS FOR DATUM.

[ ] NUMBER INSIDE OF BRACKETS INDICATES TOP OF FOOTING ELEVATION

INDICATES A STEP IN FOOTING. SEE GENERAL NOTES FOR CRITERIA.

D.J. : INDICATES A DUMMY JOINT IN THE SLAB ON GRADE. SEE TYPICAL DUMMY JOINT DETAIL.

F.J. : INDICATES A FLOOR JOINT. USE 24 GAUGE KEYED TYPE. DISCONTINUE MESH AT JOINT. SEE TYPICAL CONTROL JOINT DETAIL AND SPECIFICATIONS.

NOTE: MAXIMUM EARTH DIFFERENTIAL WHEN BACKFILLING SHOULD NOT EXCEED 2'-0"

NOTE: ALL ELEVATIONS SHOWN ARE TOP OF FOOTING ELEVATION.

NOTE: CONTRACTOR SHALL COORDINATE EXACT LOCATIONS OF ALL FLOOR JOINTS AND DUMMY JOINTS WITH THE ARCHITECTURAL JOINTS IN FINISHES. ALL FLOOR JOINTS SHOULD COINCIDE DIRECTLY UNDER A JOINT IN THE ARCHITECTURAL FINISH ABOVE. SEE ARCHITECTURAL DRAWINGS.

NOTE: WHERE ROOF DRAIN PIPES ARE LOCATED OVER A COLUMN OR A WALL FOOTING, DROP TOP OF FOOTING TO [-2'-0"] BELOW FINISH FLOOR SLAB ELEVATION [0'-0"] AND PROVIDE A CONCRETE PIER AT COLUMN.

NOTE: AT THE BASE OF ALL STAIRS, PROVIDE A THICKENED SLAB 10" THICK & 20" WIDE REINF. WITH 2 #5 CONT.

NOTE: FOOTINGS HAVE NOT BEEN DROPPED FOR CIVIL,PLUMBING, OR ELECTRICAL LINES. SEE GENERAL NOTES FOR CRITERIA.

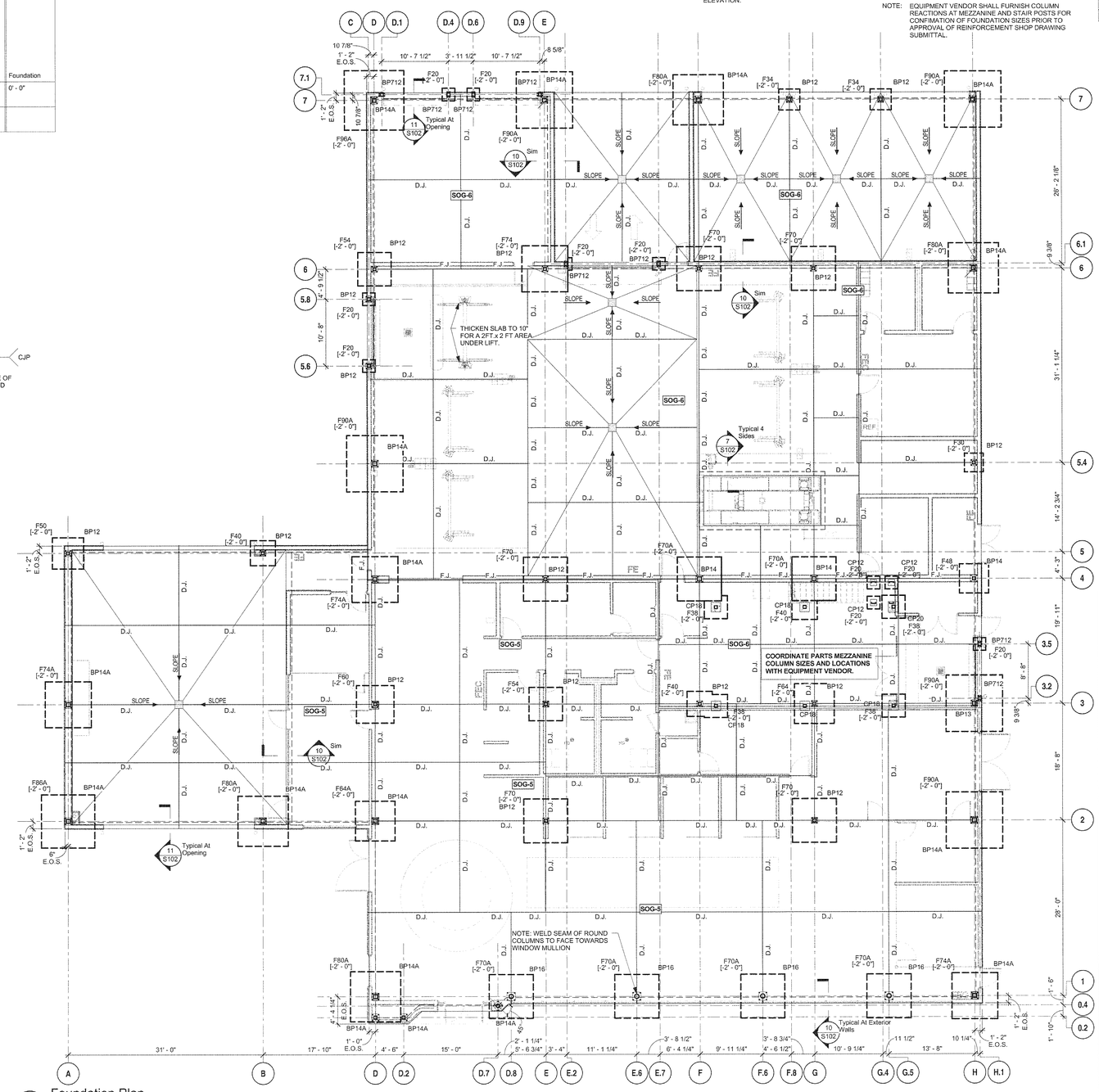
NOTE: SEE TYPICAL DETAIL AT BASE OF STEEL COLUMNS. WHERE CONCRETE PIERS ARE NOT SPECIFICALLY DETAILED, PROVIDE A PIER AS NOTED ON DETAIL.

NOTE: UNLESS NOTED OTHERWISE ON PLANS, TOP OF FOOTINGS AT ALL EXTERIOR FOOTINGS SHALL BE [-2'-0"] BELOW FINISH FLOOR SLAB.

NOTE: UNLESS NOTED OTHERWISE ON PLANS, TOP OF FOOTINGS AT ALL INTERIOR FOOTINGS SHALL BE [-2'-0"] BELOW FINISH FLOOR SLAB.

NOTE: FOR ISOLATION JOINT AT COLUMN BASES, SEE TYPICAL DETAIL.

NOTE: EQUIPMENT VENDOR SHALL FURNISH COLUMN REACTIONS AT MEZZANINE AND STAIR POSTS FOR CONFIMATION OF FOUNDATION SIZES PRIOR TO APPROVAL OF REINFORCEMENT SHOP DRAWING SUBMITTAL.



1 S201 Foundation Plan
1/8" = 1'-0"

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Client:
William L Grainger

P.O. BOX 7267
GARDEN CITY, GA 31408

Project:
Grainger Nissan

245 Robert Smalls Parkway,
Beaufort, SC 29906

Project Number: 15221

Site Key Plan:

Sheet Title:
Foundation Plan

Sheet Number:
S201

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ROOF FRAMING PLAN NOTES

- INDICATES CONTINUOUS HORIZONTAL RIGID BRACING AT TOP AND BOTTOM CHORD OF JOIST. ADD "X" TYPE BRIDGING IN FIRST PANEL AND AT EVERY SIXTH PANEL. WELD TO JOIST, FRAMING, AND AT CROSSOVER POINTS. SEE SPECIFICATIONS.
- ##: INDICATES DIMENSION INSIDE OF BOX SHALL BE VERIFIED WITH THE ARCHITECT PRIOR TO DETAILING OR FABRICATION.
- INDICATES THE DIRECTION THE DECK IS SPANNING.
- #.#k INDICATES LOAD ON JOIST FROM HOSE REEL, FOR SUPPORT SEE DETAIL: 3 / S104
- INDICATES A MOMENT CONNECTION AT EACH END OF BEAM TO COLUMN. SEE TYPICAL DETAIL FOR FULL PENETRATION WELD OF FLANGES AT EACH END.
- (T.O.P.) : INDICATES TOP OF PARAPET.
- (H) : INDICATES HIGH BEAM.
- (L) : INDICATES LOW BEAM.
- H.B. : INDICATES ANGLE 3"x3"x1/4" HORIZONTAL BRACE EXTENDING FROM TOP CHORD OF JOIST OR BEAM TO FACE OF COLUMN. WELD ALL AROUND EACH END WITH A 3/16" FILLET WELD.
- "A.X" : INDICATES ADDITIONAL "X" TYPE BRIDGING. USE 2 1/2"x2 1/2"x1/4" ANGLE
- S.J. : INDICATES A STRUT JOIST, SEE SPECIFICATIONS.
- S.P. : INDICATES A BEAM SPLICE POINT, SEE TYPICAL SPLICE POINT DETAIL.
- D.B. : INDICATES DIAGONAL BRACE(S), SEE BRACE ELEVATION(S) FOR SIZE(S).
- T/S : INDICATES TOP OF STEEL BEAM REFERENCED FROM ELEVATION [0'-0"].

NOTE : WHERE TUBE FRAME MEMBERS CONNECT TO COLUMNS, PROVIDE A WELDED CONNECTION ALL AROUND FROM TUBE TO COLUMN, TYP.

NOTE: STEEL REINF. TO BE WELDED SHALL CONFORM TO THE REQUIREMENTS OF ASTM A-706 AND THAT WELDING SHALL BE IN ACCORDANCE WITH AWS D1.4, STRUCTURAL WELDING CODE - REINFORCING STEEL BY AMERICAN WELDING SOCIETY FOR COMPLIANCE WITH ACI 318-99, SECTION 3.5.

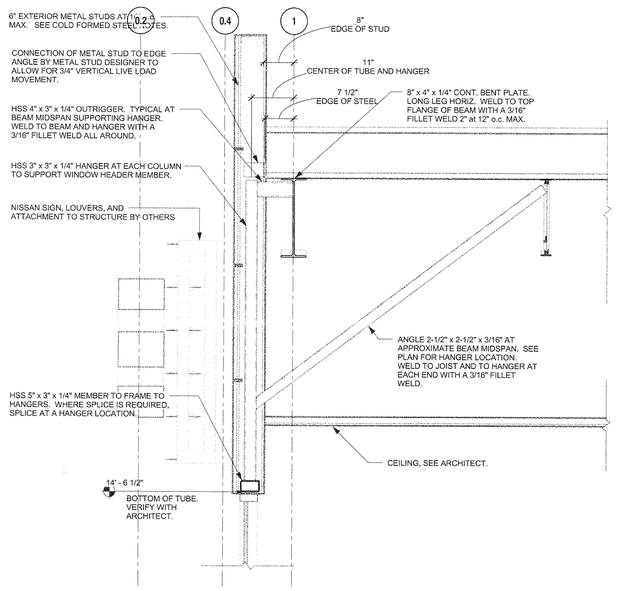
NOTE: FOR FRAMING AROUND ROOF HATCH, PROVIDE CHANNEL FRAMING AS SHOWN ON THE TYPICAL DETAIL FOR FRAMING AROUND MECHANICAL UNITS. (UNLESS NOTED OTHERWISE)

NOTE: KEEP STRUCTURE GUYED AND BRACED UNTIL ALL MASONRY/CONCRETE SHEAR WALLS, DIAGONAL BRACES, MOMENT FRAMES, FRAMED FLOORS AND ROOF DECKS ARE IN PLACE.

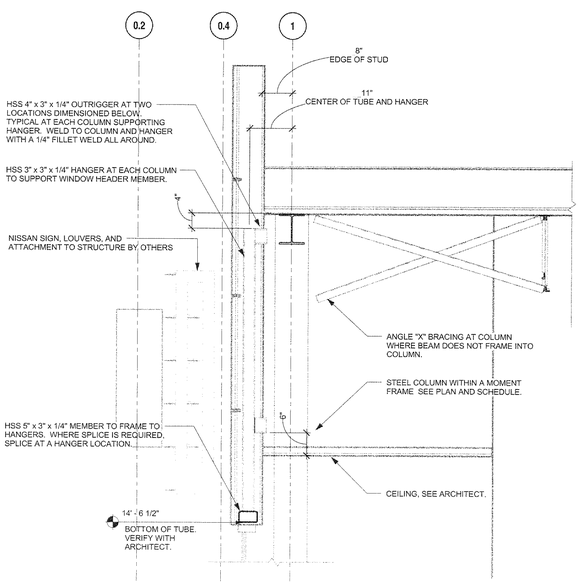
NOTE: SEE ARCHITECT AND PLUMBING DRAWINGS FOR LOCATIONS OF ROOF DRAINS. ROOF IS DESIGNED FOR A MAXIMUM DEPTH OF 4" OF WATER AT ANY LOCATION OF THE ROOF. WATER SHALL BE RELIEVED BY EITHER SCUPPERS OR AN INDEPENDENT EMERGENCY OVERFLOW DRAIN AT THE 4" LEVEL.

NOTE: FOR FRAMING AROUND THE PERIMETER OF A MECHANICAL UNIT, SEE TYPICAL DETAIL ?/S???.

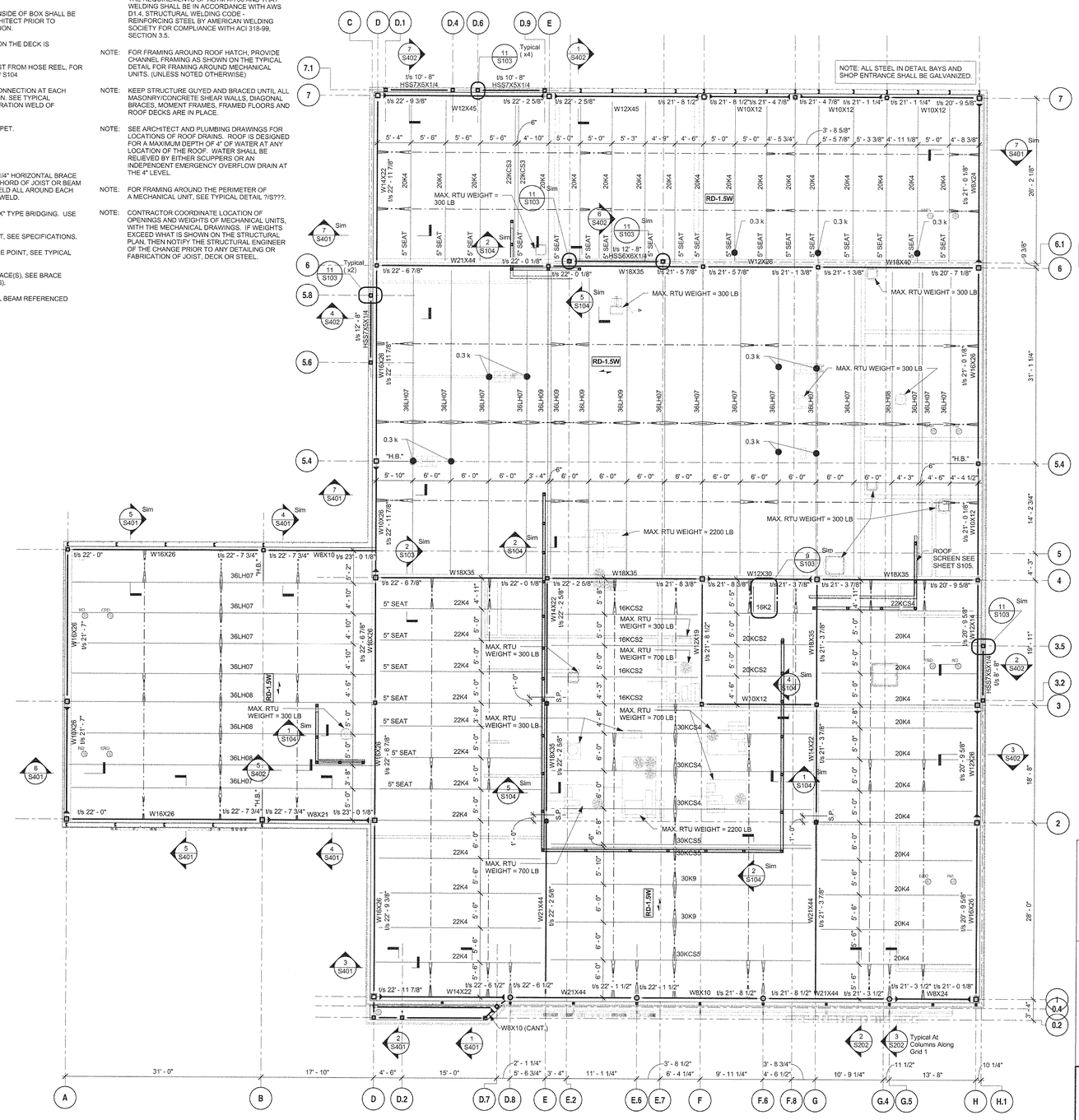
NOTE: CONTRACTOR COORDINATE LOCATION OF OPENINGS AND WEIGHTS OF MECHANICAL UNITS, WITH THE MECHANICAL DRAWINGS. IF WEIGHTS EXCEED WHAT IS SHOWN ON THE STRUCTURAL PLAN, THEN NOTIFY THE STRUCTURAL ENGINEER OF THE CHANGE PRIOR TO ANY DETAILING OR FABRICATION OF JOIST, DECK OR STEEL.



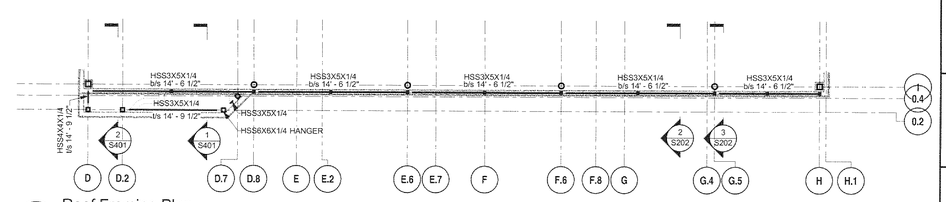
2 S202 Roof Section at Storefront (Parallel)
3/4" = 1'-0"



3 S202 Roof Section at Storefront at Column
3/4" = 1'-0"



1 S202 Roof Framing Plan
1/8" = 1'-0"



4 S202 Roof Framing Plan
1/8" = 1'-0"

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	03.11.16	Bid/Permit

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Client:
William L Grainger

P.O. BOX 7267
GARDEN CITY, GA 31408

Project:
Grainger Nissan

245 Robert Smalls Parkway,
Beaufort, SC 29906

Project Number: 15221

Site Key Plan:

Sheet Title:
Roof Framing Plan

Sheet Number:
S202

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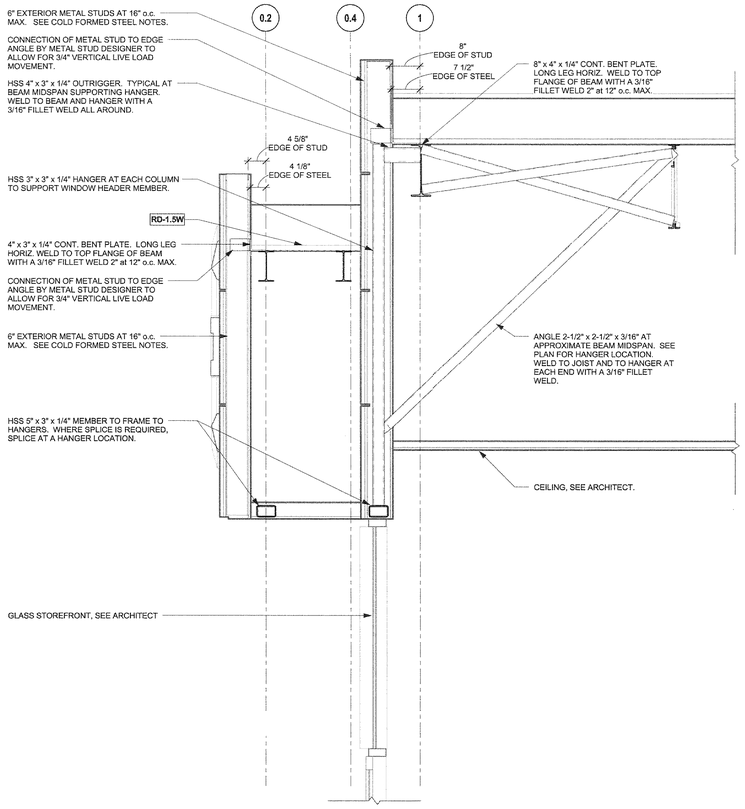
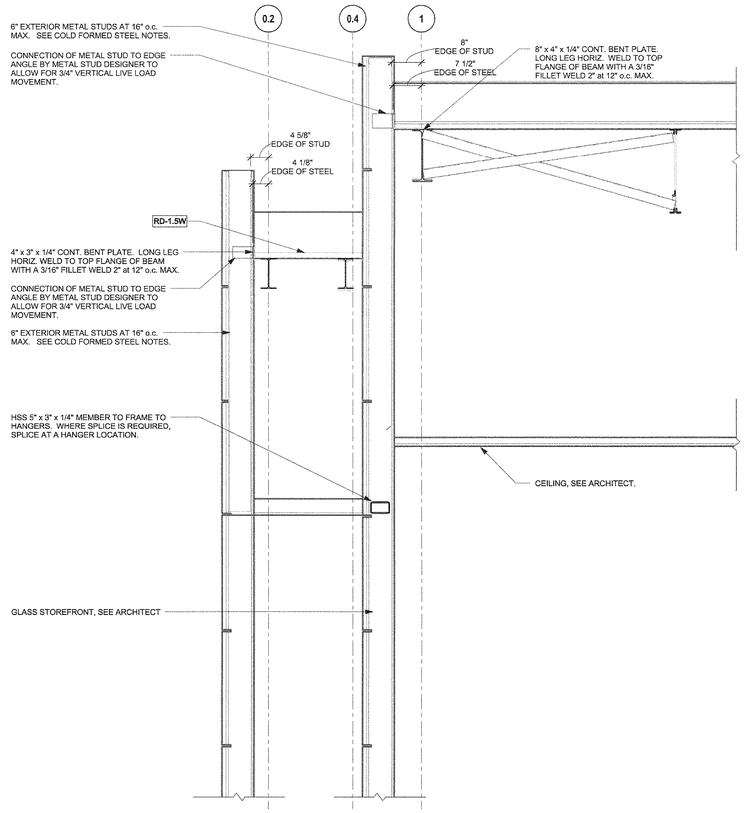


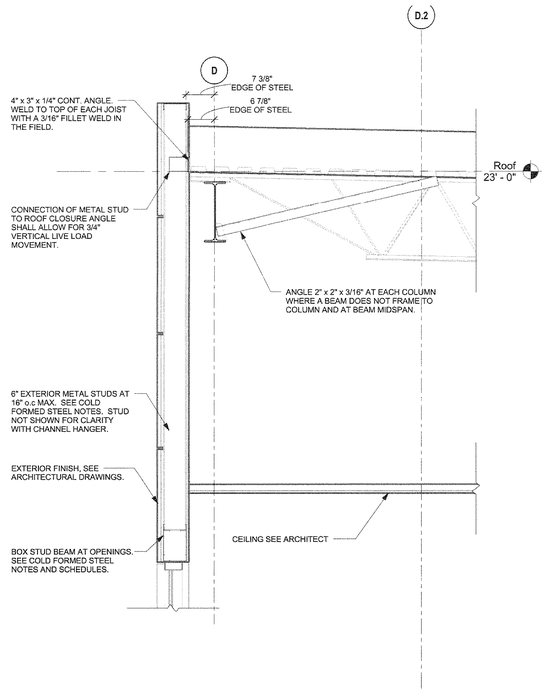
1 S401 Roof Section at Feature Wall (door)

3/4" = 1'-0"



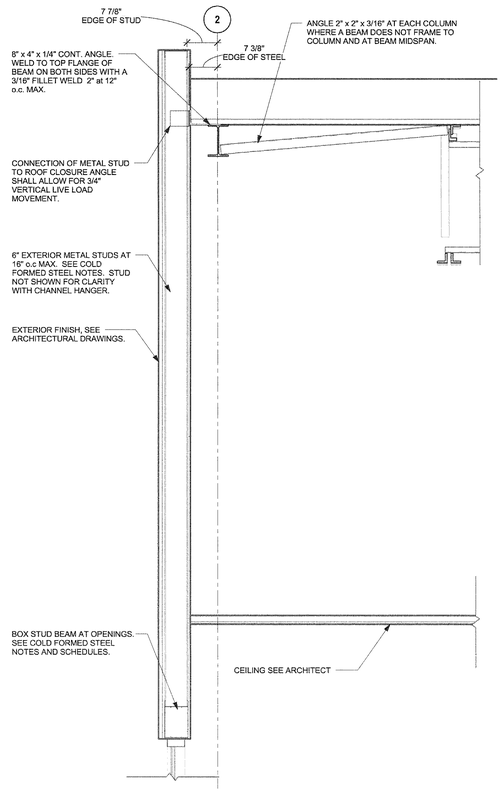
2 S401 Roof Section at Feature Wall (glass)

3/4" = 1'-0"



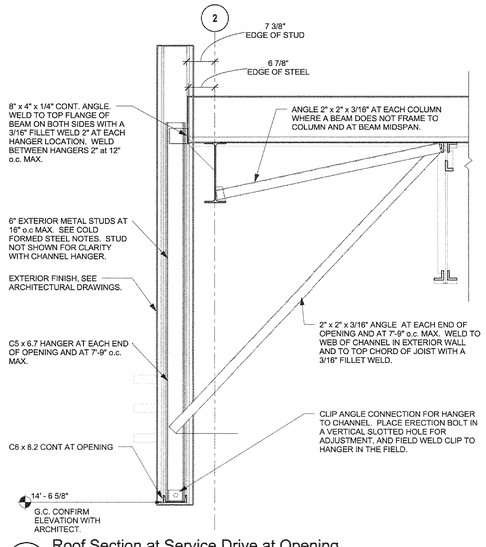
3 S401 Roof Section at Storefront (Perpendicular)

3/4" = 1'-0"



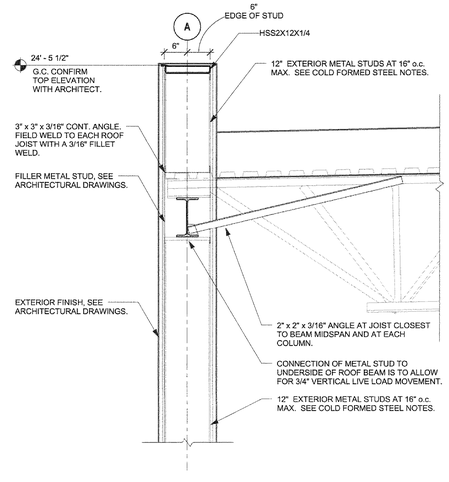
4 S401 Roof Section at Service Drive (Parallel)

3/4" = 1'-0"



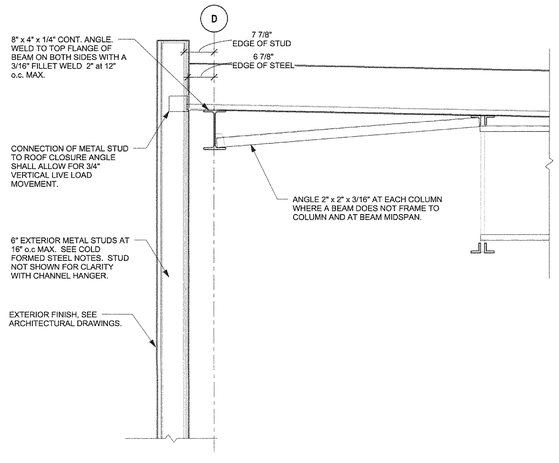
5 S401 Roof Section at Service Drive at Opening

3/4" = 1'-0"



6 S401 Roof Section at Service Drive (Perpendicular)

3/4" = 1'-0"



7 S401 Roof Section at Shop (Parallel)

3/4" = 1'-0"

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Client:

William L Grainger

P.O. BOX 7267
GARDEN CITY, GA 31408

Project:

Grainger Nissan

245 Robert Smalls Parkway,
Beaufort, SC 29906

Project Number: 15221

Site Key Plan:

Sheet Title:

Sections

Sheet Number:

S401

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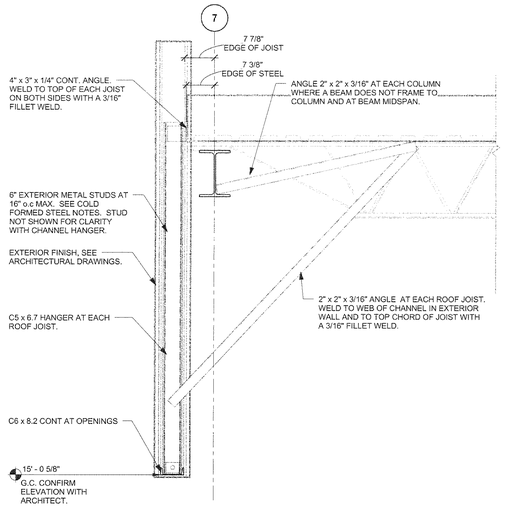
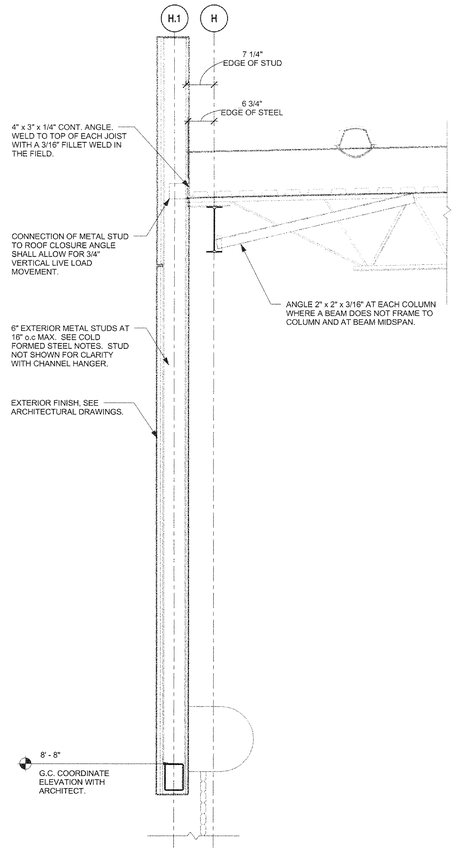


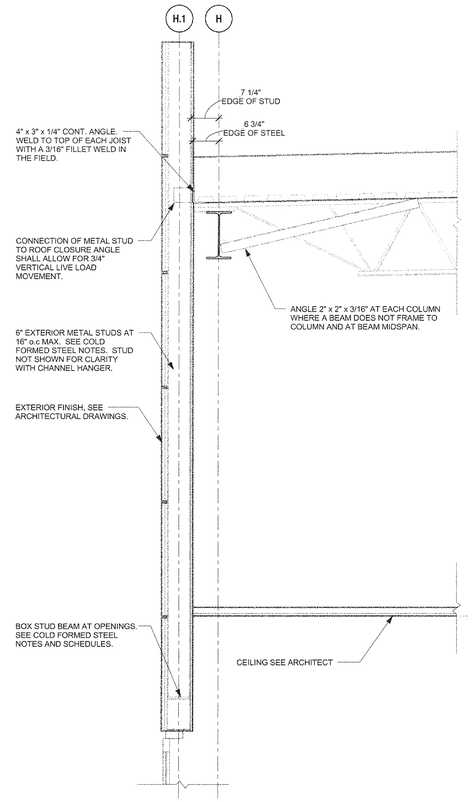
1 S402 Roof Section at Shop (Perpendicular)

3/4" = 1'-0"



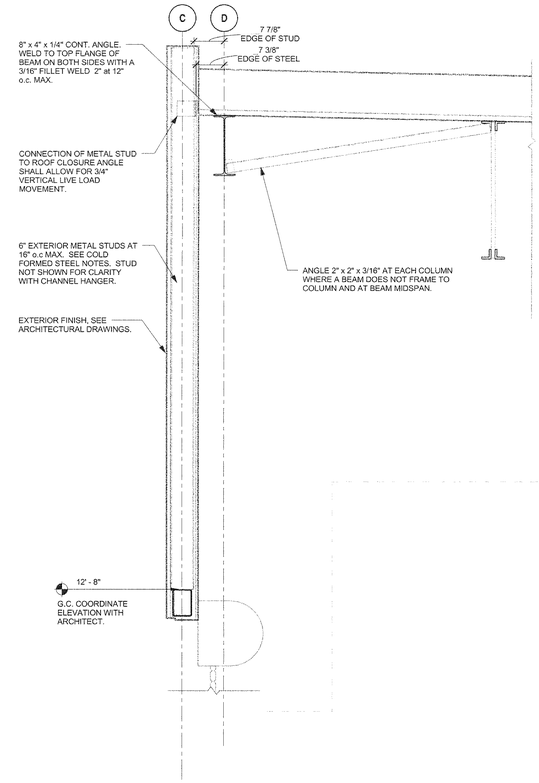
2 S402 Roof Section at Parts Receiving

3/4" = 1'-0"



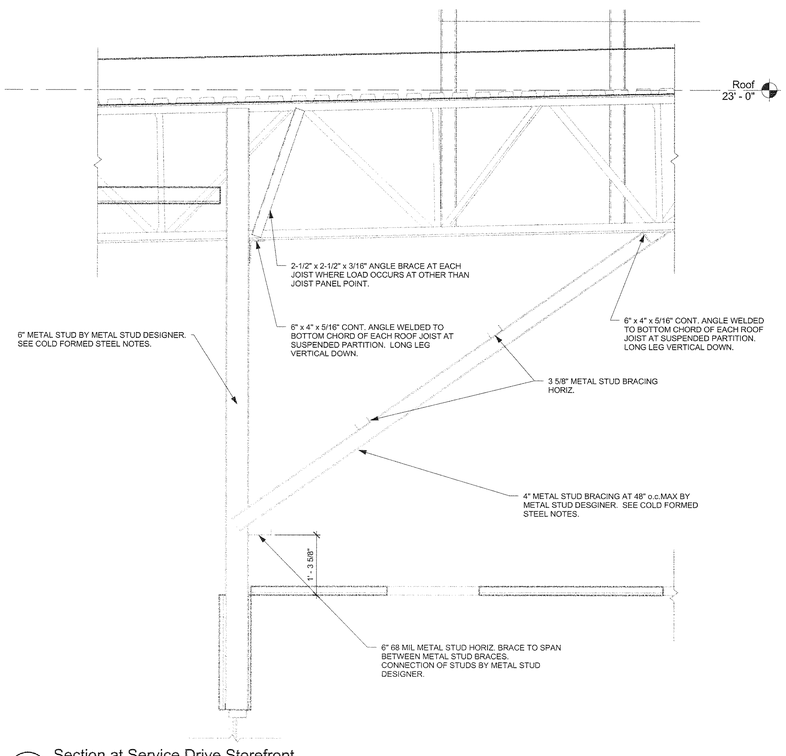
3 S402 Roof Section at NVD

3/4" = 1'-0"



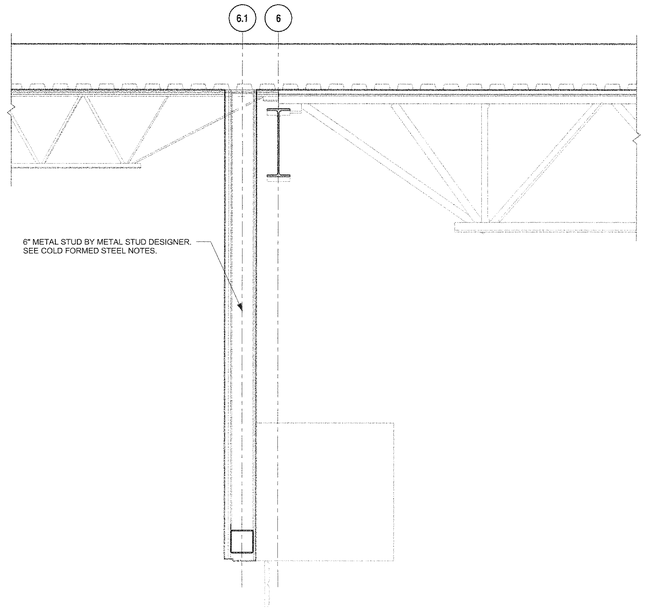
4 S402 Section At Roof & Shop

3/4" = 1'-0"



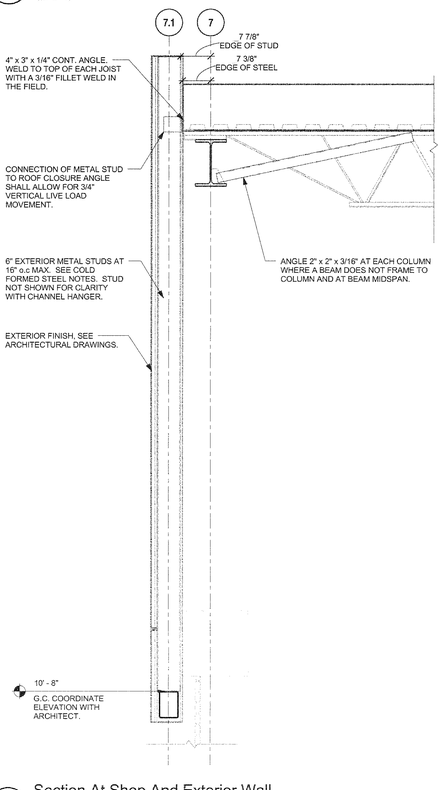
5 S402 Section at Service Drive Storefront

3/4" = 1'-0"



6 S402 Section at Highspeed Door at Shop

3/4" = 1'-0"



7 S402 Section At Shop And Exterior Wall

3/4" = 1'-0"

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Project:

Grainger Nissan

245 Robert Smalls Parkway,
Beaufort, SC 29906

Project Number: 15221

Site Key Plan:

Sheet Title:

Sections

Sheet Number:

S402

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MECHANICAL - ROOFTOP UNIT SCHEDULE (GAS)

ITEM NO.	EQUIP. TYPE	TOTAL CFM	NOMINAL TONS	DESIGN OUTSIDE AIR, CFM	EXT. STATIC PRESSURE IN. H20	TOTAL CAPACITY MBH	SENS. CAPACITY MBH	DRY BULB ENTER COND. DEG F	DRY/WET BULB ENTER EVAP., DEG F	SEER/EER	INPUT MBH (GAS)	OUTPUT MBH	PIPE SIZE	NO. OF STAGES	MIN. MTR. HP/BHP	AREA SERVED	BASIS OF DESIGN	NOTES	APPROXIMATE EQUIP. SIZE	WEIGHT (Lbs)
RTU-1	DX COOLING / GAS HEAT	1220	3.0	215	1.0	36.7	27.7	94.0	79.2 / 67.0	15.0 / ---	72.0	56.0 (78% AFUE)	1/2"	2	--- / 0.71	EXT. OFFICES	CARRIER 48HC**04	1,2,3,4,5,6,8,9,10	74.5"(L) x 46.8"(W) x 47.5"(H)	525
RTU-2	DX COOLING / GAS HEAT	1105	3.0	215	1.0	37.0	26.2	93.0	79.8 / 68.1	15.0 / ---	72.0	56.0 (78% AFUE)	1/2"	2	--- / 0.6	INT. OFFICES	CARRIER 48HC**04	1,2,3,4,5,6,7,8,9,10	74.5"(L) x 46.8"(W) x 47.5"(H)	525
RTU-3	DX COOLING / GAS HEAT	1000	3.0	210	1.0	36.2	25.7	94.0	79.8 / 66.9	15.0 / ---	72.0	56.0 (78% AFUE)	1/2"	2	--- / 0.6	CUSTOMER LOUNGE	CARRIER 48HC**04	1,2,3,4,5,6,7,8,9,10	74.5"(L) x 46.8"(W) x 47.5"(H)	525
RTU-P	DX COOLING / GAS HEAT	1000	3.0	275	1.0	37.0	25.6	93.0	80.7 / 67.9	15.0 / ---	72.0	56.0 (78% AFUE)	1/2"	2	--- / 0.6	PARTS	CARRIER 48HC**04	1,2,3,4,5,6,9,10	74.5"(L) x 46.8"(W) x 47.5"(H)	525
RTU-S	DX COOLING / GAS HEAT	5000	12.5	1550	1.0	160.2	109.6	94.0	81.0 / 69.8	--- / 12.2	180.0	146.0 (81% AFUE)	3/4"	2	--- / 2.82	SERVICE SHOP	CARRIER 48HC**14	1,2,3,4,5,6,7,8,9,10,11	116"(L) x 63.5"(W) x 71.4"(H)	1900
RTU-SR	DX COOLING / GAS HEAT	5200	12.5	815	1.0	144.6	111.8	93.5	78.8 / 66.7	--- / 12.2	180.0	146.0 (81% AFUE)	3/4"	2	--- / 3.01	SHOWROOM	CARRIER 48HC**14	1,2,3,4,5,6,7,8,9,10	116"(L) x 63.5"(W) x 71.4"(H)	1900

1. ROOF TOP UNITS SHALL BE INSTALLED ON FACTORY CURB, AND EQUIPPED WITH HINGED PANELS, FACTORY BKR DISCONNECT, AND THROUGH CURB CONNECTIONS.
2. T-STAT FOR HVAC UNITS SHALL BE LOCATED PER DRAWING PLANS. T-STAT SHALL BE WALL MOUNTED ELECTRONIC PROGRAMMABLE WITH CLEAR LOCKABLE COVER.
3. ALL ROOF TOP UNITS SHALL HAVE MANUFACTURER INSTALLED MAINTENANCE RECEPTACLE (NEMA 5-15R) WITH TRANSFORMER POWERED THROUGH EQUIPMENT SERVICE.
4. CONTRACTOR SHALL MODIFY AT FIELD FOR THE PROPER MOTOR DRIVE FOR THE EQUIPMENT.
5. REFER TO ELECTRICAL PLANS FOR REQUIRED VOLTAGE AND PHASE
6. ROOF TOP UNITS SHALL HAVE FIELD INSTALLED CONDENSATE MONITORING DEVICE TO MONITOR AND SHUT DOWN EQUIPMENT UPON OVERFLOW CONDITIONS.
7. UNIT SHALL BE EQUIPPED WITH RETURN DUCT MOUNTED CO2 SENSOR TO CONTROL OUTSIDE AIR DAMPER. REFER TO SPECIFICATION FOR MOTORIZED DAMPER OPENING CONTROL.
8. MECHANICAL EQUIPMENT SHALL BE EQUIPPED WITH RETURN AIR DUCT TEMPERATURE SENSORS THAT ARE INTERLOCKED WITH THE REMOTE T-STAT SHOWN ON PLANS.
9. ROOF TOP UNIT SHALL BE EQUIPPED WITH FACTORY INSTALLED ENTHALPY ECONOMIZER.
10. PROVIDE CORROSION RESISTANT COATING
11. ROOF TOP UNIT SHALL BE INTERLOCKED WITH SHOP CO SENSORS AND CONTROL PANEL FOR EMERGENCY CO ACTIVATION. REFERANCE SHOP EMERGENCY CO REMOVAL CONTROL SCHEMATIC.

MECHANICAL - SPLIT SYSTEM CU/HP SCHEDULE

ITEM NO.	EQUIP. TYPE	COND. AMBIENT AIR TEMP. IN DEG F	COOLING CAPACITY, MBH	HEATING CAPACITY, MBH	MINIMUM SEER	LOCATION	BASIS OF DESIGN	MATCHING AIR UNIT	APPROXIMATE EQUIP. SIZE	WEIGHT (Lbs)	NOTES
CU-E	AIR COOLED - DX	94.0	24.0	----	14.0 / ---	ON ROOF	CARRIER 38MVC024	DS-E	35"(W) x 45.5"(H) x 14"(D)	155	3,4
CU-IT	AIR COOLED - DX	94.0	24.0	----	14.0 / ---	ON ROOF	CARRIER 38MVC024	DS-D	35"(W) x 45.5"(H) x 14"(D)	155	3,4
HP-SD	HEAT PUMP	94.0	23.3	17.1 @ 27 DEG F	14.0 / ---	ON ROOF	CARRIER 25HBB324	FCU-SD	31.2"SQ x 35.8"(H)	175	3,4
HP-T	HEAP PUMP	94.0	18.0	12.9 @ 27 DEG F	14.0 / ---	ON ROOF	CARRIER 25HBB318	FCU-T	31.2"SQ x 35.8"(H)	175	3,4

MECHANICAL - SPLIT SYSTEM AHU AND FCU SCHEDULE

ITEM NO.	EQUIP. TYPE	NOMINAL TONS	TOTAL CFM	DESIGN OUTSIDE AIR, CFM	EXT. STATIC PRESSURE IN. H20	TOTAL CAPACITY MBH	SENS. CAPACITY MBH	MIN. MTR. HP	FILTER	HEATER RATING, KW	NO. OF STAGES	BASIS OF DESIGN	AREA SERVED	APPROXIMATE EQUIP. SIZE	WEIGHT (Lbs)	NOTES
DS-D	WALL MOUNT / DUCTLESS	2.0	660	----	----	22.9	15.7	----	MERV-8	----	----	CARRIER 40MVC24	DATA	12.8"(H) x 49.2"(W) x 9.1"(D)	40	1
DS-E	WALL MOUNT / DUCTLESS	2.0	660	----	----	22.9	15.7	----	MERV-8	----	----	CARRIER 40MVC24	ELEC. ROOM	12.8"(H) x 49.2"(W) x 9.1"(D)	40	1
FCU-SD	HORIZONTAL	2.0	690	150	0.6	23.3	16.7	1/3	MERV-8	6.0 @ 208V (8.0 @ 240V)	1	CARRIER FX4DNB025	SERVICE DRIVE	49.7"(H) x 17.7"(W) x 22.1"(D)	125	1,2
FCU-T	HORIZONTAL	1.5	570	130	0.6	17.4	12.4	1/3	MERV-8	3.8 @ 208V (5.0 @ 240V)	1	CARRIER FX4DNB019	TECH BRK	49.7"(H) x 17.7"(W) x 22.1"(D)	125	1,2

1. PROVIDE CONDENSATE PUMP AS REQUIRED.
2. HEAT ELEMENT OPERATION IS NON-SIMULTANEOUS WITH OUTDOOR HEATPUMP OPERATION.
3. CONTRACTOR SHALL PROVIDE MIN. 12" HIGH CUSTOM RAILS FOR ROOF TOP MOUNT CONDENSING UNITS.
4. PROVIDE CORROSION RESISTANT COATING.

MECHANICAL - FAN SCHEDULE

ITEM NO.	EQUIP. TYPE	TOTAL CFM	STATIC PRESSURE	AREA SERVED	SPEED (RPM)	MAX SONES	FAN TYPE	HP / BHP	DRIVE TYPE	BASIS OF DESIGN	NOTES	APPROXIMATE EQUIP. SIZE	WEIGHT (Lbs)	ROOF/WALL OPENING
CF-S1	HVLS FAN	----	----	SERVICE SHOP	95	----	INDUSTRIAL	1.5 / ---	DIRECT	BIG ASS FANS PFX2.0	9	16'-0" DIA	320	----
CF-SD	HVLS FAN	----	----	SERVICE DRIVE	106	----	INDUSTRIAL	1.0 / ---	DIRECT	BIG ASS FANS PFX2.0	9,10	12'-0" DIA	245	----
EF-C	EXHAUST FAN	1200	0.38	COMP. / FLUIDS	900	6.7	CENT. ROOF	1/4 / 0.19	BELT	GREENHECK GB-141	1,2,3,5	28.5" DIA x 37.6"(H)	65	18.5" SQ
EF-S1	EXHAUST FAN	3000	0.38	SERVICE SHOP	536	8.3	CENT. ROOF	1/2 / 0.37	BELT	GREENHECK GB-220	1,2,3,7,8	42.8" DIA x 45.3"(H)	115	26.5" SQ
EF-S2	EXHAUST FAN	435	0.38	TOOLS / EV	1015	5.7	CENT ROOF	1/4 / 0.08	BELT	GREENHECK GB-091	1,2,3,4	24.4" DIA x 37.5"(H)	60	14.5" SQ
EF-S3	EXHAUST FAN	1200	0.38	STORAGE 131	900	6.7	CENT. ROOF	1/4 / 0.19	BELT	GREENHECK GB-141	1,2,3,5	28.5" DIA x 37.6"(H)	65	18.5" SQ
EF-T1	EXHAUST FAN	350	0.38	MAIN TLTS	1081	5.1	CENT. ROOF	1/6 / 0.07	BELT	GREENHECK GB-081	1,2,3,4	24.4" DIA x 37.5"(H)	60	14.5" SQ
EF-T2	EXHAUST FAN	250	0.38	TECH TLTS	992	4.4	CENT. ROOF	1/6 / 0.06	BELT	GREENHECK GB-081	1,2,3,4	24.4" DIA x 37.5"(H)	60	14.5" SQ

1. FACTORY DISCONNECT SWITCH.
2. BACKDRAFT DAMPER.
3. MINIMUM 12" ROOF CURB.
4. CONTROL THROUGH TIME CLOCK SETUP PER BUSINESS HOURS.
5. CONTROL THROUGH WALL MOUNTED PROGRAMMABLE AUTO CHANGEOVER THERMOSTAT. LOCATION SHOWN ON PLANS.
6. PROVIDE WITH H-O-A CONTROL INTERLOCKED WITH TIME CLOCK SETUP PER BUSINESS HOURS.
7. PROVIDE WITH H-O-A CONTROL INTERLOCKED WITH THE AUTOMATIC CONTROL SEQUENCE.
8. CONTROL INTERLOCKED WITH HIGH SPEED DOOR AND CO/NO3 SENSORS, UNIT EQUIPPED WITH FIRE STAT FOR SHUT-DOWN.
9. PROVIDED AND INSTALLED BY OWNER'S VENDOR. SHOWN FOR REFERENCE ONLY.
10. FAN SHALL BE EQUIPPED WITH PFX LED.

MECHANICAL - CO EXHAUST FAN SCHEDULE

ITEM NO.	TOTAL CFM	S.P. EXT.	HP	BAROMETRIC DAMPER	BASIS OF DESIGN	WEIGHT (Lbs)	NOTES
VF-1	1500	3"	2.0	YES	HARVEY BD-11	150	1,2,3

1. EQUIPMENT SHALL BE ADJUSTED TO EXHAUST THE REQUIRED CFM OF CARBON MONOXIDE AT THE COMPLETION OF THE PROJECT AND SHALL HAVE THE ABILITY TO BE MODIFIED AT FIELD FOR THE RATED CAPACITY AS A WARRANTY WORK.
2. THIS CONTRACTOR IS RESPONSIBLE FOR THE H-O-A STARTER AND COMPLETE CONTROL WIRING TO THE EQUIPMENT EXCEPT POWER WIRING.
3. OWNER FURNISHED AND INSTALLED.

MECHANICAL - ELECTRIC HEATER SCHEDULE

ITEM NO.	EQUIP. TYPE	TOTAL CAPACITY BTU/HR	KW	LOCATION	INPUT VOLTAGE	PHASE	HZ	BASIS OF DESIGN	NOTES
EUH-C	HORIZONTAL DISCHARGE	11,200	3.3	COMP. / FLUID	277	1	60 Hz	RAYWALL G1G5103N	1,2,3

1. PROVIDE POWER DISCONNECT SWITCH.
2. PROVIDE UNIT MOUNT THERMOSTAT WITH ADJUSTABLE TEMPERATURE RANGE FROM 40 DEG F TO 90 DEG F.
3. STAINLESS STEEL HOUSING AND HEATING ELEMENT. PAINT WITH ANTI-CORROSION COATING.

MECHANICAL - ROOF HOOD SCHEDULE

ITEM NO.	TOTAL CFM	STATIC PRESSURE	THROAT VELOCITY	AREA SERVED	APPROXIMATE EQUIP. SIZE	THROAT DIMENSIONS	BASIS OF DESIGN	NOTES
IH-SD	150	0.04	405	SERVICE DRIVE	20.5" DIA x 21" (H)	8" DIA	GREENHECK GRSI-8	1,2,3
IH-T	130	0.04	350	TECH BRK RM	20.5" DIA x 21" (H)	8" DIA	GREENHECK GRSI-8	1,2,3

1. PROVIDE MOTOR OPERATED DAMPER.
2. PROVIDE BIRD/INSECT SCREEN.
3. PROVIDE MINIMUM 12" ROOF CURB.

MECHANICAL - GAS FIRED HEATER SCHEDULE

ITEM NO.	DESIGNATION	EQUIP. TYPE	LOCATION	INPUT MBH	OUTPUT MBH	FLUE	TOTAL CFM	BLOWER MOTOR	AMP	BASIS OF DESIGN	NOTES
GUH-S1	GAS HEATER	GAS UNIT HEATER	STORAGE 131	45.0	37.4	4" DIA	550	1/20	3.5	STERLING GG045	1,2,3
IRH-D1	GAS HEATER	GAS IR HEATER	DETAIL	30.0	----	----	----	----	0.48	RE-VERBER-RAY DR-30	1,4,5
IRH-D2	GAS HEATER	GAS IR HEATER	DETAIL	30.0	----	----	----	----	0.48	RE-VERBER-RAY DR-30	1,4,5

1. PROVIDE POWER DISCONNECT SWITCH.
2. CONTROL THROUGH WALL MOUNTED THERMOSTAT TO BE SET-UP PER BUSINESS HOURS.
3. SEPERATED COMBUSTION. PROVIDE NECCESSARY KIT REQUIRED.
4. PROVIDE NECESSARY OPTIONAL EQUIPMENT FOR OPERATION IN A HARSH ENVIRONMENT; PROVIDE STAINLESS STEEL RAYHEAD CHAMBER AND NFS-2 120V CONTROL.
5. CONTROL THROUGH WALL MOUNTED THERMOSTAT WITH SWITCHABLE SUB-BASE TO BE SET-UP PER BUSINESS HOURS.

MECHANICAL - DIFFUSERS, REGISTERS AND GRILLES

ITEM NO.	DESIGNATION	THROAT / NECK	FRAME SIZE	MAX. AIRFLOW	NOISE CRITERIA	DAMPER	BASIS OF DESIGN	TERMINAL TYPE	NOTES
EA1	EA	6" x 6"	12" x 12"	100 CFM	10	OBD	TITUS 50F	EGG CRATE	1,2,3
EA2	EA	8" x 8"	12" x 12"	220 CFM	11	OBD	TITUS 50F	EGG CRATE	1,2,3
EC1	EA	8" x 6"	10" x 8"	280 CFM	27	OBD	TITUS 350ZRL	BAR GRILLE	1,2,3
RA1	RA	22" x 22"	24" x 24"	1600 CFM	26	OBD	TITUS 50F	EGG CRATE	1,2,3
SA2	SA	10" DIA	24" x 24"	330 CFM	25	----	TITUS TDC	LOUVERED FACE	1,2,3
SA3	SA	8" DIA	24" x 24"	230 CFM	18	----	TITUS TDC	LOUVERED FACE	1,2,3
SA4	SA	6" DIA	24" x 24"	110 CFM	18	----	TITUS TDC	LOUVERED FACE	1,2,3
SC1	SA	8" x 6"	10" x 8"	0 CFM		OBD	TITUS 300RL	BAR GRILLE	1,2,3
SD1	SA	10" DIA	4' SECTION	320 CFM	25	----	TITUS ML-39	LINEAR SLOT (3) 1"	1,2,3,4, ALUMINUM

1. ALL TERMINAL DEVICES SHALL HAVE FINISH MATCHING ADJACENT CEILING AND/OR WALL ARCHITECTURAL FINISH.
2. TAKE-OFF FROM MAIN BRANCH SHALL BE SAMES SIZE AS DIFFUSER NECK SIZE UNLESS NOTED OTHERWISE ON PLANS.
3. COORDINATE FRAME TYPE WITH ARCHITECTURAL REFLECTED CEILING PLANS AND FLOOR PLANS BEFORE ORDERING.
4. LINEAR SLOT DIFFUSER WITH INSULATED PLENUM, SIDE CONN. UNLESS NOTED TOP ON DWGS.

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MECHANICAL GENERAL NOTES

1. MECHANICAL CONTRACTOR SHALL COMPLETE THE ENTIRE MECHANICAL INSTALLATION AS PER STANDARDS AND REQUIREMENTS OF THE NFPA90A, ASHRAE STANDARDS AND 2012 INTERNATIONAL MECHANICAL CODE WITH AMENDMENTS FROM LOCAL AUTHORITIES.
2. CONDENSATE FROM ALL INDOOR AIR CONDITIONING EQUIPMENT SHALL BE ROUTED IN MIN 1" PIPE OR SIZED PER MANUFACTURER TO NEAREST INDIRECT DRAIN OR HUB DRAIN. CONDENSATE PIPING SHALL BE METAL PIPE. IF FIELD CONDITION DICTATES THAT CONDENSATE PUMP MAY BE REQUIRED, IT IS THIS CONTRACTOR RESPONSIBILITY TO SECURE (PAY FOR) ELECTRICAL POWER CONNECTION FOR THE PUMP AND EXTEND CONDENSATE DRAIN LINE TO NEAREST INDIRECT WASTE AND STORM SYSTEM.
3. CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR FOR ELECTRICAL SERVICE VOLTAGE RATING. IT IS CONTRACTOR'S RESPONSIBILITY FOR PAYING ELECTRICAL COST IF CONTRACTOR CHANGES INSTALLATION FROM THIS SCHEDULE.
4. ALL PACKAGED HVAC EQUIPMENT SHALL BE FURNISHED AND INSTALLED COMPLETE WITH DISCONNECT, STARTERS, CONTROL VOLTAGE TRANSFORMER, CONTROLS AND CONTROL WIRING. REFER TO ELECTRICAL DRAWINGS AND SPECIFICATIONS FOR INSTALLING CONTROL WIRING SYSTEM.
5. UNLESS OTHERWISE NOTED, FLEXIBLE DUCT SHALL BE GENFLEX ASL-25, OR EQUAL, OF THE SAME SIZE AS THE DIFFUSER NECK SIZE. MAXIMUM FLEXIBLE DUCT LENGTH SHALL BE PER CODE. CONNECT ALL BRANCH DUCT TAKE-OFF, ROUND OR FLEXIBLE WITH MANUAL SPIN-IN FITTING WITH AIR SCOOPS AND BALANCING DAMPER.
6. UNLESS OTHERWISE NOTED, ALL DUCTWORK SHOWN ARE INSIDE CLEAR DIMENSIONS.
7. CONTRACTOR SHALL INSTALL DUCT MOUNTED SMOKE DETECTOR AT MAIN RETURN AIR DUCTS AS INDICATED ON PLANS AND PER IMC 2012. SMOKE DETECTOR SHALL BE FURNISHED BY DIVISION 26 CONTRACTOR, INSTALLED BY THIS CONTRACTOR AND CONNECTED BY FIRE ALARM SYSTEM INSTALLER. DETECTOR SHALL SHUT DOWN HVAC UNIT UPON ACTIVATION BY DETECTING SMOKE IN THE SYSTEM AND START GENERAL FIRE ALARM IN BUILDING.
8. UNLESS OTHERWISE NOTED, ALL WALL MOUNTED THERMOSTAT SHALL BE PROTECTED INSIDE A CLEAR IMPACT RESISTANT THERMO-PLASTIC COVER.
9. ALL THERMOSTATS SHALL BE INSTALLED AT 48" ABOVE FINISHED FLOOR AND SHALL BE PROGRAMMABLE TYPE.
10. IN OCCUPIED CYCLE, ALL HVAC EQUIPMENT FANS SHALL BE PROGRAMMED TO RUN CONTINUOUSLY. THE COOLING AND HEATING CYCLE SHALL BE TURNED ON-OFF BY THE THERMOSTAT CONTROLLING THE ZONE. IN UNOCCUPIED CYCLE, FAN SHALL CYCLE ON AND OFF.
11. MECHANICAL EQUIPMENT SHALL BE MAINTAINED WITH SERVICE CLEARANCE PER NEC 110.26 AND IMC 106.1.1.
12. WHERE IDENTIFIED ON PLANS AS BRANCH TAKE-OFF ROUND DUCT, IT IS THE INTENT USING FLEXIBLE MECHANICAL DUCT CONFORMING TO IMC 2012 SECTION 603.5.1.1.
13. COORDINATE WITH ELECTRICAL CONTRACTOR FOR QUANTITY OF DUCT MOUNTED SMOKE DETECTORS. REFERENCE FLOOR PLANS FOR LOCATIONS.

MECHANICAL SYMBOL LEGEND

SYMBOL	DEVICE OR ITEM DESCRIPTION	SYMBOL	DEVICE OR ITEM DESCRIPTION
	PIPE TURNING UP		DUCT SMOKE DETECTOR
	PIPE TURNING DOWN		MANUAL SPIN DAMPER
D	DRAIN		FIRE DAMPER
RL	REFRIDGERANT LIQUID		COMBINATION FIRE / SMOKE DAMPER
RS	REFRIDGERANT SUCTION		SPIN-IN FITTING W/ SCOOP AND DAMPER
	VIBRATION ABSORBER		SPIN-IN FITTING W/ SCOOP AND DAMPER (SINGLE LINE)
	FLEXIBLE DUCT	M	MOTORIZED DAMPER
	ELBOW, 90 DEGREES	VD	VOLUME DAMPER
	ELBOW, 45 DEGREES		FLEXIBLE CONNECTION
	TEE		TRANSITION
	TEE, OUTLET UP		TRANSITION (SINGLE LINE)
	TEE, OUTLET DOWN	S	MANUAL SPLITTER
	RETURN / EXHAUST DUCT	S R	STANDARD BRANCH, SUPPLY OR RETURN, NO SPLITTER
	SUPPLY DUCT	20x12 700	EXHAUST / RETURN GRILLE OR REGISTER
8"Ø	ROUND DUCT	20x12 700	SUPPLY GRILLE OR REGISTER
24x12	RECTANGULAR DUCT, FIRST FIGURE IS SIDE SHOWN	20x12L 700	LOUVER, DOOR OR WALL
	DUCTWORK, INTERNALLY LINED		DOOR GRILLE
	DUCTWORK, LINED (SINGLE LINE)	UC 1/2"	UNDERCUT DOOR
X	X SQ-FT OPENING ABOVE CEILING	T	PROGRAMMABLE AUTO-CHANGE-OVER THERMOSTAT
X FD	X SQ-FT OPENING ABOVE CEILING W/ FIRE DAMPER	S	WALL MOUNT TEMPERATURE ZONE SENSOR
	RISE IN DUCTWORK	CO	WALL MOUNT CO SENSOR, MOUNT AT 24" AFF
	DROP IN DUCTWORK	CO2	WALL MOUNT CO2 SENSOR, MOUNT AT 48" AFF
	ELBOW WITH TURNING VANES	S	DUCT MOUNT TEMPERATURE SENSOR
	ACCESS DOORS, VERTICAL OR HORIZONTAL	F	DUCT MOUNT FIRE STAT SENSOR
	SUPPLY DIFFUSER	D	DUCT MOUNTED SMOKE DETECTOR
	RETURN OR EXHAUST GRILLE / REGISTER		
OED	OPEN END DUCT		

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David Lu
SC PE# 13371

Sealed and Signed: 04/04/2016

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Rev	Date	Comments
	03.10.16	Bid/Permit

Client:
Grainger Nissan

P.O. BOX 7267
GARDEN CITY, GA 31408

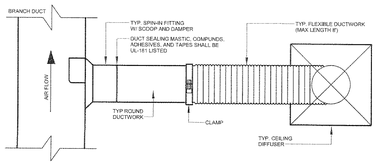
Project Number: 15221
Project Name:
Grainger Nissan

224 Rober Smalls Parkway,
Beaufort, SC 29906

Sheet Title:
Mechanical Symbols, Legend, Notes and Equipment Schedules

Sheet Number:
M001

RELEASED FOR CONSTRUCTION AND PERMIT



26 TYPICAL FLEXIBLE DUCT TAKE-OFF

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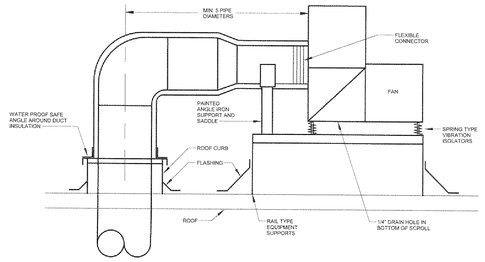

27 CO EXHAUST FAN HORIZONTAL THROW

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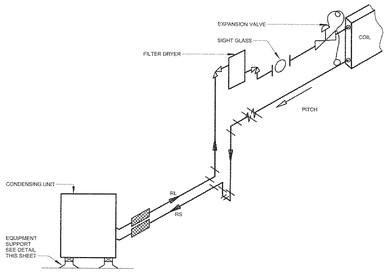

20 REFRIGERANT PIPING SCHEMATIC

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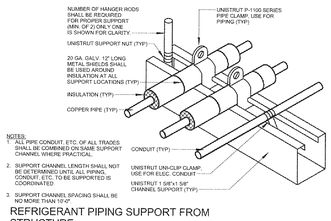
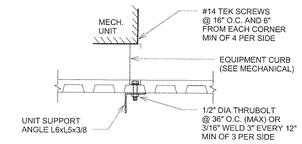


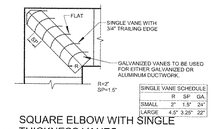
21 REFRIGERANT PIPING SUPPORT FROM STRUCTURE

*NOT TO SCALE



22 RTU ROOF HOLD DOWN

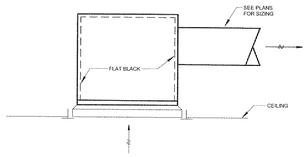
*NOT TO SCALE



SINGLE VANE SCHEDULE			
	R	SIN	GA.
SMALL	2"	1.5"	24"
LARGE	4.5"	3.25"	22"

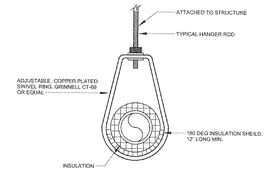
23 SQUARE ELBOW WITH SINGLE THICKNESS VANES

*NOT TO SCALE



24 TYP. R.A. BOOT

*NOT TO SCALE



25 TYPICAL REFRIGERANT PIPE HANGER

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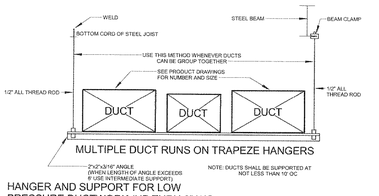
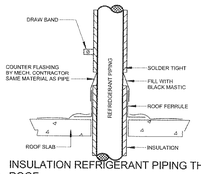


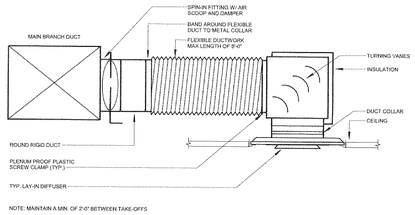
14 HANGER AND SUPPORT FOR LOW PRESSURE DUCTWORK (UP THRU 2" WG

*NOT TO SCALE



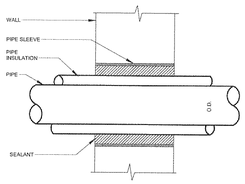
INSULATION REFRIGERANT PIPING THRU ROOF

15 *NOT TO SCALE



LOW CLEARANCE DIFFUSER CONNECTION

16 *NOT TO SCALE



17 PIPE SLEEVE

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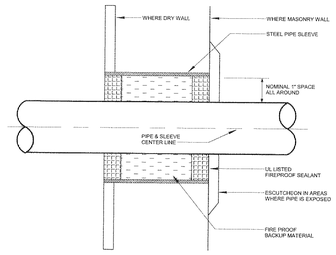
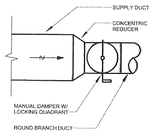


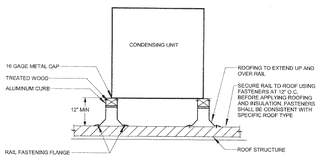
18 PIPING THRU INTERIOR RATED WALL

*NOT TO SCALE



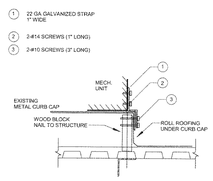
19 RECTANGLE (SQUARE) CONNECTION

*NOT TO SCALE



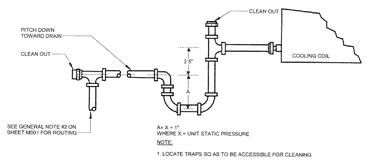
CONDENSING UNIT MOUNTING SUPPORT RAILS

7 *NOT TO SCALE



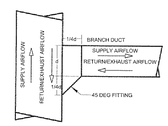
CU/HP UNIT ROOF TIE DOWN

8 *NOT TO SCALE



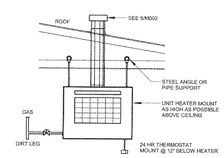
CONDENSATE DRAIN TRAP

9 *NOT TO SCALE



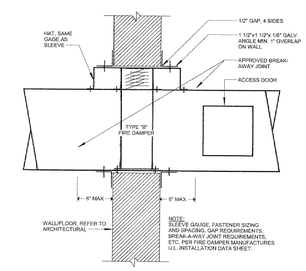
BRANCH DUCT CONNECTION

10 *NOT TO SCALE



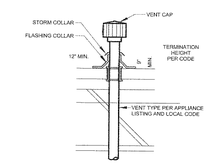
GAS FIRED UNIT HEATER

11 *NOT TO SCALE



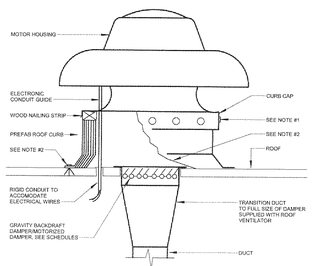
FIRE DAMPER MOUNTING

12 *NOT TO SCALE



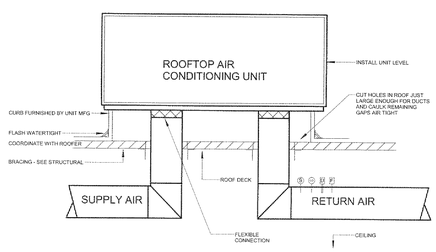
VENT THRU ROOF

13 *NOT TO SCALE



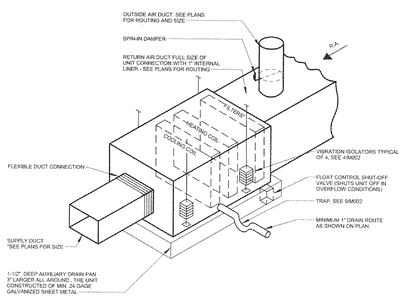
POWER ROOF VENTILATOR

1 *NOT TO SCALE



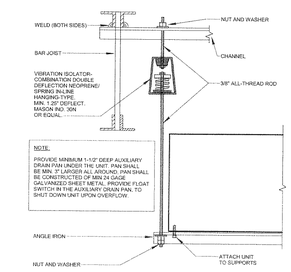
ROOFTOP UNIT INSTALLATION

2 *NOT TO SCALE



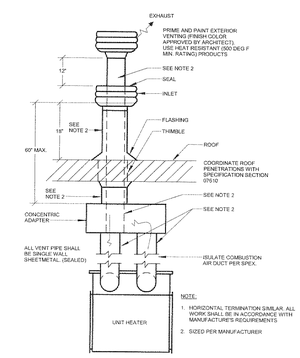
HORIZONTAL FAN COIL UNIT

3 *NOT TO SCALE



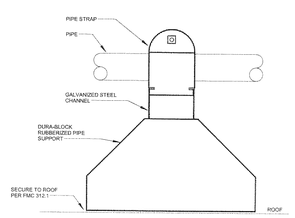
FAN COIL / AHU SUPPORT

4 *NOT TO SCALE



GAS VENT / INTAKE

5 *NOT TO SCALE



ROOF PIPING SUPPORT

6 *NOT TO SCALE

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Rev	Date	Comments
	03.10.16	Bid/Permit

Client:
Grainger Nissan

P.O. BOX 7267
GARDEN CITY, GA 31408

Project Number: 15221
Project Name:
Grainger Nissan

224 Rober Smalls Parkway,
Beaufort, SC 29906

Sheet Title:
Mechanical Details

Sheet Number:
M002

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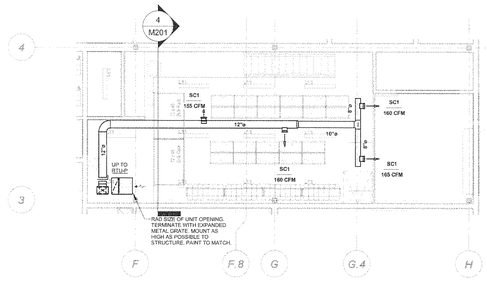
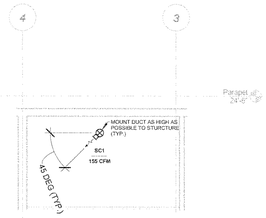
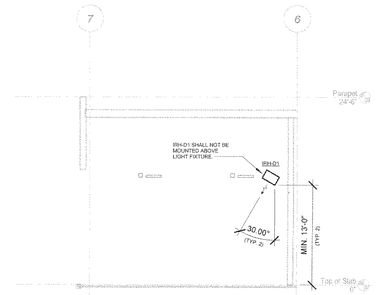


6 Mezzanine Plan - Mechanical
1/8" = 1'-0"



4 PARTS DUCT AND AIR DEVICE (TYP.)
1/8" = 1'-0"

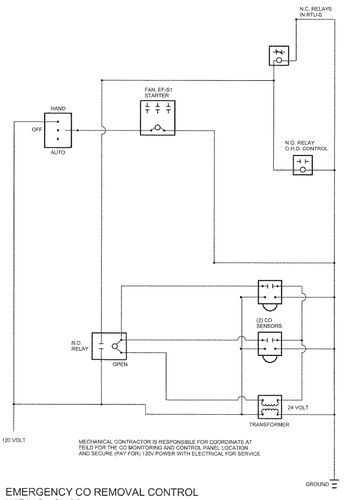


5 IRH-D1 AND IRH-D2 MOUNTING
1/8" = 1'-0"

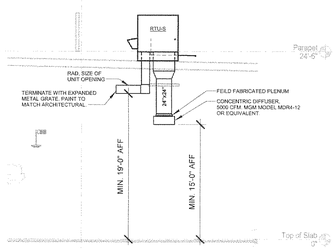
SHOP EMERGENCY VENTILATION OPERATION SEQUENCE:

EMERGENCY OPERATION

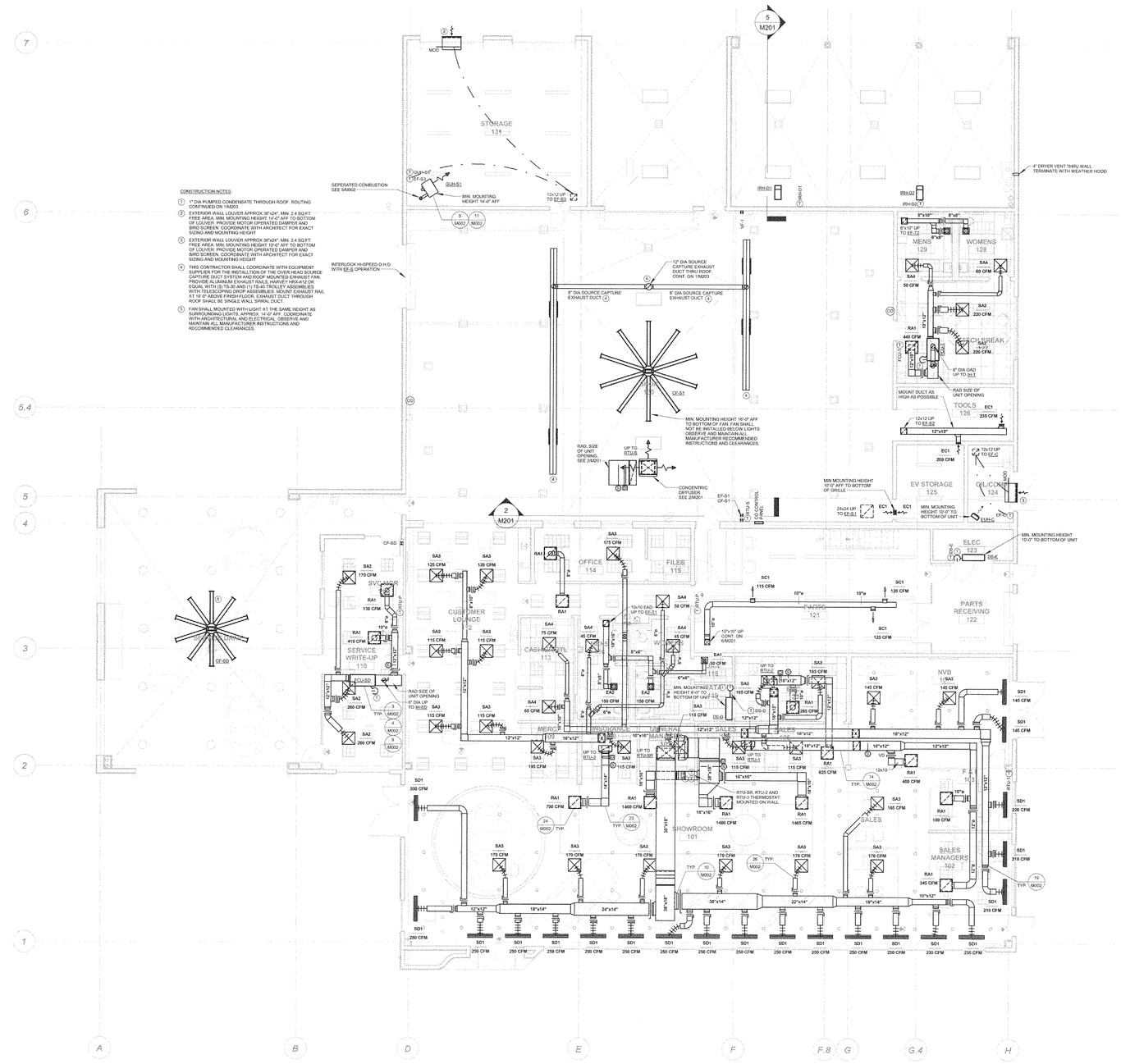
1. UPON WALL MOUNT CO SENSORS TRIGGERED DUE TO HIGH CO CONCENTRATION, ALARM, IN THE CONTROL PANEL, SOUNDS AND STARTS EMERGENCY OPERATION SEQUENCE.
2. EXTERIOR ROOF TOP UNIT, RTU-S, SHUTS DOWN.
3. (1) CONTROLLABLE GARAGE HI-SPEED DOOR OPENS.
4. EXHAUST FANS, EF-S1, ON.
5. OPERATION CONTINUES UNTIL WALL CO SENSORS RETURN TO NORMAL SET POINT. ALARM STOPS. EMERGENCY VENTILATION CONTINUES FOR 15 MINUTES BEFORE RESETTING TO NORMAL OPERATION.



3 EMERGENCY CO REMOVAL CONTROL WIRING - SHOP
*NOT TO SCALE



2 CONCENTRIC DIFFUSER
1/8" = 1'-0"



1 Floor Plan - Mechanical
1/8" = 1'-0"

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Rev	Date	Comments
	03.10.16	Bid/Permit

Client:
Grainger Nissan

P.O. BOX 7267
GARDEN CITY, GA 31408

Project Number: 15221
Project Name:
Grainger Nissan

224 Rober Smalls Parkway,
Beaufort, SC 29906

Sheet Title:
Floor Plan - Mechanical

Sheet Number:
M201

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Rev	Date	Comments
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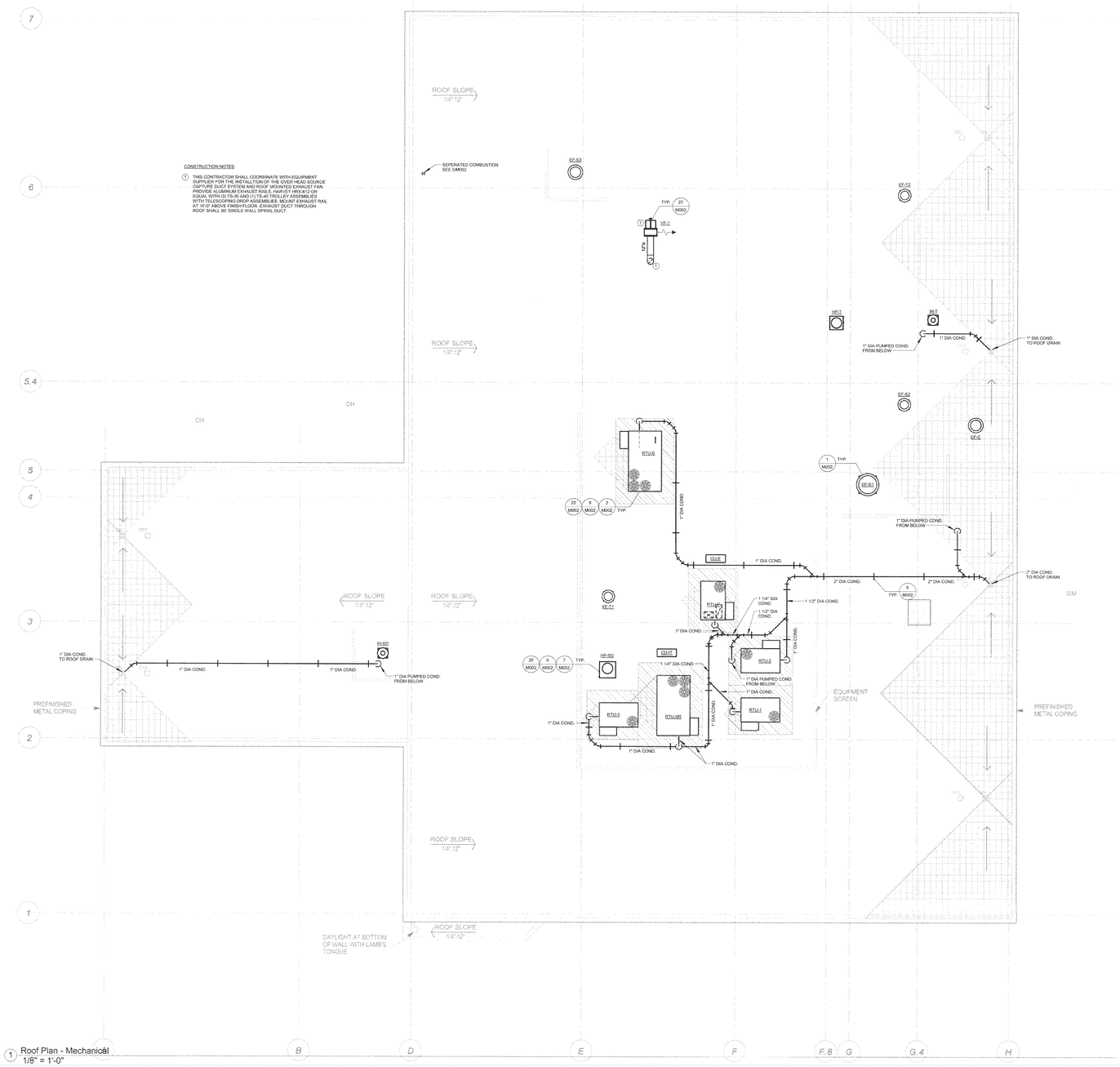
CONSTRUCTION NOTES:

1. THIS CONTRACTOR SHALL COORDINATE WITH EQUIPMENT SUPPLIER FOR THE INSTALLTION OF THE OVER HEAD SOURCE CAPTURE DUCT SYSTEM AND ROOF MOUNTED EXHAUST FAN. PROVIDE ALUMINUM EXHAUST RAILS, HARVEY HRX-612 OR EQUAL WITH (3) TS-30 AND (1) TS-40 TROLLEY ASSEMBLIES WITH TELESCOPING DROP ASSEMBLIES. MOUNT EXHAUST RAIL AT 10'-0" ABOVE FINISH FLOOR. EXHAUST DUCT THROUGH ROOF SHALL BE SINGLE WALL SPIRAL DUCT.



1 Roof Plan - Mechanical
1/8" = 1'-0"

Client:

Grainger Nissan

P.O. BOX 7267
GARDEN CITY, GA 31408

Project Number: 15221
Project Name:

Grainger Nissan

224 Rober Smalls Parkway,
Beaufort, SC 29906

Sheet Title:

Roof Plan - Mechanical

Sheet Number:

M203

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LEGEND & ABBREVIATION

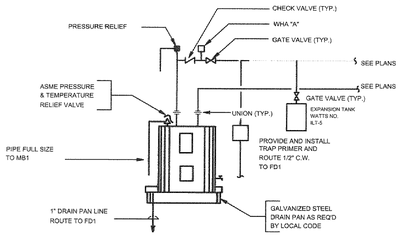
ABBREVIATION	SYMBOL	DESCRIPTION
SW		NEW SANITARY WASTE AND STORM ABOVE FLOOR
V		NEW SANITARY VENT
SW		SANITARY AND STORM PIPING BELOW FLOOR
CW		DOMESTIC COLD WATER
HW		DOMESTIC HOT WATER
HWR		HOT WATER RETURN/RECIRC
FW	F	FIRE WATER
GV		SHUT-OFF VALVE
OW		OIL WASTE BELOW FLOOR
WHA		WATER HAMMER ARRESTOR 'SIZE'
		PIPE RISE (UP)
		PIPE DROP (DN)
		BALL VALVE OR BALANCING VALVE
	G	GAS MAIN
		UNION
CV		CHECK VALVE
PRV		PRESSURE REDUCING VALVE
		CW, BELOW FLOOR (W/NO JOINTS)
NFWH		NON-FREEZE WALL HYDRANT
		EXISTING PIPING TO BE REMOVED
	G	GAS PIPING (G)
		GAS COCK
FCO		FLOOR CLEANOUT
WCO		WALL CLEANOUT
		P-TRAP
FD		FLOOR DRAIN
		CONNECTION NEW -TO- EXISTING
		SPRINKLER HEAD
		FINISH FLOOR CLEANOUT/YARD CLEANOUT

ABBREVIATION	DESCRIPTION
A/C	ABOVE CEILING
AD	AREA DRAIN
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISH GRADE
A.P.	ACCESS PANEL
B/F	BELOW FLOOR
B/G	BELOW GRADE
BFP	BACKFLOW PREVENTER
CLG	CEILING
CONN	CONNECTION
CONT	CONTINUATION
DFU	DRAIN FIXTURE UNITS
DN	DOWN
DWG(S)	DRAWING OR DRAWINGS
ER	EXISTING TO BE REMOVED
FFE	FINISHED FLOOR ELEVATION
FL	FLOOR
FU	FIXTURE UNITS
YCO	YARD CLEANOUT
HB	HOSE BIBB
H/C	HANDICAP ACCESSIBLE
HD	HUB DRAIN
OW	OIL WASTE
SPKLR	SPRINKLER
SW	SANITARY
S.S.	STORM SEWER
T.P.	TRAP PRIMER
TD	TRENCH DRAIN
VTR	VENT THRU ROOF
FCO	FINISH FLOOR CLEANOUT
G	GAS MAIN
WCO	WALL CLEANOUT
AAV	AIR ADMITTANCE VALVE

PLUMBING FIXTURE CONNECTION SCHEDULE

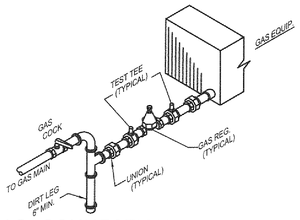
FIXTURE NUMBER	DESCRIPTION	CW	HW	WASTE	VENT	MOUNTING HEIGHTS	REMARKS
W1	WATER CLOSET (FLUSH VALVE)	1"	-	4"	2"	FLOOR	HANDICAP
W2	WATER CLOSET (FLUSH VALVE) ADA	1"	-	4"	2"	FLOOR	-
U1	URINAL - ADA	3/4"	-	2"	2"	17"AFF WALL HEIGHT	-
L1	LAVATORY	1/2"	1/2"	1 1/4"	2"	UNDER COUNTER	PUBLIC
L2	LAVATORY	1/2"	1/2"	1 1/4"	2"	WALL HUNG	TECH
S1	BREAK ROOM SINK	1/2"	1/2"	1 1/2"	2"	UNDER MOUNT	-
S2	BREAK ROOM SINK	1/2"	1/2"	1 1/2"	2"	DROP-IN	-
EDF1	ELECTRIC WATER COOLER	1/2"	-	1 1/4"	2"	RECESS MOUNT	-
MB1	MOP BASIN 36X24	1/2"	1/2"	3"	2"	FLOOR	-
HB1	HOSE BIBB INTERIOR	3/4"	-	-	-	42"	-
HB2	HOSE BIBB EXTERIOR	3/4"	-	-	-	24"	-
HB3	HOSE BIBB TOILETS	3/4"	-	-	-	18"	-

1. ALL UTILITIES ARE SHOWN IN APPROXIMATE LOCATIONS ONLY. VERIFY EXACT LOCATION AND INVERT ELEVATIONS AT FIELD BEFORE BEGINNING WORK.
2. ALL PIPING PASSING THRU WALLS OR FLOORS SHALL HAVE WATERPROOF SLEEVES.
3. IT IS THE INTENT OF THESE DRAWINGS TO INDICATE EQUIPMENT ARRANGEMENT. CONTRACTOR SHALL MAKE ALLOWANCES FOR FITTINGS, TRIMS, ACCESSORIES AND MANUFACTURER'S SHOP DRAWINGS AND DIMENSIONS AS REQUIRED.
4. WALL HYDRANTS SHALL BE MOUNTED 1'-6" ABOVE FINISHED GRADE UNLESS NOTED OTHERWISE.
5. ALL FAUCETS, SUPPLIES, ANGLE STOPS AND P-TRAPS SHALL BE CHROME PLATED BRASS.
6. WATER HAMMER ARRESTER WHA "A" SHALL BE REQUIRED ON EACH HOT AND COLD WATER SUPPLY PER BATHROOM GROUP, TOILET AND ETC.
7. CONTRACTOR SHALL PROVIDE AND INSTALL SHUT-OFF VALVE AT ALL BRANCH WATER PIPES OF COLD AND HOT AT FIXTURE CONNECTIONS.



ELECTRICAL WATER HEATER DETAIL

SCALE: NONE WH-1,WH-2,



GAS CONNECTION DETAIL

NOT TO SCALE

PLUMBING FIXTURE SCHEDULE

W1 WATER CLOSET - AMERICAN STANDARD 3451.001 FLOOR MOUNTED WHITE VITREOUS CHINA, ELONGATED, 1-1/2" TOP SPUD. MADERA FLOWISE FLUSHOMETER 1.10 BATTERY OPERATED 1.10 GPF. OLSONITE NO. 10CC WHITE OPEN FRONT SEAT LESS COVER, STAINLESS STEEL CHECK HINGE.

W2 WATER CLOSET, ADA - AMERICAN STANDARD NO. 3461.711 WHITE FLOOR MOUNT VITREOUS CHINA, ELONGATED, 1-1/2" TOP SPUD, MADERA FLOWISE FLUSHOMETER 1.10 BATTERY OPERATED. 1.10 GPF, OLSONITE NO. 10CC WHITE OPEN FRONT SEAT LESS COVER, STAINLESS STEEL CHECK HINGE.

U1 URINAL - ADA- KOHLER NO. K-4904-ET, TOP SUPPLY FLOOR URINAL WITH S.S. STRAINER, 3/4" TOP SPUD, VITREOUS CHINA, 0.125 GPF. SLOAN #WEUS-1000,1401-0.13 ECOS BATTERY OPERATED. 17" A.F.F. TO RIM

L1 OVAL LAVATORY - UNDERMOUNT ADA LAVATORY, KOHLER NO. K-2602-S-U WITH SINGLE HOLE. SLOAN EAF-200-ISM, CHROME BATTERY OPERATED FAUCET, .5 GPM FLOW RESTRICTOR, GRID DRAIN ASSEMBLY. PROVIDE STOPS, SUPPLIES, TRAP, ETC TO MAKE A COMPLETE INSTALLATION ADD TRUEBRO NO. 103 LAV. GUARD.

L2 LAVATORY, BARRIER FREE - KOHLER NO, K-2031, WALL HUNG 21"X18" VITREOUS CHINA, WALL HUNG, SINGLE HOLE, PROVIDE FLOOR CARRIER WITH CONCEALED ARMS. DELTA NO. 520LF-HGMHDF CHROME FAUCET .5 GPM FLOW RESTRICTOR, GRID DRAIN ASSEMBLY. TOP OF FRONT RIM MOUNTED 34" FROM FINISHED FLOOR. PROVIDE STOPS, SUPPLIES, TRAP, ETC., TO MAKE A COMPLETE INSTALLATION. INSULATE TRAP AND SUPPLIES WITH TRUEBRO NO. 103 LAV GUARD.

EDF1 ELECTRIC WATER COOLER, DUAL MOUNT - ELKAY NO. ERPBM28K STAINLESS STEEL FINISH, 115V. RECESS MOUNT WITH BULT-IN FILTER

MB1 MOP RECEPTOR - FIAT NO. TSB-700, 36"X24" COMBINATION DOME STRAINER AND UNIT BASKET. CHICAGO NO. 540-CP-897S-WXF, E-3 AERATOR, KE ADAPTER SERVICE SINK FAUCET 2.2 GPM, VACUUM BREAKER, MOP HANGER AND HOSE/BRACKET.

S1 BREAKROOM SINK -JUST, ELITE NO. US-1830-A-GR, 18X30 STAINLESS STEEL SINGLE COMPARTMENT SINK, UNDER MOUNT. FAUCET TO BE KOHLER K-596, 1.5 GPM, SINGLE HOLE AND ONE LEVER HANDLE GOOSENECK SWING PULL-DOWN SPOUT. BASKET STRAINER NO. JB-99. PROVIDE STOPS, SUPPLIES, TRAP, ETC., TO MAKE A COMPLETE INSTALLATION.

S2 BREAKROOM SINK JUST NO. SL-2131-A-GR, 21"X31" STAINLESS STEEL SINGLE COMPARTMENT SINK, DROP-IN. FAUCET TO BE JUST NO. J-1174-KS, 1.5 GPM TWO HANDLE GOOSENECK SWING SPOUT. BASKET STRAINER NO. JB-99. PROVIDE STOPS, SUPPLIES, TRAP, ETC., TO MAKE A COMPLETE INSTALLATION.

SD1 SHOP DRAIN - ZURN NO. Z-662-HD, 16X16 TOP X-HEAVY DUTY DRAIN WITH SEDIMENT BUCKET, HINGED GRATE . GRATE SHALL BE SIZED FOR VEHICLE TRAFFIC W/ SEDIMENT BUCKET

SD2 SHOP DRAIN - ZURN NO. Z-415-HD-Y, 5X5 TOP X-HEAVY DUTY DRAIN WITH SEDIMENT BUCKET, HINGED GRATE AND INTERNAL TRAP. GRATE SHALL BE SIZED FOR VEHICLE TRAFFIC.

SD3 SHOP DRAIN - ZURN NO. Z-662-HD, 16X16 TOP X-HEAVY DUTY DRAIN WITH SEDIMENT BUCKET, HINGED HEEL PROOF GRATE . GRATE SHALL BE SIZED FOR VEHICLE TRAFFIC W/ SEDIMENT BUCKET

FD1 FLOOR DRAIN - J.R. SMITH NO. 2005-A' ADJUSTABLE STRAINER TOP WITH ROUND HEELPROOF OPENINGS AND SECURED GRATE. DURA COATED CAST IRON BODY WITH TRAP PRIMER CONNECTION, 3" DRAIN WITH 6"DIA. FLANGE

TP TRAP PRIMER - POI. CONNECT TO CW WITH VALVE, EXTEND TPP TO FLOOR DRAIN AS REQUIRED, 1/2" CW.

HB1 HOSE BIBB, INSIDE - WOODFORD MODEL NO. 24, CAST BRASS. CONSTRUCTION, NICKEL PLATE WITH VACUUM BREAKER. MOUNT 42" AFF.

HB2 HOSE BIBB, OUTSIDE - WOODFORD MODEL NO. 65, TEE KEY, CAST BRASS. CONSTRUCTION, W/ WITH VACUUM BREAKER. MOUNT 24" AFF. EXTERIOR A.F.G.

HB3 HOSE BIBB, TOILET - WOODFORD MODEL NO. 24, CAST BRASS. CONSTRUCTION, NICKEL PLATE WITH VACUUM BREAKER. MOUNT 18" AFF.

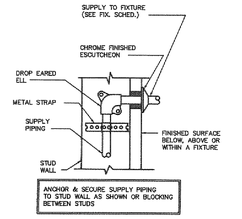
OS SAND/OIL SEPARATOR - PRECAST DUAL 1000 GALLON CAPACITY WITH 50 GPM FLOW RATE @ 15 PPM EFFLUENT AND 0.9 OIL SPECIFIC GRAVITY, 4" INLET AND OUTLET. DETAIL ON THIS DRAWING IS FOR COORDINATION OF PIPING INSTALLATION.

WB1 WASH MACHINE BOX GUY GRAY NO. B200

LT1 LINT TRAP JR SMITH MODEL NO. 8910-20, 20 GPM FLOW RATE.

PLUMBING GENERAL NOTES

1. ALL PLUMBING WORK SHALL CONFORM WITH ALL STATE AND LOCAL CODES, RULES AND REGULATIONS.
2. CONTRACTOR SHALL SECURE AND PAY FOR PLUMBING PERMITS. ALL OTHER FEES AND TAXES SHALL BE INCLUDED IN PLUMBING CONTRACT.
3. MAKE PROPER WASTE, STORM, VENT, HOT AND COLD WATER CONNECTIONS TO ALL FIXTURES AND EQUIPMENT, EVEN THOUGH ALL BRANCHES, ELBOWS, AND CONNECTIONS ARE NOT SHOWN.
4. THIS CONTRACTOR SHALL REPAIR ANY STRUCTURE DAMAGED DURING CONSTRUCTION, INSTALLATION OR REMOVAL OF EQUIPMENT OR FIXTURES TO MATCH THE EXISTING AND/OR PROPOSED FINAL CONDITION.
5. ALL FIXTURE CONNECTIONS SHALL BE OF NEW FITTINGS.
6. ALL PLUMBING WORK SHALL BE COORDINATED WITH OTHER TRADES TO AVOID ANY INTERFERENCE OR CONFLICTS.
7. THESE DRAWINGS ARE DIAGRAMMATIC ONLY. REFER TO THE ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS OF ALL FIXTURES AND EQUIPMENT CONNECTIONS.
8. THE COMPLETE WASTE SYSTEM SHALL BE RODDED-OUT AND FLUSHED CLEAN BEFORE FINAL INSPECTION AND/OR TURNING THE BUILDING OVER TO THE OWNER.
9. FLUSH, CLEAN AND DISINFECT THE ENTIRE DOMESTIC WATER PIPING SYSTEM, SEE SPECIFICATIONS.
10. WHERE PIPE PENETRATIONS OCCUR THAT ARE VISIBLE, INSTALL CHROME ESCUTCHEON TO COVER SLEEVE AND/OR CAULKING.
11. ALL FIXTURES AND EQUIPMENT SHALL BE KEPT CLEAN DURING ALL CONSTRUCTION AND SHALL NOT BE USED DURING CONSTRUCTION.
12. THE HOT, COLD, RECIRC WATER PIPING SYSTEMS SHALL BE INSULATED-THRU-OUT THE PROJECT, SEE SPECIFICATION.
13. ALL SLOPES AND INVERT ELEVATIONS SHALL BE CHECKED BEFORE ANY PIPING IS INSTALLED IN ORDER THAT PROPER SLOPES WILL BE MAINTAINED (SEE NOTE 6).
14. ALL WATER PIPING INSTALLED BELOW SLAB SHALL BE TYPE "K" SEAMLESS SOFT DRAWN COPPER, NO JOINTS SHALL BE INSTALLED BELOW FINISHED FLOOR SLAB.
15. ALL FLOOR DRAINS SHALL BE TAPED CLOSED DURING CONSTRUCTION TO PREVENT CLOGGING OR GRATE DAMAGE.
16. ALL FLOOR DRAINS SHALL BE INSTALLED WITH TRAP PRIMER AND 1/2"CW EXTENDED FROM NEAREST COLD WATER PIPE.
17. WASTE PIPING 3 INCHES AND LESS SHALL BE SLOPED AT 1/4 INCH PER FOOT, WASTE PIPING LARGER THAN 3 INCHES. SHALL BE SLOPED AT 1/8 INCH PER FOOT, UNLESS OUTERWISE NOTED.
18. ALL WATER PIPING AND WASTE TRAPS LOCATED WITHIN EXTERIOR WALLS SHALL BE INSULATED AND SHALL BE INSTALLED INSIDE OF THE BUILDING'S INSULATION ENVELOPE.
19. EXTERIOR NON-FREEZE WALL HYDRANTS SHALL BE INSTALLED WITH OUTLET APPROXIMATELY 18 INCHES ABOVE FINISHED GRADE.
20. COORDINATE CLOSELY THE ANCHORING OF THE FIXTURE SUPPLY, AND OTHER WATER SUPPLIES ALIKE THAT ABSOLUTELY NO IN AND OUT MOTION OF THE HEAD OR EXPOSED PIPING WILL OCCUR.
21. ALL PIPING ABOVE THE 2ND FLOOR CEILING SHALL BE INSULATED AND INSTALLED BELOW THE BUILDING INSULATION THRU - OUT TO PREVENT FREEZE.
22. ALL UNDERGROUND WATER PIPING TO BE INSTALL UNDERGROUND MIN. 6" BELOW FROST LINE.
23. VERIFY THE SPRINKLER SYSTEM SHALL BE ELECTRONICALLY SUPERVISED THROUGH AN UL LISTED CENTRAL STATION. (ALL FIRE ALARM SYSTEM SHALL HAVE A CERTIFICATE OF COMPLETION IN ACCORDANCE TO SEC. 4-5 OF NFPA 72 2005 EDITION)
24. ALARM SYSTEM SHALL BE INSTALLEDIN ACCORDANCE WITH NFPA 72, 2009 EDITION.
25. BUILDING SHALL MEET REQUIRMENTS FOR SPRINKLER SYSTEM IN TO THE PROVISIONS OF SEC. 4 OF NFPA 13, 2009 EDITION.
26. STORM WATER DRAIN SYSTEM SHALL BE TESTED BY WATER OR AIR IN ACCORDANCE WITH 312.2 OR 312.3, 2010 FPC SECTION 312.8



ANCHORING FOR WATER SUPPLY

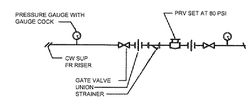
NOT TO SCALE

WATER HEATER – ELECTRIC

HEATER NUMBER	WH-1	WH-2
SPEC. TYPE	LOW BOY	LOW BOY
LOCATION	PUBLIC AREA	TECH AREA
STORAGE, GALLONS	20	20
RECOVERY, GPH	0	0
ENTERING WATER TEMPERATURE, °F.	40	40
LEAVING WATER TEMPERATURE, °F.	110, MAX @ 120	110, MAX @ 120
INPUT, KW	2.5KW	2.5KW
ELECTRICAL CHARACTERISTICS	120V/1 PH	120V/1 PH
DESIGN BASIS	A O SMITH EJCS-20	A O SMITH EJCS-20
REMARKS	WALL MOUNT ON RACK	WALL MOUNT ON RACK

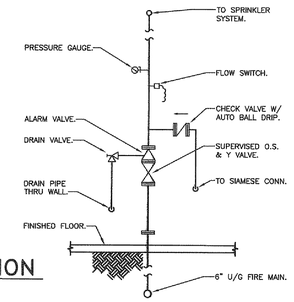
WATER HAMMER ARRESTERS

SYMBOL	RATING	SIZE	J.R. SMITH
A	1-11	3/4	5005
B	12-32	1	5010
C	33-60	1	5020
D	61-113	1	5030



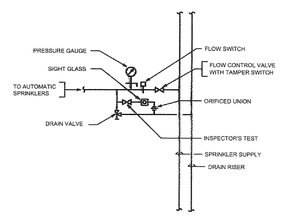
WATER SERVICE W/ PRV STATION

NOT TO SCALE



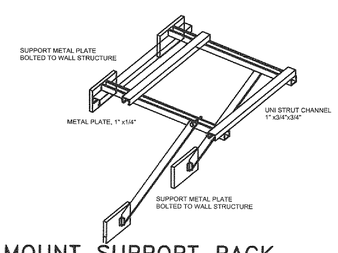
WET PIPE SPRINKLER DETAIL

SCALE: NONE



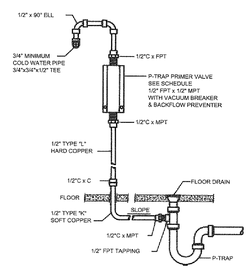
SPRINKLER SUPPLY PIPE

SCALE: NONE



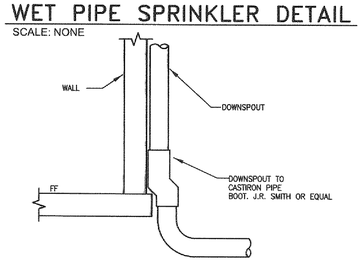
WALL MOUNT SUPPORT RACK

SCALE: NONE

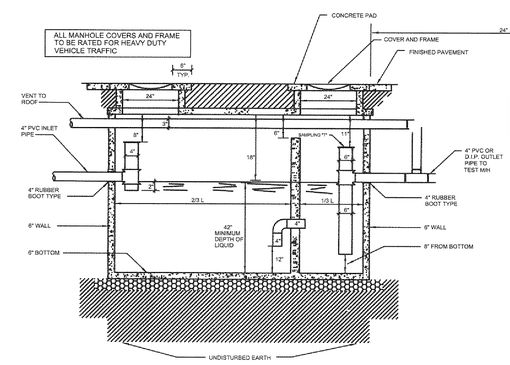


TRAP PRIMER CONNECTION DETAIL

NOT TO SCALE

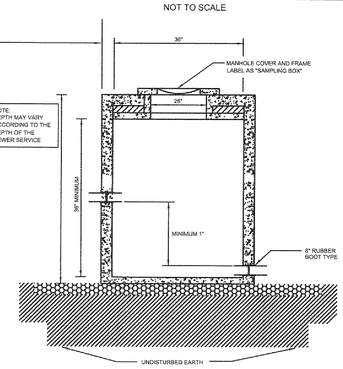


DOWNSPOUT BOOT DETAIL



OIL WATER SEPARATOR

SCALE: NONE EXTERIOR DIMENSION, 12'(L) x 6'(W) x 6' (H)



SAMPLING BOX

SCALE: NONE

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Rev	Date	Comments
-	03.10.16	Bid/ Permit
-	-	-

Client:
William L. Grainger

P. O. Box 7267
GARDEN CITY, GA 31408

Project Number: 15221
Project Name:
Grainger Nissan

224 Robert Smalls Parkway,
Beaufort, SC 29906

Sheet Title:
Plumbing Symbols, Legend, Details, Notes and Fixture Schedules

Sheet Number:
P001

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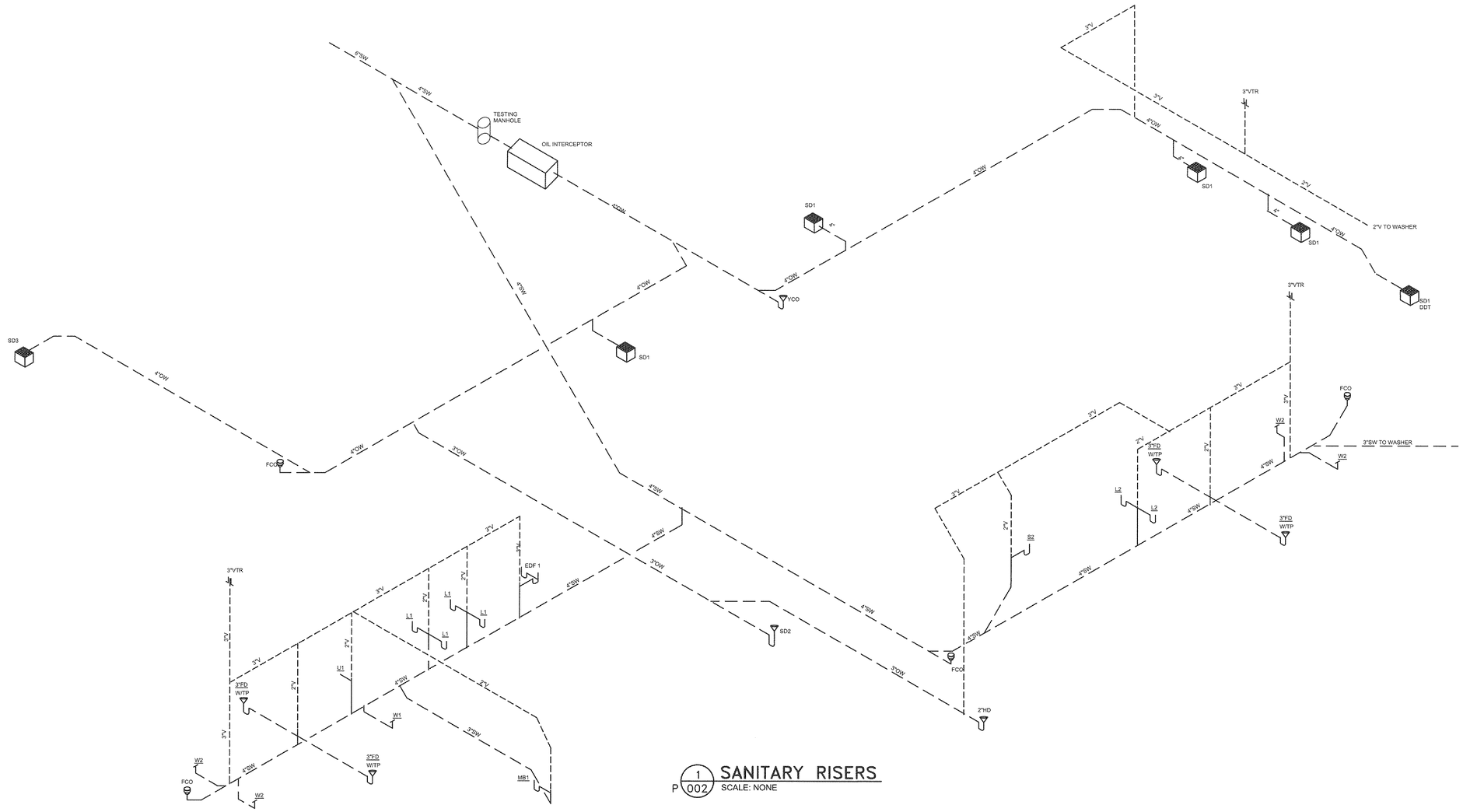
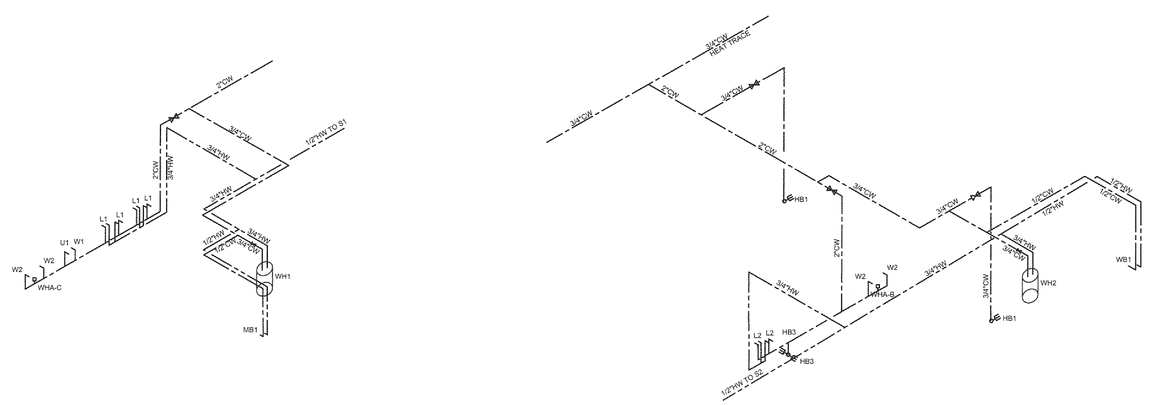


1 P 002 SANITARY RISERS
SCALE: NONE



2 P 002 WATER RISERS
SCALE: NONE

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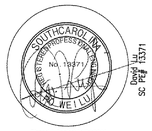

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-	-	-

Client:
William L. Grainger

P. O. Box 7267
GARDEN CITY, GA 31408

Project Number: 15221
Project Name:
Grainger Nissan

224 Robert Smalls Parkway,
Beaufort, SC 29906

Sheet Title:
Risers -
Sanitary and Water

Sheet Number:
P002

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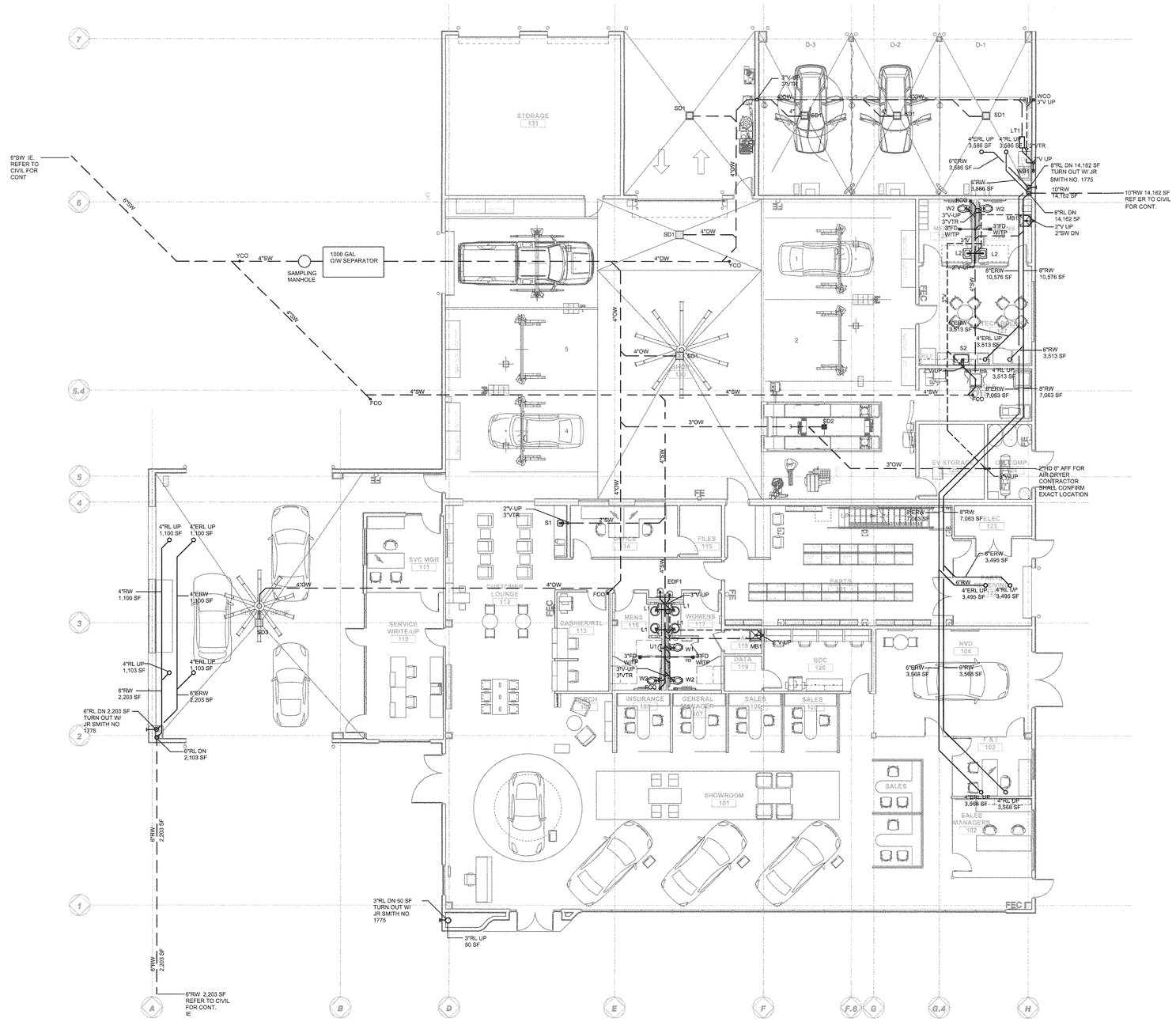

P 201 FLOOR PLAN - PLUMBING WASTE

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

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SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER NO. 13371 JOHN-WELLU

SC Reg # 13371

Signed & Sealed: 04/04/2016

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-	03.10.16	Bid/ Permit
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Client:
William L. Grainger

P. O. Box 7267
GARDEN CITY, GA 31408

Project Number: 15221
Project Name:
Grainger Nissan

224 Robert Smalls Parkway,
Beaufort, SC 29906

Sheet Title:
Floor Plan - Plumbing Wastes

Sheet Number:
P201

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P 1/203 **ROOF - PLUMBING**
SCALE: 1/8" = 1'-0"

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SOUTHCAROLINA REGISTERED ARCHITECT No. 13371 DAVID WE I LU
David I. Lu
SC Reg# 13371

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-	-	-

Client:
William L. Grainger

P. O. Box 7267
GARDEN CITY, GA 31408

Project Number: 15221
Project Name:
Grainger Nissan

224 Robert Smalls Parkway,
Beaufort, SC 29906

Sheet Title:
Roof - Plumbing

Sheet Number:
P203

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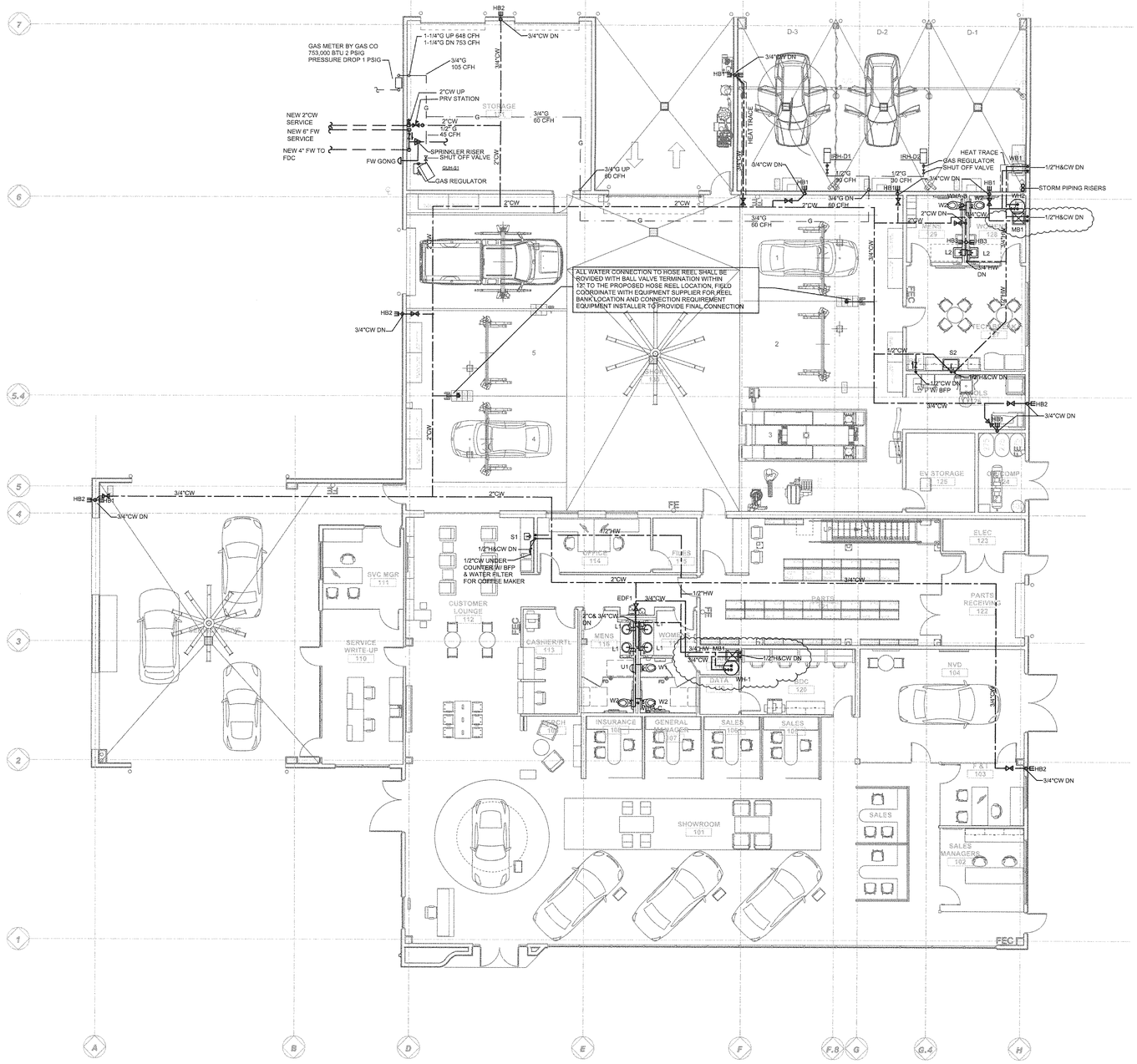

FLOOR PLAN - PLUMBING SUPPLIES

P 301 1

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

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SOUTH CAROLINA PROFESSIONAL ENGINEER No. 13371 DAVID W. LU

David Lu
SC PE# 13371

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1	04.04.16	Permit Comment

Client:
William L. Grainger

P. O. Box 7267
GARDEN CITY, GA 31408

Project Number: 15221
Project Name:
Grainger Nissan

224 Robert Smalls Parkway,
Beaufort, SC 29906

Sheet Title:
Floor Plan - Plumbing Supplies

Sheet Number:
P301

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04/04/2016

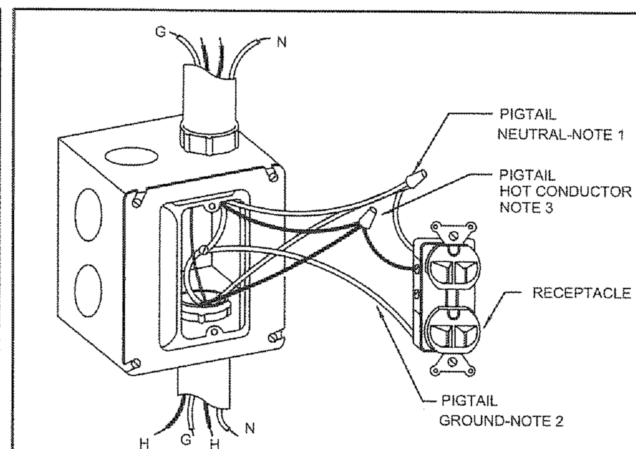
LIGHTING FIXTURE SCHEDULE

REFER TO ELECTRICAL SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS WHICH MAY NOT NECESSARILY BE REFLECTED IN CATALOG NUMBER AND/OR DESCRIPTION IN THIS SCHEDULE.

MARK	DESCRIPTION	MOUNTING	VOLTS	LAMPS	REMARKS
L1	NISSAN DID HALO PENDANT SUPPORT LIGHTING FIXTURE, - (NISSAN FIXTURE TYPE, NO SUBSTITUTION)	PENDANT -	120	(1) LED/200 WATT	REFER TO NISSAN STANDARD FOR INSTALALTION REQUIREMENT
L2	NISSAN DID RED CABLE SUPPORT LIGHTING FIXTURE, - (NISSAN FIXTURE TYPE, NO SUBSTITUTION)	CABLE -	120	(1) LED/120 WATT	REFER TO NISSAN STANDARD FOR INSTALALTION REQUIREMENT
L3	RECESS MOUNTED LED DOWNLIGHT FIXTURE WITH LOW IRRIDESCENT REFLECTOR, PRE-WIRED J-BOX, WHITE MINI-TRIM CREE #KR6-40L-40K-277-*-10V-*	RECESSED	277	LED (44 WATT)	- -
L3E	SAME AS TYPE 'L3' EXCEPT WITH BATTERY BACK-UP CREE #KR6-40L-40K-277-*-10V-EB7	RECESSED	277	-	WITH EMERGENCY INDICATOR/TEST
L3T	RECESS MOUNTED LED DOWNLIGHT FIXTURE WITH LOW IRRIDESCENT REFLECTOR, PRE-WIRED J-BOX, WHITE MINI-TRIM LSI #ADL6 LED 20NW UE-HZ	RECESSED	277	LED (34 WATT)	- -
L3TE	SAME AS TYPE 'L3T' EXCEPT WITH BATTERY BACK-UP LSI #ADL6 LED 20NW UE-HZ-EM	RECESSED	277	-	WITH EMERGENCY INDICATOR/TEST
L4	PENDANT MOUNTED 6" DIAMETER X 18" TEMPERED GLASS (FROSTED ON INSIDE AND OUTSIDE) FLUORESCENT FIXTURE WITH STEM AND CANOPY KIT, ELECTRONIC BALLAST, 2G11 BASE WITH LOCKING FEATURE AND BIAX LAMP. FIELD VERIFY EXACT STEM LENGTH. LSI LIGHTRON #NSI-K2001-250	CEILING SUSPENDED	277	(1) FT24DL/835 LED SUBSTITUTE ACCEPTABLE	NO SUBSTITUTIONS ALLOWED FOR THIS FIXTURE. COORDINATE EXACT MOUNTING REQUIREMENTS IN FIELD. PROVIDE ALL NECESSARY COMPONENTS FOR A COMPLETE INSTALLATION.
L5	RECESSED 2'x2' INDIRECT LIGHTING FIXTURE WITH LED LIGHT, WHITE FINISH - LSI #PEC22-LED-SS-NW-UE	RECESS	277	LED (30 W)	- -
L5E	SAME AS TYPE 'L5' EXCEPT WITH BATTERY BACKUP FOR EMERGENCY OPERTION. LSI #PEC22-LED-SS-NW-UE-EM	RECESS	277	LED	-
L7	SUSPENDED LED OPEN HIGH BAY LIGHTING FIXTURE WITH CLEAR REFLECTOR, VERY HIGH OUTPUT DRIVER LSI #PMX-LED-VHO-CW-UE	SUSPENDED	277	LED (111 W)	PENDANT SUPPORT TO 16'-0" AFF -
L7E	SAME AS TYPE 'L7' EXCEPT WITH BATTERY BACKUP FOR EMERGENCY OPERTION. LSI #PMX-LED-VHO-CW-UE-EM	SUSPENDED	277	LED	SEE NOTE ABOVE -
L8	RECESSED 2'x2' INDIRECT LIGHTING FIXTURE WITH LED LIGHT DIMMING, WHITE FINISH LSI #SLI22-LED-HO-NW-UE	RECESS	277	LED (36 W)	-
L8E	SAME AS TYPE 'L8' EXCEPT WITH BATTERY BACKUP FOR EMERGENCY OPERTION. LSI #SLI22-LED-HO-NW-UE-EM	CEILING RECESS	277	LED	-
L9	RECESSED 2'x4' INDIRECT LIGHTING FIXTURE WITH LED LIGHT WHITE FINISH LSI #PEC24-LED-HO-NW-UE	RECESS	277	LED (59 W)	-
L9E	SAME AS TYPE 'L9' EXCEPT WITH BATTERY BACKUP FOR EMERGENCY OPERTION. LSI #PEC24-LED-HO-NW-UE-EM	CEILING RECESS	277	LED	-
L11	4', LED SURFACE MOUNTED STRIP FIXTURE WHITE ENAMEL FINISH LSI #S-4-LED-HO-CW-UE	SURFACE MOUNTED	277	LED (44 W)	MOUNT TO STRUCTURE BETWEEN SHELVES
L11E	SAME AS TYPE 'L11' EXCEPT WITH EMERGENCY BATTERY BACK-UP LSI #S-4-LED-HO-CW-UE-EM	SURFACE MOUNTED	277	LED	AS NOTED.
L11H	4', LED SURFACE MOUNTED STRIP FIXTURE WHITE ENAMEL FINISH LSI #S-4-LED-VHO-CW-UE	SURFACE MOUNTED	277	LED (57 W)	MOUNT TO STRUCTURE
L11HE	SAME AS TYPE 'L11H' EXCEPT WITH EMERGENCY BATTERY BACK-UP LSI #S-4-LED-VHO-CW-UE-EM	SURFACE MOUNTED	277	LED	AS NOTED.
L12	SUSPENDED LED LIGHTING, 5700K, FIXTURE, HIGH OUTPUT DRIVER - CREE #CPY250-A-PD-D-B-UL-WH	PENDANT	277	LED (122 WATT)	PROVIDE AND INSTALL PENDANT TO 14'-0" AFF
L12E	SAME AS TYPE 'L12' EXCEPT WITH BATTERY BACKUP FOR EMERGENCY OPERTION. CREE #CPY250-A-PD-D-B-UL-WH WITH BATTERY INVERTER	PENDANT	277	LED	
L13	CHEVROLET DEALER RETAIL LIGHTING PROGRAM PENDANT MOUNT LED EQUIVALENT LSI #AUL-S-LED-SS-CWB-UE-ACFS22-GWT	PENDANT	120	LED (132W)	PENDANT SUPPORT AT 14'-0" AFF - -
L13E	TYPE "F13" WITH INDIVIDUAL INVERTER SIZED AND MOUNT NEXT TO FIXTURE AT STRUCTURE FOR BACK-UP POWER. LSI #AUL-S-LED-SS-CWB-UE-ACFS22-GWT-INDIVIDUAL MINI-INVERTER	PENDANT	120	LED	SEE NOTE ABOVE -
F2	4'-0" SUSPENDED WEATHERPROOF LED FIXTURE WHITE ENAMEL FINISH, WET LABEL LSI #EGW-4-S-LED-VHO-CW-UE-CL	SUSPENDED	277	LED (88 W)	CHAIN SUPPORT TO 14'-0" AFF
F2E	SAME AS TYPE 'F2' EXCEPT WITH EMERGENCY BATTERY BACK-UP LSI #EGW-4-S-LED-VHO-CW-UE-CL-EM	SUSPENDED	277	LED	AS NOTED
F3	4'-0" SUSPENDED WEATHERPROOF LED FIXTURE WHITE ENAMEL FINISH LSI #EG3-4-S-LED-HO-CW-UE	SUSPENDED	277	LED (60 W)	WALL MOUNT OR CHAIN SUPPORT FROM STRUCTURE TO 12'-0" AFF
F3E	SAME AS TYPE 'F3' EXCEPT WITH EMERGENCY BATTERY BACK-UP LSI #EG3-4-S-LED-HO-CW-UE-EM	SUSPENDED	277	LED	AS NOTED
OW1	WALL MOUNT EXTERIOR LED LIGHTING FIXTURE WITH POLYCARBONATE SHIELD AND FINISH COLOR MATCHING ARCHITECTURAL WALL FINISH AND EMERGENCY BACK-UP BATTERY LSI #XPWS3PF-FT-LEF-48-CW-UE-BB	WALL	277	72 WATT WITH 450MA DRIVER	MOUNTED AT 18'-0" AFF -
X1	SINGLE FACE BACK MOUNT EDGE-LIT LED EXIT WITH BATTERY BACKUP BRUSHED ALUMINUM HOUSING AND RED LETTERS ON MIRROR BACKGROUND. EMERGI-LITE #LXN-1-RM-*-277	UNIVERSAL	120/ 277	FURNISHED W/ FIXTURE	MOUNT FIXTURE TO MULLION ABOVE DOOR AS SHOWN (OR 12" ABOVE DR) PROVIDE DIRECTIONAL ARROWS AS INDICATED ON PLANS.
X2	SINGLE FACE UNIVERSAL MOUNT LED EXIT WITH BATTERY BACKUP WHITE HOUSING AND RED LETTERS ON WHITE BACKGROUND. LSI #EX-R-U-**-WB-WH-SD2-UE	UNIVERSAL	120/ 277	FURNISHED W/ FIXTURE	

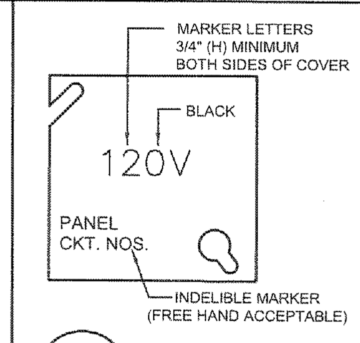
LIGHTING FIXTURE NOTES: "**" SEE SPECIFICATIONS

1. CONTRACTOR SHALL SUPPORT RECESSED LIGHTING FIXTURES AT ALL DIAGONAL CORNERS FROM BUILDING STEEL OR STRUCTURE UTILIZING ALL THREAD ROD OR HANGER WIRE. SUPPORT LIGHTING FIXTURE INDEPENDENT OF HUNG CEILING SUPPORT STRUCTURE.
2. UNLESS OTHERWISE NOTED ALL FLUORESCENT FIXTURES SHALL BE FURNISHED WITH ELECTRONIC BALLAST.
3. LAMP TYPES ARE BASED ON G.E. LAMP CODES, UNLESS OTHERWISE NOTED. LAMPS OF EQUAL CHARACTERISTICS MANUFACTURED BY SYLVANIA OR PHILIPS ARE ACCEPTABLE.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR CONFIRMING CEILING TYPES, MOUNTING ARRANGEMENTS, AND OPERATING VOLTAGE PRIOR TO ORDERING FIXTURES.
5. SIMILAR LIGHTING FIXTURE OF EXACT APPEARANCE AND PERFORMANCE MAY BE USED. SUBMIT ALTERNATE PACKAGE FOR REVIEW AND APPROVAL.
6. FIXTURES, AS NOTED (SEE LEGEND), AND AS SHOWN ON THE LIGHTING DRAWINGS SHALL BE PROVIDED WITH EMERGENCY BALLAST. PROVIDE AN UNSWITCHED HOT WIRE IN CIRCUITY TO EVERY EMERGENCY FIXTURE FOR VOLTAGE SENSING. INSTALL THE EMERGENCY BALLAST INSIDE OF FIXTURE IN BALLAST COMPARTMENT. CONNECT EMERGENCY BALLAST TO ONE LAMP IN FIXTURE. PROVIDE TEST/MONITOR PLATE WITH TEST SWITCH AND CHARGING INDICATOR LIGHT. IN HUNG CEILINGS, MOUNT MONITOR PLATE FLUSH ON CEILING ADJACENT TO FIXTURE CONTAINING EMERGENCY BALLAST.

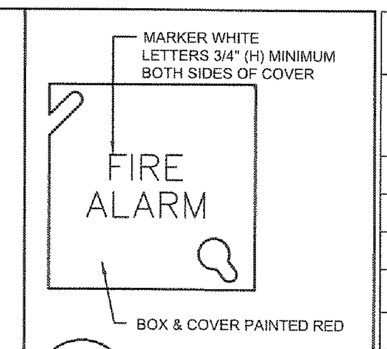


NOTES
1. NEUTRAL CONDUCTORS SHALL BE CONNECTED INDEPENDENTLY OF DEVICE AND PIGTAILED FROM THIS CONNECTION TO THE DEVICE.
2. GREEN GROUNDING CONDUCTOR SHALL BE BONDED TO OUTLET BOX GOUNDING LUG. EXTEND PIGTAIL FROM THIS GROUND LUG TO DEVICE GROUND LUG. ISOLATED GROUND RECEPTACLES SHALL BE GROUNDED ONLY BY THE ISOLATED GROUNDING CONDUCTOR (GREEN WITH YELLOW STRIPE); OUTLET BOX SHALL BE GROUNDED WITH THE SEPARATE GREEN EQUIPMENT GROUNDING CONDUCTOR.
3. HOT CONDUCTORS SHALL BE CONNECTED INDEPENDENTLY OF DEVICE AND PIGTAILED FROM THIS CONNECTION TO THE DEVICE.
4. RECEPTACLE SHALL BE MOUNTED WITH GROUND SLOT AT TOP.
5. ALL WIRING CONNECTIONS TO RECEPTACLE SHALL BE MADE ON TERMINAL SCREWS ON SIDE OF RECEPTACLE.
6. THIS INSTALLATION SHALL BE STRICTLY FOLLWED. IT WILL BE CONTRACTOR RESPONSIBILITY TO REINSTALL OUTLET IF INCORRECT INSTALLATION AT END OF CONSTRUCTION.

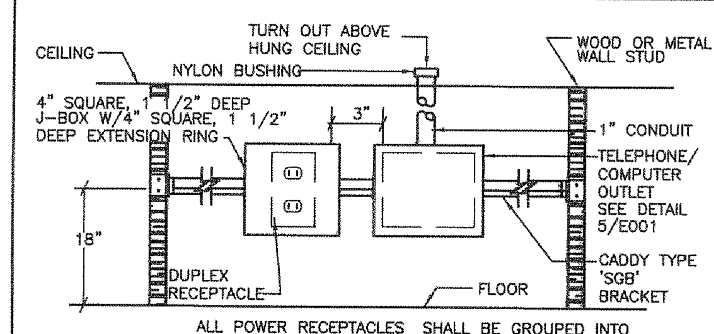
1 / E001 TYPICAL OUTLET **WIRING**
NOT TO SCALE



2 / E001 **JUNCTION BOX MARKING**
NOT TO SCALE

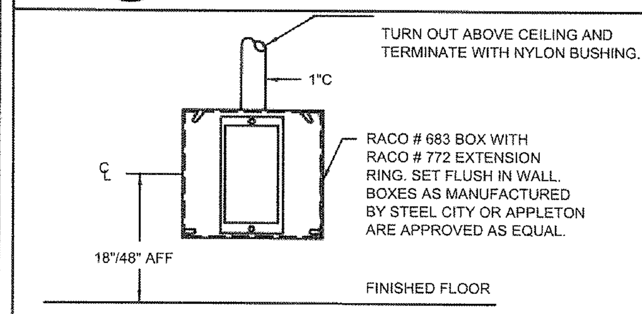


3 / E001 **JUNCTION BOX MARKING**
NOT TO SCALE

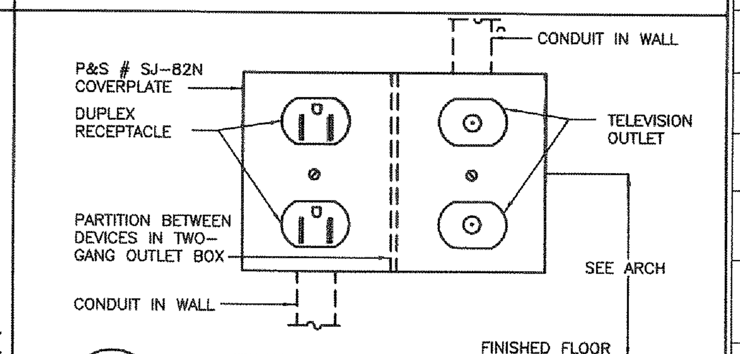


ALL POWER RECEPTACLES SHALL BE GROUPED INTO MULTI-GANG BOX WITH A COMMON COVERPLATE (AS REQUIRED PER LOCATION)

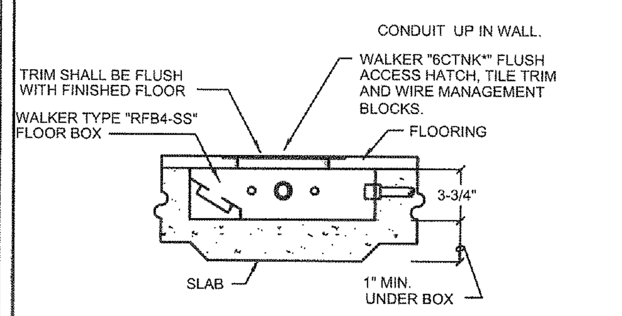
4 / E001 **MULTI-GANGED DEVICES**
NOT TO SCALE



5 / E001 **DATA/TELEPHONE OUTLET BOX INSTALLATION DETAIL**
NOT TO SCALE

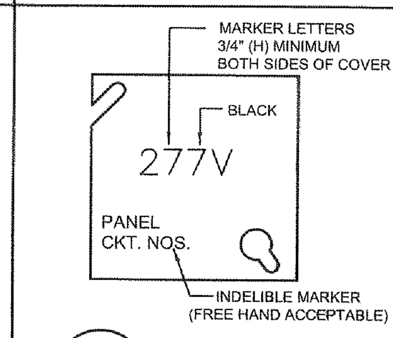


6 / E001 **DUPLEX RECEPTACLE / TELEVISION OUTLET DETAIL**
NOT TO SCALE

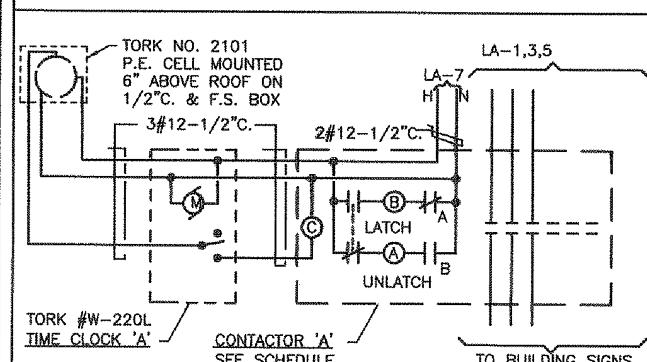


7 / E001 **FLOOR BOX DETAIL**
NOT TO SCALE

"**" SEE SPECIFICATIONS



8 / E001 **JUNCTION BOX MARKING**
NOT TO SCALE



9 / E001 **CONTACTOR 'A' WIRING DIAGRAM**
NOT TO SCALE (120V)

ELECTRICAL SYMBOLS & LEGENDS

MOUNTING HEIGHT IS FROM FINISHED FLOOR TO CENTER LINE OF DEVICE OR OUTLET. HEIGHT MAY VARY TO CONCIDE WITH BUILDING CONSTRUCTION. REFER TO DETAIL DRAWINGS FOR ANY APPLICABLE INSTALLATION DETAILS.

SYMBOL	DEVICE OR ITEM DESCRIPTION	MTG. HEIGHT
	PANELBOARD 277/480 VOLTS	-
	PANELBOARD 120/208 VOLTS	-
	JUNCTION BOX, IN WALLS OR ABOVE CEILING	-
T	DRY TYPE TRANSFORMER (480 -208Y/120)	-
	DISCONNECT SWITCH HORSEPOWER RATED, FUSED OR NON-FUSED, AS INDICATED ON DRAWING.	-
	MOTOR	-
	DUPLEX RECEPTACLE OUTLET	18"A.F.F. to CTR of BOX
	QUAD RECEPTACLE OUTLET	AS NOTED
	GROUND FAULT CURRENT INTERRUPTER DUPLEX RECEPTACLE OUTLET MOUNTED 6" ABOVE COUNTERTOP OR BACKSPLASH	SEE ARCH.
	GROUND FAULT CURRENT INTERRUPTER DUPLEX RECEPTACLE OUTLET	18"A.F.F. to CTR of BOX
	GROUND FAULT CURRENT INTERRUPTER QUAD RECEPTACLE OUTLET (SHOP)	44"A.F.F.
	GROUND FAULT CURRENT INTERRUPTER RECEPTACLE WITH WEATHERPROOF COVER	18"A.F.F. to CTR of BOX
	DEDICATED ISOLATED GROUND DUPLEX RECEPTACLE	18"A.F.F. to CTR of BOX
	NEMA 5-20R DUPLEX RECEPTACLE OUTLET MOUNTED IN BACKBOX WITH TV OUTLET, SEE DETAIL 6/E001.	- UNLESS NOTED OTHERWISE
A	COMBINATION FLUSH DUPLEX RECEPTACLE, TVSS DUPLEX RECEPTACLE, TELEPHONE OUTLET AND DATA OUTLET FLOOR BOX. SEE SPECIFICATIONS FOR BILL OF MATERIALS	FLUSH FLOOR
B	COMBINATION FLUSH DUPLEX RECEPTACLE AND DATA/ TELEPHONE OUTLET FLOOR BOX. SEE SPECIFICATIONS FOR BILL OF MATERIALS.	FLUSH FLOOR
C	COMBINATION FLUSH FLOOR BOX WITH DATA AND POWER CONNECTION WHIP FOR FURNITURE (SEE PLAN FOR REQUIREMENT) SEE SPECIFICATIONS FOR BILL OF MATERIALS.	FLUSH FLOOR
TV	TELEVISION OUTLET MOUNTED IN BACKBOX WITH DUPLEX RECEPTACLE, SEE DETAIL 6/E001.	- UNLESS NOTED OTHERWISE
	FLUSH MOUNTED WELDING RECEPTACLE - 50 AMP, 208V., 1Ø, 2 POLE 3 WIRE, NEMA 6-50R.	44" A.F.F.
A	FLUSH MOUNTED AIR DRYER RECEPTACLE -30 AMP, 208V., 1Ø, 3 WIRE WITH STAINLESS STEEL COVER PLATE, NEMA 6-30R.	60" A.F.F.
B	FLUSH MOUNTED CLOTHES DRYER RECEPTACLE - 30A, 208V., 1Ø, 3 WIRE G.E. NO. GE-4132-3 WITH STAINLESS STEEL COVERPLATE. FURNISH MATCHING CORD & PLUG SET FOR DRYER. CAROL #05655	18"A.F.F. to CTR of BOX
	OVERHEAD STRUCTURAL MOUNTED NEMA 5-20R DUPLEX GFCI RECEPTACLE OUTLET FOR OVERHEAD REEL POWER CONNECTION.	MOUNTED AT OVERHEAD REEL SUPPORT
	FLUORESCENT LIGHT FIXTURE	SEE FIX. SCH.
	FLUORESCENT STRIP LIGHT FIXTURE	SEE FIX. SCH.
	LIGHT FIXTURE -CEILING MOUNTED	SEE FIX. SCH.
	LIGHT FIXTURE - WALL MOUNTED	SEE FIX. SCH.
	LIGHT FIXTURE -ACCENT/WALL WASHER	SEE FIX. SCH.
	LIGHT FIXTURE ON EMERGENCY CIRCUIT	SEE FIX. SCH.
	EXIT SIGN CEILING OR WALL MOUNTED W/DIRECTIONAL ARROWS AS SHOWN; DARKENED SECTION(S) OF SYMBOLS INDICATE FACE(S) OF FIXTURE	SEE FIX. SCH.
C	CONTACTOR - SEE SCHEDULE	48"A.F.F.
$	S.P.S.T. LIGHT SWITCH	-
$D	MANUAL DIMMER SWITCH- 1000W MINIMUM -CONTRACTOR SHALL VERIFY CIRCUIT SIZE AND PROVIDE LARGER DIMMER IF REQUIRED	48"A.F.F.
$L	LOW VOLTAGE LIGHTING CONTROL SWITCHING POINT OPERATBLE WITH SQ D POWER LINK NEHB-ASB PANELBOARD	48" A.F.F.
R	LOW VOLTAGE LIGHTING CONTROL RELAY INTERFACE WITH OCCUPANCY SENSOR	AOVE CEILING
$OC	LOW VOLTAGE OCCUPANCY SENSOR FOR LIGHTING CONTROL	48" A.F.F.
PC	CEILING MOUNT PHOTO SENSOR FOR L.V. DAYLIGHT CONTROL.	CEILING
OC	CEILING MOUNT L.V. OCCUPANCY SENSOR	CEILING
$OS	LINE VOLTAGE OCCUPANCY SENSOR FOR LIGHTING CONTROL	48" A.F.F.
	COMBINATION USB CHARGER AND TAMPER-RESISTANCE RECEPT COOPER #TR7740, WHITE FINISH WITH WHITE COVER PLATE	MATCH ADJACENT
	COMBINATION FLUSH FLOOR BOX WITH DATA AND POWER CONNECTION STOWED FOR FUTURE, INSTALL (1) DUPLEX NEMA 5-20R AND (1) DATA OUTLET FOR SHOWROOM CONVENIENCE DEVICE USE.	FLUSH FLOOR
C	RECESS CLOCK OUTLET WITH NEMA 5-20R RECEPTACLE FOR CONCEALED PLUG TO RECEPTACLE INSTALLATION. DISPLAY FURNITURE	12" AFF -

SYMBOL	DEVICE OR ITEM DESCRIPTION	MTG. HEIGHT
$3	THREE-WAY LIGHT SWITCH	48"A.F.F.
$4	FOUR-WAY LIGHT SWITCH	48"A.F.F.
$MC	MOMENTARY CONTACT SWITCH	48" A.F.F.
OC	LOW VOLTAGE LIGHTING CONTROL OCCUPANCY SENSOR (LC&D AUDIO OCCUPANCY SENSOR)	-
$R	LOW VOLTAGE LIGHTING CONTROL SWITCHING POINT (LC&D #GR 2400)	48" A.F.F.
R	LOW VOLTAGE LIGHTING CONTROL RELAY ENCLOSURE (LC&D MICRO PANEL) NUMBER INDICATES NUMBER OF RELAYS	-
F	FIRE ALARM PULL STATION	48"A.F.F.
F	FIRE ALARM AUDIO/VISUAL COMBINATION SIGNAL. WALL MOUNTED, 75 cd MINIMUM	80" A.F.F.
	FIRE ALARM VISUAL LIGHT, 75 cd MINIMUM	80" A.F.F.
D	FIRE ALARM SMOKE DETECTOR, CEILING MOUNTED	-
H 200°	FIRE ALARM HEAT DETECTOR, CEILING MOUNTED - TEMPERATURE RATING AS NOTED	-
D	FIRE ALARM SMOKE DETECTOR, DUCT MOUNTED WITH REMOTE INDICATOR LIGHT AND TEST SWITCH	-
D A	STANDALONE 120V CEILING MOUNTED PHOTOELECTRIC FIRE ALARM SMOKE DETECTOR, WITH 120V N.O./N.C. CONTACT. MOUNT AT STRUCTURE ON OCTAGONAL BACKBOX. GENTEX #8100	-
F J	FLUSH J-BOX AT FIRE SHUTTER FOR CONNECTION TO FIRE ALARM SYSTEM	-
F	SPRINKLER SYSTEM WATER FLOW SWITCH	-
T	SPRINKLER SYSTEM O.S. AND Y. VALVE TAMPER SWITCH	-
FACP	FLUSH MOUNTED FIRE ALARM CONTROL PANEL WITH BATTERY BACKUP	-
ANN	FIRE ALARM REMOTE ANNUNCIATOR	-
	TELEPHONE OUTLET-WALL MOUNTED	18"A.F.F. to CTR of BOX
	COMBINATION DATA/TELEPHONE OUTLET	SEE ARCH.
	TELEPHONE OUTLET WALL MOUNTED	54"A.F.F.
WP	DENOTES WEATHERPROOF	-
EDF	DENOTES ELECTRIC DRINKING FOUNTAIN	-
N.L.	DENOTES NIGHT LIGHT	-
T	1" ELECTRICAL CONDUIT TO TELEPHONE BACKBOARD	-
	TELEPHONE BACKBOARD 8'-0" (W) X 8'-0" (H) X 3/4" (T)	-
	CONDUIT CONCEALED ABOVE CEILING OR IN WALL, WITH #12 AWG WIRE UNLESS OTHERWISE NOTED. HATCH MARKS INDICATE NUMBER OF #12 CONDUCTORS. ALL BRANCH CIRCUIT CONDUITS SHALL CONTAIN CODE SIZED GREEN INSULATED GROUNDING WIRES WHICH ARE NOT SHOWN ON DRAWINGS.	-
	CONDUIT SURFACE MOUNTED OR EXPOSED (SEE ABOVE DESCRIPTION)	-
	CONDUIT CONCEALED IN FLOOR SLAB, BURIED BELOW GRADE OR CONCEALED IN CEILING CAVITY OF FLOOR BELOW. (SEE ABOVE DESCRIPTION)	-
	CONDUIT HOMERUN TO PANEL, MINIMUM 3/4" SIZE, CROSS HATCHES INDICATE QUANTITY OF PHASE AND NEUTRAL CONDUCTORS IF MORE THAN TWO. REQUIRED GROUND CONDUCTOR IS NOT SHOWN. CIRCUIT NUMBERS AS INDICATED ON DRAWINGS.	-
D/T	DENOTES HOMERUN TO TELEPHONE/DATA BACKBOARD	-
FM	DENOTES FLUID MONITOR CABLE CONDUIT	
	CONDUIT TURNED UP OR DOWN	-
	SERVICE BAY DOOR OPEN/CLOSE SWITCH, FURNISHED BY DOOR SUPPLIER/INSTALLER, INSTALLED BY THIS CONTRACTOR.	-
	SPRINKLER SOLENOID VALVE	
	SURFACE MOUNTED CIRCUIT BREAKER IN NEMA 1 ENCLOSURE, WITH SHUNT TRIP. SEE FLOOR PLAN FOR AMPERE RATING.	
S J	SATELLITE SYSTEM J-BOX.	
TC	TIME CLOCK	48"A.F.F.
K	FLUID MONITOR KEY PAD STATION	48"A.F.F.
	SELF-CONTAINED EMERGENCY BATTERY LIGHTING UNIT	SEE FIX. SCH.
$N	NARROW BODY, MULLION MOUNTED RECESS SINGLE POLE LIGHT SWITCH.	48"A.F.F.

ELECTRICAL GENERAL NOTES

1. CONTRACTOR SHALL REFER TO BUILDING SPECIFICATIONS ISSUED BY THE ARCHITECT FOR THIS PORTION OF THE WORK.
2. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR COMPLETE ELECTRICAL DISTRIBUTION SYSTEM AND EQUIPMENT CONNECTIONS TO HVAC AND OTHER EQUIPMENT SHOWN ON THIS SET OF THE DOCUMENTS. ALL WORKS SHALL BE IN ACCORDANCE WITH THE 2014 NEC AND THE LOCALLY ENFORCED INTERNATIONAL BUILDING CODE AND NFPA 101.
3. ALL INTERIOR ELECTRICAL RACEWAY SYSTEM IN EXPOSED STRUCTURE SHALL BE EMT. ALL INTERIOR ELECTRICAL WIRING SYSTEM IN CONCEALED WALL AND ABOVE CEILING SPACE MAY BE TYPE "MC" IN ACCORDANCE WITH NEC. EXTERIOR ELECTRICAL RACEWAY SYSTEM EXPOSED TO WEATHER SHALL BE RIGID GALVANIZED STEEL CONDUITS.
4. ELECTRICAL SYSTEM SHALL BE GROUNDED IN ACCORDANCE WITH NEC ARTICLE 250, LATEST ADOPTED EDITION AND ENFORCED SECTION.
5. ALL OUTDOOR HVAC AND SPECIALTY EQUIPMENT SHALL BE TERMINATED WITH LIQUID-TIGHT FLEXIBLE CONDUITS.
6. THIS CONTRACTOR SHALL PROVIDE 120 VOLT POWER CONNECTION TO ALL MECHANICAL EQUIPMENT AS SHOWN ON ELECTRICAL DRAWINGS OR AS REQUIRED BY MECHANICAL DIVISION. VERIFY ALL CONNECTIONS WITH EQUIPMENT SUPPLIER.
7. AT ALL INTERIOR AHU UNIT LOCATIONS, DIVISION 16 CONTRACTOR SHALL INSTALL A NEMA 5-20R RECEPTACLE NEXT TO MECHANICAL UNIT. EXTEND CIRCUITRY TO NEAREST RECEPTACLE CIRCUIT.
8. REFER TO MECHANICAL DRAWINGS FOR ROOF TOP ELECTRICAL INSTALLATION TO THE HVAC EQUIPMENT.
9. HVAC SMOKE DETECTORS SHALL BE CONNECTED TO FIRE ALARM PANEL IN THE SUPERVISORY MODE WITH REMOTE TEST SWITCHES SHOWN ON MECHANICAL DRAWINGS.
10. DIVISION 16 CONTRACTOR SHALL BE AWARE THAT NO DATA OUTLET HOMERUN SHOWN (OR IMPLIED) SHALL EXCEED 290'-0" IN LENGTH. VERIFY LENGTHS PRIOR TO INSTALLATION AND INFORM ENGINEER OF ANY DISCREPANCIES.
11. ALL FIRE ALARM DEVICES, FLUSH AND/OR SURFACE MOUNTED, SHALL BE MOUNTED ON FIRE ALARM MANUFACTURER'S FURNISHED BACKBOX, NOT ON STANDARD 4" SQUARE OR 'UT' BOX.
12. FIRE ALARM SYSTEM SHALL BE ELECTRONICALL SUPERVISING BUILDING MONITORING DEVICES AT ALL TIMES, THIS INCLUDES FIRE SPRINKLER SYSTEM FLOW AND TAMPER SWITCH, DUCT DETECTOR, AREA SMOKE DETECTOR, HEAT DETECTOR, AND PULL STATION. SYSTEM SHALL BE CERTIFIED IN ACCORDANCE TO SECTION 1-6.2 OF THE 2010 EDITION, NFPA 72.
13. ELECTRICAL INSTALLATION IN SERVICE SHOP SHALL CONFORM TO NEC 511 FOR MAJOR SERVICE GARAGE INSTALLATION REQUIREMENT. UNLESS OTHERWISE NOTED, ALL DEVICES ARE MOUNTED AT 44' AFF TO TOP OF BOX. COORDINATE WITH SERVICE SHOP EQUIPMENT FOR EXACT WIRING CONNECTION AND ELEVATION REQUIREMENT.

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SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 13371 PO-WEI LU
David Lu SC PE# 13371
Signed & Sealed:04/04/2016

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Rev	Date	Comments
-	03.10.16	Bid/ Permit
-	-	-

Client:
William L. Grainger

P. O. Box 7267
GARDEN CITY, GA 31408

Project Number: 15221
Project Name:
Grainger Nissan

224 Robert Smalls Parkway,
Beaufort, SC 29906

Sheet Title:
Electrical Symbols, Legend, Details, Notes and Lighting Fixture Schedules

Sheet Number:
E001

RELEASED FOR CONSTRUCTION AND PERMIT

04/04/2016

PANEL: DLA								MAINS:	400 AMPS			3 POLE MAIN CIRCUIT BREAKER								
VOLTS-PHASE: 120/208V, 3PH, 4W								ACCESSORIES: 100% RATED NEUTRAL BUS, FACTORY-HINGED COVERS OVER VERTICAL WIREWAYS.												
MOUNTING: SURFACE				ISCC RATING: SEE RISER				PROVIDE EQUIPMENT COPPER GROUND BUS												
POLE	CB RATING / AMPS	CIRCUIT LOADS (KVA)							PHASE LOADS (KVA)				CIRCUIT LOADS (KVA)						CB RATING / AMPS	POLE
		LTG	REC	HTG	CLG	MTR	MISC	DESCRIPTION	A	B	C	DESCRIPTION	MISC	MTR	CLG	HTG	REC	LTG		
1									10.0				10.0							2
3	125/3							PREP SPACE		12.0		PANEL LA	12.0						125/3	4
5											11.9		11.9							6
7									10.8				10.8							8
9	125/3							PREP SPACE		12.9		PANEL LB	12.9						150/3	10
11											9.9		9.9							12
13							8.7		8.7											14
15	150/3						13.2	PANEL ML		13.2		PREP SPACE							150/3	16
17							12.6				12.6									18
19							11.6		11.6											20
21	150/3						10.0	PANEL LSA		10.0		PREP SPACE							150/3	22
23							12.4				12.4									24
SUB-TTLS							68.5		41.1	48.0	46.8		67.5						SUB-TTLS	
TOTAL CONNECTED LOAD: 136.0 KVA																				
CALCULATED DEMAND LOAD: 108.8 KVA																				

TRANSFORMER SCHEDULE

TAG	TRANSFORMER RATING		PRIMARY		SECONDARY		
NUMBER	KVA	VOLTAGE	CKT. NO.	FEEDER SIZE	CKT BKR	GND COND	FEEDER SIZE
T-DA	112.5KVA	PRI: 480V∆,3Ø,3W SEC: 208Y/120V,3Ø4W	MDP-8 (225/3)	SEE RISER SCHEDULE	400	1#1/0 CU	(2) SETS: 4#250KcMil (AL) & 1#1/0 (CU) G - 2.5"
-	-	-	-	-	-	-	-

PANEL: MA								MAINS:	600 AMPS			3 POLE MAIN CIRCUIT BREAKER								
VOLTS-PHASE: 277/480V, 3PH, 4W								ACCESSORIES: 100% RATED NEUTRAL BUS, FACTORY-HINGED COVERS OVER VERTICAL WIREWAYS.												
MOUNTING: SURFACE				ISCC RATING: SEE RISER				PROVIDE EQUIPMENT COPPER GROUND BUS												
POLE	CB RATING / AMPS	CIRCUIT LOADS (KVA)							PHASE LOADS (KVA)				CIRCUIT LOADS (KVA)						CB RATING / AMPS	POLE
		LTG	REC	HTG	CLG	MTR	MISC	DESCRIPTION	A	B	C	DESCRIPTION	MISC	MTR	CLG	HTG	REC	LTG		
1					2.4				4.7						2.4					2
3	20/3				2.4			RTU-1		4.7		RTU-2			2.4				20/3	4
5					2.4						4.7				2.4					6
7					2.4				4.7						2.4					8
9	20/3				2.4			RTU-3		4.7		RTU-P			2.4				20/3	10
11					2.4						4.7				2.4					12
13					7.1				14.2						7.1					14
15	40/3				7.1			RTU-S		14.2		RTU-SR			7.1				40/3	16
17					7.1						14.2				7.1					18
19						0.9			7.3					6.4						20
21	15/3					0.9		VF-1		7.3		EUROVAC		6.4					30/3	22
23						0.9					7.3			6.4						24
25						0.8			4.1					3.3						26
27	15/3					0.8		CF-S1		4.1		PRESSURE WASHER		3.3					15/3	28
29						0.8					4.1			3.3						30
31						0.8			4.1			UH-C				3.3			20/1	32
33	15/3					0.8		CF-SD		0.8		SPARE							20/1	34
35						0.8					0.8	SPARE							20/1	36
37	1P							SPACE	0.0			SPARE							20/1	38
39	1P							SPACE		0.0		SPARE							20/1	40
41	1P							SPACE			0.0	SPARE							20/1	42
43									41.1				41.1							44
45	60/3							TVSS		48.0		XFMR "T-DA"	48.0						225/3	46
47											46.8		46.8							48
49						4.0			19.0									15.0		50
51	25/3					4.0		COMPRESSOR		17.0		PANEL "HA"						12.9	100/3	52
53						4.0					19.1							15.1		54
SUB-TTLS					35.4	19.6			99.3	100.8	101.8		135.9	29.3	35.4	3.3		43.0	SUB-TTLS	
TOTAL CONNECTED LOAD: 301.9 KVA																				
CALCULATED DEMAND LOAD: 271.7 KVA																				

ALL CIRCUIT BREAKERS IN DOWNSTREAM PANELS FED FROM MAIN SERVICE SWITCHBOARD 'MDP' ARE SHORT CIRCUIT PROTECTED AND COORDINATED WITH SERIES RATED BREAKERS IN MAIN SWITCHBOARD.

SERVICE MAIN PANEL "MDP" TVSS PROTECTION EQUIPMENT SHALL HAVE AIC RATING OF 240KA WITH (10) MODE PROTECTION AS SPECIFIED IN SPECIFICATION IN THE PROJECT MANUAL.

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Signed & Sealed: 04/04/2016

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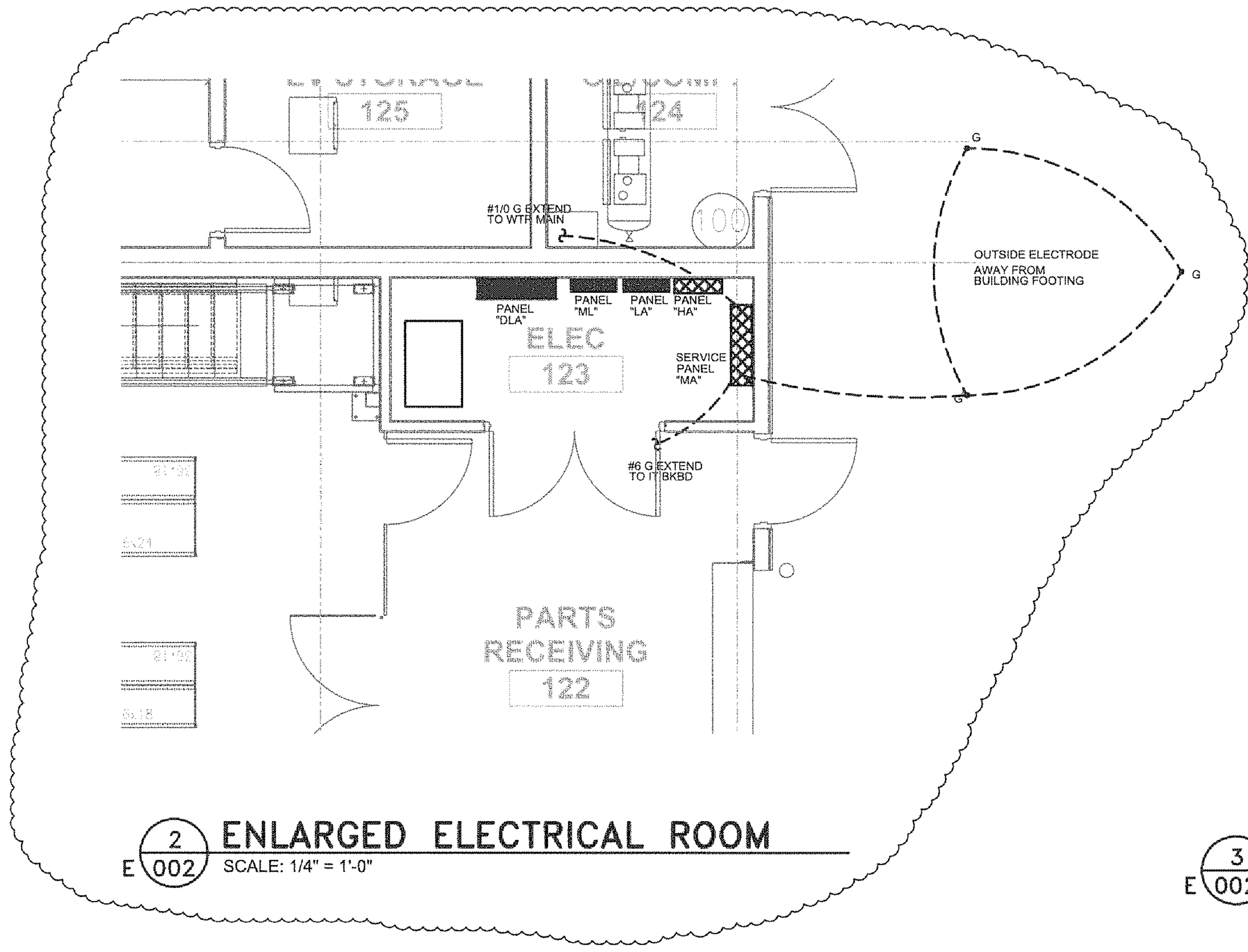
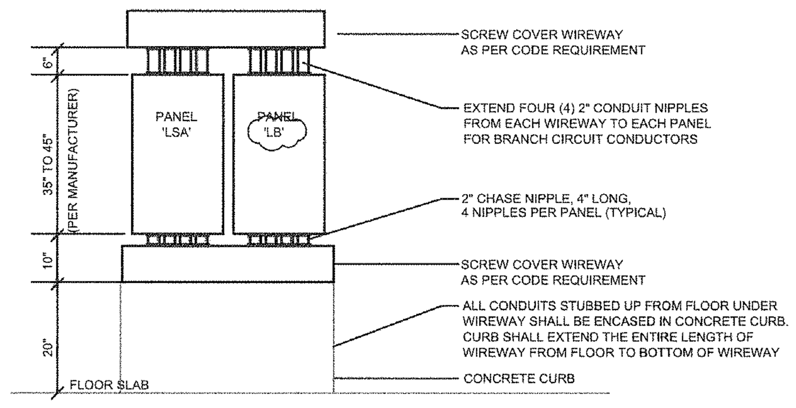
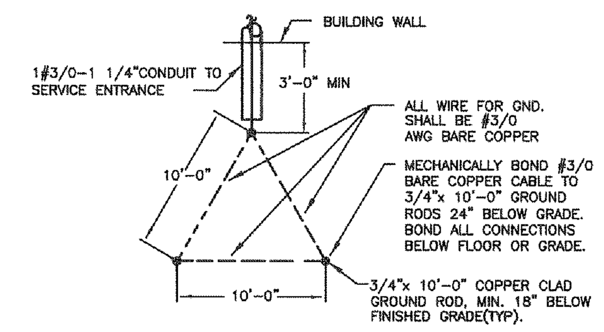
Rev	Date	Comments
-	03.10.16	Bid/ Permit
1	04.04.16	Permit Comment



2 E002 **ENLARGED ELECTRICAL ROOM**
SCALE: 1/4" = 1'-0"

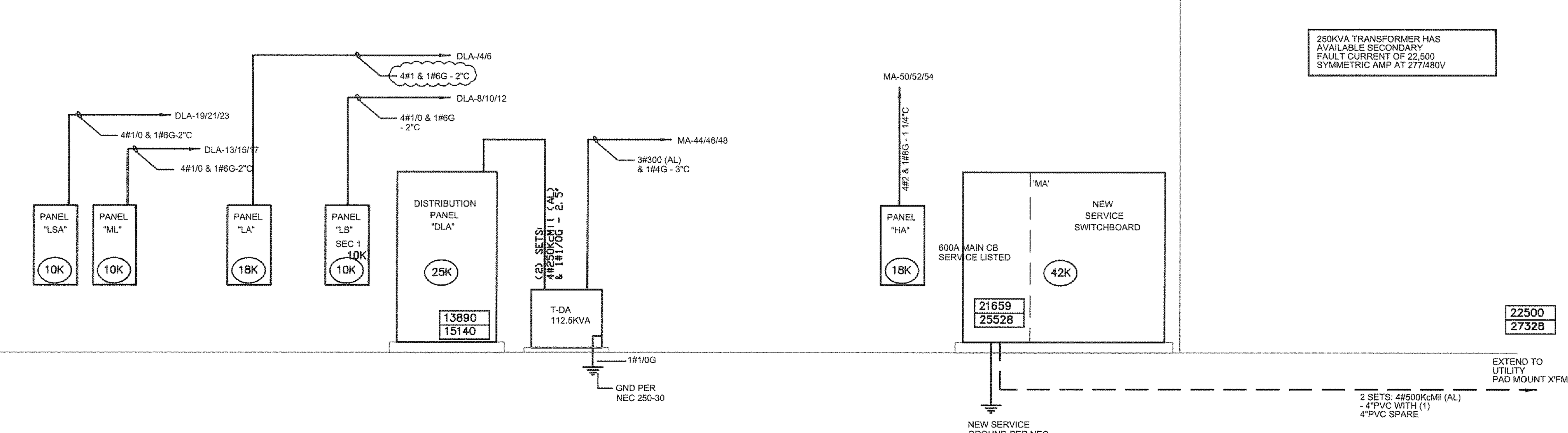


3 E002 **PANEL ARRANGEMENT ELEVATION**
SCALE: 1/2" = 1'-0"



4 E002 **TYPICAL GROUND MAT**
NOT TO SCALE

SYMMETRICAL AMPS	INDICATES AVAILABLE SHORT CIRCUIT AMPS AT DEVICE
ASYMMETRICAL AMPS	
(10K)	INDICATES MINIMUM INTERRUPTING CAPACITY OF DEVICES



1 E002 **POWER RISER DIAGRAM**
NOT TO SCALE

NOTE:

1. VOLTAGE DROP CALCULATIONS ARE BASED ON 2% DROP FOR FEEDER CIRCUITS AND 3% DROP FOR BRANCH CIRCUITS.
2. ELECTRICAL EQUIPMENT, PANELBOARD, DISCONNECT, AND TRANSFORMER, ENCLOSURES MUST BE PROVIDED WITH ARC FLASH LABEL CONFORMING TO 2008 NEC 70, ARTICLE 110.16. MAIN SWITCHBOARD SHALL HAVE ARC FLASH LABEL CONFORMING TO NEC 70E WITH VOLTAGE RATING, FLASH HAZARD BOUNDARY, FLASH ENERGY AT 18", PPE LEVEL, LIMITED APPROACH DISTANCE, RESTRICTED APPROACH DISTANCE, AND PROHIBITED APPROACH DISTANCE.
3. TO COMPLETE SERVICE GROUND INSTALLATION AND BONDING, THIS CONTRACTOR SHALL PROVIDE A DELTA GROUND RING INSTALLATION PER DETAIL 4/E002 AND AT LOCATION SHOWN ON THIS PLAN. GROUNDING ELECTRODES SHALL INCLUDE DELTA GROUNDING RING, BUILDING STEEL, MAIN WATER SERVICE METAL PIPES ACROSS THE SHUT-OFF VALVES, AND FOOTING ENCLOSED STEEL REBAR. ALL GROUNDING ELECTRODES SHALL HAVE #3/0 COPPER GROUND WIRE EXTENDED AND TERMINATED AT THE MAIN GROUND BAR INSIDE THE MAIN SWITCHBOARD, "MS". UNDERGROUND GROUND WIRE MAY BE BARE COPPER, ALL OTHER GROUND WIRES SHALL BE INSULATED COPPER WIRE, XHHW, AND SHALL BE PROTECTED INSIDE A 1" PVC RACEWAY IF ROUTED OUTISDE MAIN ELECTRICAL ROOM.

Client:
William L. Grainger

P. O. Box 7267
GARDEN CITY, GA 31408

Project Number: 15221
Project Name:
Grainger Nissan

224 Robert Smalls Parkway,
Beaufort, SC 29906

Sheet Title:
Electrical Service Equipment Schedule and Service Riser

Sheet Number:
E002

RELEASED FOR CONSTRUCTION AND PERMIT

04/04/2016

PANEL: HA — MAINS: 125 AMPS — MAIN LUGS ONLY

VOLTS-PHASE: 277/480V, 3PH, 4W — MOUNTING: SURFACE — ISCC RATING: 22 KA

ACCESSORIES: 100% RATED NEUTRAL BUS, FACTORY-HINGED COVERS OVER VERTICAL WIREWAYS. PROVIDE EQUIPMENT COPPER GROUND BUS

POLE	CB RATING / AMPS	ZONE	LTG	REC	HTG	CLG	MTR	MISC	DESCRIPTION	A	B	C	DESCRIPTION	MISC	MTR	CLG	HTG	REC	LTG	ZONE	CB RATING / AMPS	POLE
REMOTELY OPERATED CIRCUIT BREAKERS																						
1	20/1	1	1.5						SHOWRM DOWNLIGHTS	2.8			SERVICE DRIVE						1.22	T/T	20/1	2
3	E								(EMERGENCY LEG)		0.0		(EMERGENCY LEG)								E	4
5	20/1	1	1.4						SHOWROOM DOWNLIGHTS			2.6	BUILDING EXTERIOR						1.19	T/T	20/1	6
7	E								(EMERGENCY LEG)	0.0			(EMERGENCY LEG)								E	8
9	20/1	1	1.05						CUSTOMER		1.1		SPARE							-	20/1	10
11	E								(EMERGENCY LEG)			0.0	(EMERGENCY LEG)								E	12
13	20/1	1	0.6						NVD	2.7			DISPLAY						2.2	OL1	20/1	14
15	E								(EMERGENCY LEG)		2.2		DISPLAY						2.2	OL2	20/1	16
17	20/1	SD	2.5						SERVICE DRIVE			4.7	DISPLAY						2.2	OL3	20/1	18
19	E								(EMERGENCY LEG)	2.2			BUILDING SOUTH						2.2	OL1	20/1	20
21	20/1	-							SPARE		2.8		BUILDING SOUTH						2.8	OL2	20/1	22
23	E								(EMERGENCY LEG)			1.9	BUILDING SOUTH						1.9	OL3	20/1	24
25	20/1	-	2.35						OFFICES/ADMIN	3.5			PROPERTY- NORTH						1.1	OL1	20/1	26
27	20/1	-	2.8						SERVICE SHOP		3.6		PROPERTY- NORTH						0.8	OL2	20/1	28
29	20/1	-	2.3						PARTS			3.1	PROPERTY- NORTH						0.8	OL3	20/1	30
31	20/1	-	1.1						TECH SERVICE	3.8			INVENTORY						2.8	OL1	20/1	32
33	20/1	-							SPARE		3.3		INVENTORY						3.3	OL2	20/1	34
35	20/1	-							SPARE			2.8	INVENTORY						2.8	OL3	20/1	36
37	30/3								TVSS	0.0			SPARE							-	20/1	38
39											0.0		SPARE							-	20/1	40
41												0.0	SPARE							-	20/1	42
SUB-TTLS			15.5							14.96	12.93	15.08							27.5		SUB-TTLS	

TOTAL CONNECTED LOAD: 42.97 KVA
CALCULATED DEMAND LOAD: 53.72 KVA

POWERLINK MASTER LIGHTING PANEL

PANEL: LA — MAINS: 125 AMPS — MAIN LUGS ONLY

VOLTS-PHASE: 120/208V, 3PH, 4W — MOUNTING: RECESSED / FLUSH — ISCC RATING: 14 KA

ACCESSORIES: 100% RATED NEUTRAL BUS, FACTORY-HINGED COVERS OVER VERTICAL WIREWAYS. PROVIDE EQUIPMENT COPPER GROUND BUS

POLE	CB RATING / AMPS	ZONE	LTG	REC	HTG	CLG	MTR	MISC	DESCRIPTION	A	B	C	DESCRIPTION	MISC	MTR	CLG	HTG	REC	LTG	ZONE	CB RATING / AMPS	POLE
REMOTELY OPERATED CIRCUIT BREAKERS																						
1	20/1	BS1	1.0						"NISSAN" PORTAL	2.2			PYLON SIGN						1.2	BS2	20/2	2
3	20/1	BS1	0.6						"NISSAN" LTR		1.8								1.2			4
5	20/1	BS1	0.4						"GRAINGER" LTR			1.2	SITE RECEPT					0.8		OL5	20/1	6
7	20/1	BS1	0.6						"EXPRESS"	1.4			SITE RECEPT					0.8		OL6	20/1	8
9	20/1	BS1	0.6						"SERVICE"		0.6		SPARE							-	20/1	10
11	20/1	BS1	0.4						SOWRM/SERV DR SIGN			0.4	SPARE							-	20/1	12
13	20/1	-							SPARE	0.0			SPARE							-	20/1	14
15	20/1	-							SPARE		0.0		SPARE							-	20/1	16
17	20/1	-							SPARE			0.7	HOWROOM PENDANT						0.7	1	20/1	18
19	1P								SPACE	0.0			SPACE								1P	20
21	1P								SPACE		0.0		SPACE								1P	22
23	1P								SPACE			0.0	SPACE								1P	24
25	1P								SPACE	0.0			SPACE								1P	26
27	1P								SPACE		3.2		EV CHARGER SHOP					3.2			40/2	28
29	1P								SPACE			3.2						3.2				30
31	1P								SPACE	3.2			EV CHARGER ADA PARKING					3.2			40/2	32
33	1P								SPACE		3.2							3.2				34
35	1P								SPACE			3.2	EV CHARGER SITE					3.2			40/2	36
37	30/3								TVSS	3.2								3.2				38
39											3.2		EV CHARGER NVD					3.2			40/2	40
41												3.2						3.2				42
SUB-TTLS			3.6							10.0	12.0	11.9						27.2	3.1		SUB-TTLS	

TOTAL CONNECTED LOAD: 33.9 KVA
CALCULATED DEMAND LOAD: 33.9 KVA

POWERLINK LIGHTING PANEL

PANEL: LB — MAINS: 225 AMPS — MAIN LUGS ONLY

VOLTS-PHASE: 120/208V, 3PH, 4W — MOUNTING: SURFACE — ISCC RATING: SEE RISER

ACCESSORIES: 100% RATED NEUTRAL BUS, FACTORY-HINGED COVERS OVER VERTICAL WIREWAYS. PROVIDE EQUIPMENT GROUND BUS

POLE	CB RATING / AMPS	LTG	REC	HTG	CLG	MTR	MISC	DESCRIPTION	A	B	C	DESCRIPTION	MISC	MTR	CLG	HTG	REC	LTG	CB RATING / AMPS	POLE
1	20/1		0.6					RECEPTION RECEPT	1.1			UC REFRIG	0.5						20/1	2
3	20/1		0.4					RECEPTION MISC RECEPT		0.8		CAFÉ BACK CNTR					0.4		20/1	4
5	20/1		0.6					SHOWROOM FLR RECEPT			1.8	UC.C MICRO	1.2						20/1	6
7	20/1		0.8					SHOWROOM WORK TABLE	2.2			CUSTOMER LOUNGE					1.4		20/1	8
9	20/1		0.8					SALES MGR. RECEPT		2.2		MISC RECEPT					1.4		20/1	10
11	20/1		0.6					SALES MGR BK COUNTER			1.4	GEN OFFICE					0.8		20/1	12
13	20/1		0.6					F&I RECEPT	1.6			CASHIER COPIER					1.0		20/1	14
15	20/1		1.2					SALES OFFICE RECEPT		2.0		CASHIER WORK STATION					0.8		20/1	16
17	20/1		1.2					SALES OFFICE RECEPT			1.8	MISC RECEPT					0.6		20/1	18
19	20/1		1.0					NVD RECEPT	1.6			EDF					0.6		20/1	20
21	20/1		1.6					BDC COPIER		2.4		PARTS COUNTER					0.8		20/1	22
23	20/1		1.2					BDC CNTR			1.8	PARTS MISC RECEPOT					0.6		20/1	24
25	20/2		0.8					BDC WORK STATIONS (SHARED NEUTRAL)	1.2			ELEC RECEPT					0.4		20/1	26
27			0.8							1.4		MISC SHOP WALL RECEPT					0.6		20/1	28
29	20/1		0.4					SERVICE CNTR			0.8	TECH LOCKER LAV					0.4		20/1	30
31	20/1		0.8					SERVICE ADVISER	1.8			BREAK ROOM MISC					1.0		20/1	32
33	20/1		1.0					SERVICE COPIER		2.2		MICROWAVE IN CABINET	1.2						20/1	34
35	20/1		0.8					SERVICE MGR RECEPT			1.2	TECH BK RM CNTR					0.4		20/1	36
37	20/1		1.0					SERVICE DR MISC	1.5			VENDING	0.5						20/1	38
39	20/1					1.0		PARTS OHD		1.5		VENDING	0.5						20/1	40
41	20/1		0.4					PARTS RECEIVING DESK			0.7	REFRIG	0.3						20/1	42
43	20/1		0.6					MERCHANDISE	0.6			SPARE							20/1	44
45	20/1							SPARE		0.0		SPARE							20/1	46
47	20/1							SPARE			0.0	SPARE							20/1	48
49	20/1							SPARE	0.0			SPARE							20/1	50
51	60/2						3.0	OUTSIDE FUTURE CARWASH		3.4		IT RM RECEPT					0.4		20/1	52
53							3.0				3.4	IT RM RECEPT					0.4		20/1	54
SUB-TTLS			17.2			1.0	6.0		11.60	15.87	12.90		4.20				12.00		SUB-TTLS	

TOTAL CONNECTED LOAD: 40.4 KVA — #REF!
CALCULATED DEMAND LOAD: 28.3 KVA

PANEL: ML — MAINS: 225 AMPS — MAIN LUGS ONLY

VOLTS-PHASE: 120/208V, 3PH, 4W — MOUNTING: SURFACE — ISCC RATING: SEE RISER

ACCESSORIES: 100% RATED NEUTRAL BUS, FACTORY-HINGED COVERS OVER VERTICAL WIREWAYS. PROVIDE EQUIPMENT GROUND BUS

POLE	CB RATING / AMPS	LTG	REC	HTG	CLG	MTR	MISC	DESCRIPTION	A	B	C	DESCRIPTION	MISC	MTR	CLG	HTG	REC	LTG	CB RATING / AMPS	POLE
1	15/1					0.7		EF-C	2.4			AIR DRYER		1.7					20/1	2
3	15/1					1.2		EF-S1		2.3		COMPRESSED AIR DRYER		1.1					20/1	4
5	15/1					0.7		EF-S2			1.2	OIL MONITOR	0.5						20/1	6
7	15/1					0.7		EF-S3	1.2			COEF CPL	0.5						20/1	8
9	15/1					0.5		EF-T1		3.0		WH-1				2.5			30/1	10
11	15/1					0.5		EF-T2			3.0	WH-2				2.5			30/1	12
13	20/1						0.5	GUH-S1	0.5			SPACE							1P	14
15	20/1						0.1	IRH-D1/IRH-D2		0.1		SPACE							1P	16
17	20/1					0.4		DETAIL WALL FANS			0.4	SPACE							1P	18
19	20/1							SPARE	0.0			SPACE							1P	20
21	20/1							SPARE		0.0		SPACE							1P	22
23	20/1							SPARE			0.0	SPACE							1P	24
25	20/1							SPARE	0.0			SPACE							1P	26
27	20/1							SPARE		0.0		SPACE							1P	28
29	20/1							SPARE			0.0	SPACE							1P	30
31	25/2				1.1			CU-E/DS-E	2.2			CU-IT/DS-IT			1.1				25/2	32
33					1.1					2.2					1.1					34
35	25/2				1.4			HP-SD			2.5	HP-T			1.1				20/2	36
37					1.4				2.5						1.1					38
39	45/2			3.0		0.3		FCU-SD		5.5		FCU-T		0.3		1.9			30/2	40
41				3.0		0.3					5.5			0.3		1.9				42
SUB-TTLS				6.0	5.0	5.3	0.6		8.74	13.15	12.59		1.00	3.40	4.35	8.80			SUB-TTLS	

TOTAL CONNECTED LOAD: 34.5 KVA
CALCULATED DEMAND LOAD: 27.6 KVA

PANEL: LSA — MAINS: 225 AMPS — MAIN LUGS ONLY

VOLTS-PHASE: 120/208V, 3PH, 4W — MOUNTING: SURFACE — ISCC RATING: SEE RISER

ACCESSORIES: 100% RATED NEUTRAL BUS, FACTORY-HINGED COVERS OVER VERTICAL WIREWAYS. PROVIDE EQUIPMENT GROUND BUS

POLE	CB RATING / AMPS	LTG	REC	HTG	CLG	MTR	MISC	DESCRIPTION	A	B	C	DESCRIPTION	MISC	MTR	CLG	HTG	REC	LTG	CB RATING / AMPS	POLE
1	20/2					1.0		ABOVE GROUND LIFT	2.3			ALIGNMENT LIFT		1.3					30/2	2
3						1.0		DROP CORD W/NEMAL6-20R		2.3		DROP CORD W/NEMAL6-30R		1.3						4
5	20/2					1.0		ABOVE GROUND LIFT			2.2	ALIGMENT MACHINE	1.2						20/1	6
7						1.0		DROP CORD W/NEMAL6-20R	2.2			ALIGNMENT IMAGING	1.2						20/1	8
9	20/2					1.0		ABOVE GROUND LIFT		1.8		REEL LTS/OIL (GFCI BKR)					0.8		20/1	10
11						1.0		DROP CORD W/NEMAL6-20R			2.0	SHOP BENCH RECEPT					1.0		20/1	12
13	20/2					1.0		ABOVE GROUND LIFT	1.8			SHOP BENCH RECEPT					0.8		20/1	14
15						1.0		DROP CORD W/NEMAL6-20R		1.8		SHOP BENCH RECEPT					0.8		20/1	16
17	20/2					1.0		ABOVE GROUND LIFT			1.4	SHOP RECEPT					0.4		20/1	18
19						1.0		DROP CORD W/NEMAL6-20R	1.0			SPARE							20/1	20
21	20/1		0.6					DETAIL BAY RECEPT		0.6		SPARE							20/1	22
23	20/1		0.6					DETAIL BAY RECEPT			2.4	PARTS WASHER	1.8						20/1	24
25	20/1		0.6					STORAGE RECEPT	1.8			TIRE CHANGER	1.2						20/2	26
27	20/1							SPARE		1.2		(NEMA L6-20R)	1.2							28
29	20/1							SPARE			1.2	WHEEL BALANCER	1.2						20/2	30
31	20/1							SPARE	1.2			(NEMA L6-20R)	1.2							32
33	20/1							SPARE		1.0		FLOOR SCRUBBER	1.0						20/1	34
35	20/1						1.5	ALUNDRY WASHER			2.5	BRAKE LATHE	1.0						20/1	36
37	30/2						2.5	LAUNDRY DRYER (NEMA 15-30R)	3.8			HI-SPEED O.H.D.		1.3					20/3	38
39							2.5			3.8				1.3						40
41	20/1					1.0		SHOP 2NDARY OHD			2.2			1.3						42
SUB-TTLS			1.8			11.0	6.5		14.1	12.5	13.9		11.0	6.4			3.8		SUB-TTLS	

TOTAL CONNECTED LOAD: 40.5 KVA
CALCULATED DEMAND LOAD: 28.3 KVA

OWNER & MECHANICAL EQUIPMENT – ELECTRICAL CONNECTION SCHEDULE

ITEM NO.	DESCRIPTION	ELECTRICAL DATA VOLTS	Ø	HP	HEAT KVA	TOTAL KVA	FLA	CIRCUIT DESIGNATION	CKT. BKR. AMPS	POLE	CONDUCTOR	CONDUIT	DISCONNECT MEANS	SMK DET	REMARKS
1	AIR COMPRESSOR	460	3	2 @ 5.0	-	-	2 @ 7.6	MA-49/51/53	25	3	3#10 & 1#10G	3/4"C	NOTE 1	–	NOTE 1
2	COMPRESSED AIR DRYER	120	1	3/4	-	-	11.0	ML-2	20	1	2#12 & 1#12G	3/4"C	NEMA GF5-20R	–	–
3	RTU-1	460	3	-	-	-	8.9	MA-1/3/5	20	3	3#12 & 1#12G	3/4"C	FURNISHED W/ DIV 23 EQUIP	–	NOTE 3
4	RTU-2	460	3	-	-	-	8.9	MA-2/4/6	20	3	3#12 & 1#12G	3/4"C	FURNISHED W/ DIV 23 EQUIP	–	NOTE 3
5	RTU-3	460	3	-	-	-	8.9	MA-7/9/11	20	3	3#12 & 1#12G	3/4"C	FURNISHED W/ DIV 23 EQUIP	–	NOTE 3
6	RTU-P	460	3	-	-	-	8.9	MA-8/10/12	20	3	3#12 & 1#12G	3/4"C	FURNISHED W/ DIV 23 EQUIP	–	NOTE 3
7	RTU-S	460	3	-	-	-	26.7	MA-13/15/17	40	3	3#8 & 1#8G	3/4"C	FURNISHED W/ DIV 23 EQUIP	1	NOTE 3, 4
8	RTU-SR	460	3	-	-	-	26.7	MA-14/16/18	40	3	3#8 & 1#8G	3/4"C	FURNISHED W/ DIV 23 EQUIP	1	NOTE 3, 4
9	CU-E	208	1	-	-	-	10.32	ML-31/33	25	2	2#10 & 1#10G	3/4"C	30/2/3R/15AF	–	NOTE 3
10	DS-E	208	1	-	-	-	0.39	POWER FED THRU OUTDOOR, CU-E, CKT			2#12 & 1#12G	1/2"C	30/2/3R/10AF	–	NOTE 2
11	CP-E (COND PUMP)	120	1	-	-	-	-	EXTEND AND CONNECT TO NEAREST RECEPT CKT			2#12 & 1#12G	1/2"C	NEMA GF5-20R MOUNT NEAR UNIT		NOTE 6
12	CU-IT	208	1	-	-	-	10.32	ML-32/34	25	2	2#10 & 1#10G	3/4"C	30/2/3R/15AF	–	NOTE 3
13	DS-IT	208	1	-	-	-	0.39	POWER FED THRU OUTDOOR, CU-IT, CKT			2#12 & 1#12G	1/2"C	30/2/3R/10AF	–	NOTE 2
14	CP-IT (COND PUMP)	120	1	-	-	-	-	EXTEND AND CONNECT TO NEAREST RECEPT CKT			2#12 & 1#12G	1/2"C	NEMA GF5-20R MOUNT NEAR UNIT		NOTE 6
15	HP-SD	208	1	-	-	-	13.6	ML-35/37	25	2	2#8 & 1#10G	3/4"C	30/2/3R/NF	–	NOTE 3
16	FCU-SD	208	1	-	6.0	-	31.65	ML-39/41	45	2	2#6 & 1#8G	1"C	60/2/1/NF	–	–
17	CP-SD (COND PUMP)	120	1	-	-	-	-	EXTEND AND CONNECT TO NEAREST RECEPT CKT			2#12 & 1#12G	1/2"C	NEMA GF5-20R MOUNT NEAR UNIT		NOTE 6
18	HP-T	208	1	-	-	-	10.2	ML-36/38	20	2	2#10 & 1#10G	3/4"C	30/2/3R/NF	–	NOTE 3
19	FCU-T	208	1	-	3.8	-	21.07	ML-40/42	30	2	2#10 & 1#10G	3/4"C	30/2/1/NF	–	–
20	CP-T (COND PUMP)	120	1	-	-	-	-	EXTEND AND CONNECT TO NEAREST RECEPT CKT			2#12 & 1#12G	1/2"C	NEMA GF5-20R MOUNT NEAR UNIT		NOTE 6
21	VF-1	460	3	2.0	-	-	3.4	MA-19/21/23	15	3	3#12 & 1#12G	3/4"C	30/3/12/NF	–	NOTE 5
22	CF-S1	460	3	1.5	-	-	3.0	MA-25/27/29	15	3	3#12 & 1#12G	3/4"C	30/3/12/NF	–	NOTE 5
23	CF-SD	460	3	1.5	-	-	3.0	MA-31/33/35	15	3	3#12 & 1#12G	3/4"C	30/3/12/NF	–	NOTE 5
24	EF-C	120	1	1/4	-	-	5.8	ML-1	15	1	2#12 & 1#12G	3/4"C	20/1/12/MS	–	–
25	EF-S1	120	1	1/2	-	-	9.8	ML-3	15	1	2#12 & 1#12G	3/4"C	20/1/12/MS	–	–
26	EF-S2	120	1	1/4	-	-	5.8	ML-5	15	1	2#12 & 1#12G	3/4"C	20/1/12/MS	–	–
27	EF-S3	120	1	1/4	-	-	5.8	ML-7	15	1	2#12 & 1#12G	3/4"C	20/1/12/MS	–	–
28	EF-T1	120	1	1/6	-	-	4.4	ML-9	15	1	2#12 & 1#12G	3/4"C	20/1/12/MS	–	–
29	EF-T2	120	1	1/6	-	-	4.4	ML-11	15	1	2#12 & 1#12G	3/4"C	20/1/12/MS	–	–
30	EUH-C	277	1	-	3.3	-	11.9	MA-32	20	1	2#12 & 1#12G	3/4"C	20/1/12/MS	–	–
31	IH-SD	120	1	-	-	-	-	EXTEND AND CONNECT TO NEAREST RECEPT CKT			2#12 & 1#12G	1/2"C	20/1/12/MS	–	–
32	IH-T	120	1	-	-	-	-	EXTEND AND CONNECT TO NEAREST RECEPT CKT			2#12 & 1#12G	1/2"C	20/1/12/MS	–	–
33	GUH-S1	120	1	-	-	-	3.5	ML-13	15	1	2#12 & 1#12G	3/4"C	20/1/12/MS	–	–
34	IRH-D1	120	1	-	-	-	0.48	POWER FED THRU OUTDOOR, IRH-D2, CKT			2#12 & 1#12G	1/2"C	20/1/12/MS	–	–
35	IRH-D2	120	1	-	-	-	0.48	ML-15	15	1	2#12 & 1#12G	3/4"C	20/1/12/MS	–	–
36	WH-1	120	1	-	2.5	-	20.8	ML-10	30	1	2#12 $ 1#12G	3/4"C	30/2/12/NF	–	–
37	WH-2	120	1	-	2.5	-	20.8	ML-12	30	1	2#12 $ 1#12G	3/4"C	30/2/12/NF	–	–
38	EUROVAC	460	3	15	-	-	24.22	MA-20/22/24	30	3	3#10 & 1#10G	3/4"C	30/3/12/NF	–	NOTE 5
39	PRESURE WASHER	460	3	5.0	-	-	12.5	MA-26/28/30	20	3	3#12 & 1#12G	3/4"C	30/3/12/NF	–	NOTE 5
40	–	–	-	-	-	-	-	–	-	-	–	–	–	–	–
41	–	–	-	-	-	-	-	–	-	-	–	–	–	–	–
42	–	–	-	-	-	-	-	–	-	-	–	–	–	–	–
43	–	–	-	-	-	-	-	–	-	-	–	–	–	–	–
44	–	–	-	-	-	-	-	–	-	-	–	–	–	–	–
45	–	–	-	-	-	-	-	–	-	-	–	–	–	–	–
46	–	–	-	-	-	-	-	–	-	-	–	–	–	–	–
47	–	–	-	-	-	-	-	–	-	-	–	–	–	–	–
48	–	–	-	-	-	-	-	–	-	-	–	–	–	–	–
49	–	–	-	-	-	-	-	–	-	-	–	–	–	–	–
50	–	–	-	-	-	-	-	–	-	-	–	–	–	–	–

MECHANICAL EQUIPMENT REMARKS:

NOTE 1: THE ELECTRICAL CONTRACTOR SHALL PROVIDE A SINGLE FEEDER (3#10 &1#10G – 3/4"C) FROM 'MA' TO THE EQUIPMENT, PROVIDE (2) DISCONNECTS, FUSED @ 15AMP, NEMA 12, AND EXTEND FEEDER, 3#12 & 1#12G – 3/4" LIQUIDTIGHT FLEX, FROM INDIVIDUAL DISCONNECT TO EACH AIR COMPRESSOR.

NOTE 2: INDOOR WALL MOUNT UNIT POWER IS FED THRU OUTDOOR CONDENSING UNIT, PROVIDE SECONDARY DISCONNECT AS SCHEDULED.

NOTE 3: FIELD VERIFY ALL DISCONNECT REQUIREMENT. OUTDOOR EQUIPMENT, CONDENSING UNIT AND HEAT PUMP UNIT OCP SHALL BE HACR RATED.

NOTE 4: DUCT MOUNTED SMOKE DETECTOR IS REQUIRED TO BE FURNISHED BY THIS CONTRACTOR AND TO BE INSTALLED BY DIVISION 23 CONTRACTOR AND WIRED, SIGNAL MONITORED WITH FIRE ALARM SYSTEM UNDER DIVISION 26.

NOTE 5: CONTRACTOR SHALL COORDINATE AT FIELD WITH SHOP EQUIPMENT SUPPLIER FOR FINAL CONNECTION NEED.

NOTE 6: CONTRACTOR SHALL COORDINATE AT FIELD WITH MECHANICAL TRADE FOR POWER TO THE CONDENSATE PUMP INSTALL GFCI RECEPTACLE FOR PLUG-IN UNIT.

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SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 13371 PO WEI LU
David Lu SC PE# 13371

Signed & Sealed: 04/04/2016

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Rev	Date	Comments
-	03.10.16	Bid/ Permit
1	04.04.16	Permit Comment

Client:
William L. Grainger

P. O. Box 7267
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Project Number: 15221
Project Name:
Grainger Nissan

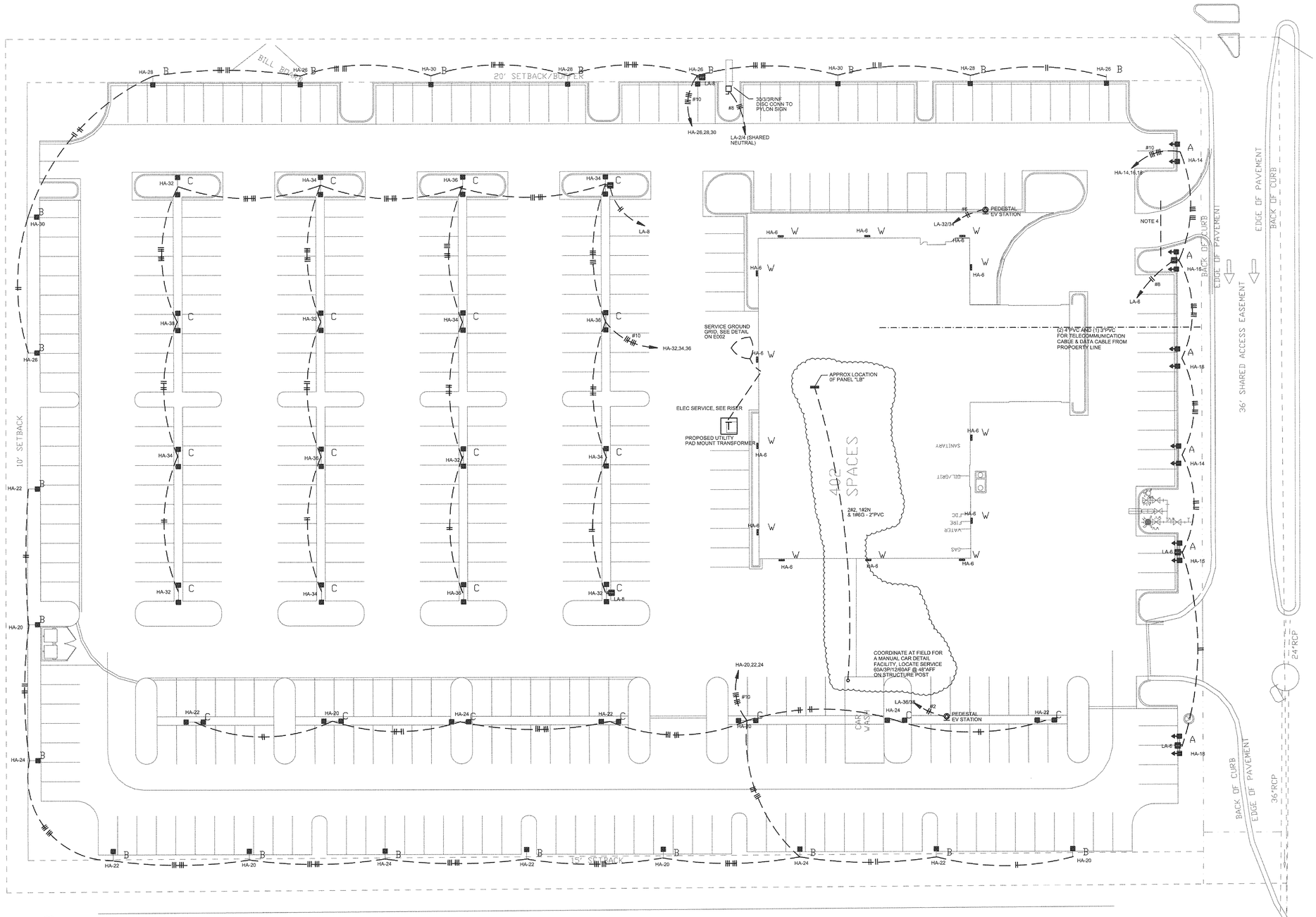
224 Robert Smalls Parkway,
Beaufort, SC 29906

Sheet Title:
Electrical Equipment Connection and Panel Schedules

Sheet Number:
E003

RELEASED FOR CONSTRUCTION AND PERMIT

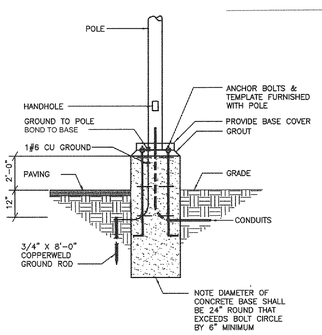
04/04/2016



1 / 101 ELECTRICAL SITE LIGHTING & UTILITITES

E

SCALE: 1" = 20'-0"



POLE BASE DETAIL

NOT TO SCALE

SEE STRUCTURAL DRAWING FOR DESIGN OF POLE BASE.

ELECTRICAL NOTES:

1. EXTEND ALL PARKING LOT LIGHTS TO PANEL AS NOTED WITH CONDUCTORS AS INDICATED IN MINIMUM 1" PVC. SEE PLAN FOR CIRCUIT INFORMATION. RACEWAY SIZES TO BE INCREASED TO CONFORM TO CODE WHEN MULTIPLE CIRCUIT WIRES ARE INSTALLED. WIRES SHALL BE DERATED PER 2014 NATIONAL ELECTRIC CODE.
2. EXTEND RIGID STEEL CONDUIT UP IN POLE AND MOUNT DUPLEX GROUND FAULT RECEPTACLE IN FLUSH MOUNTED OUTLET BOX. PROVIDE TAY-MAC #20510 WEATHERPROOF COVERPLATE AND MOUNT OUTLET ON POLE AT 42" A.F.G.
3. RECEPTACLE AND POWER (120V) CIRCUIT IS MARKED WITH "R". MINIMUM CIRCUIT WIRE TO BE #8.
4. (2) 2"PVC EMPTY RACEWAY TO BE INSTALLED 24" BELOW DRIVEWAY TO 24" EXTENDED BEYOND PAVEMENT OR CURB WITH PULL STRING INSDIE, CAPPED AND PROVIDE MARKER TAPE AT 12" BELOW GRADE ABOVE THE CONDUIT FROM END TO END.
5. HOMERUN CIRCUIT WIRES IDENTIFIED SHALL BE RUN WITH THE ENTIRE LENGTH OF CIRCUIT. REDUCE WIRE DOWN TO #10 WIRE BEFORE CONNECTING TO WIRING DEVICE, DISCONNECT OR CIRCUIT WIRES IN POLE.
6. THESE SITE LIGHTING POLE BASE SHALL ONLY BE 3" ABOVE GRADE FOR INSTALLATION AT DISPLAY PAD, SIDE WALK OR AT FRONT OF MAIN SALES BUILDING. INFORM OWNER LIGHTING FIXTURE AND POLE SUPPLIER THAT ALL SITE LIGHTING MUST BE AT UNIFORM HEIGHT EXCEPT TYPE "M" WALKWAY DECORATIVE POLE LIGHTS.
7. THESE SITE LIGHTING POLE BASE SHALL BE DPREAD TYPE FOOTING AS DETAILED ON STRUCTURAL DETAIL.

04/04/2016

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SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 13371 DAVID WEILU

David Lu
SC Reg. 13371

Signed & Sealed:04/04/2016

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Rev	Date	Comments
-	03.10.16	Bid/ Permit
1	04.04.16	Permit Comment

Client:
William L. Grainger

P. O. Box 7267
GARDEN CITY, GA 31408

Project Number: 15221
Project Name:
Grainger Nissan

224 Robert Smalls Parkway,
Beaufort, SC 29906

Sheet Title:
Electrical - Site Lighting & Utilities

Sheet Number:
E101

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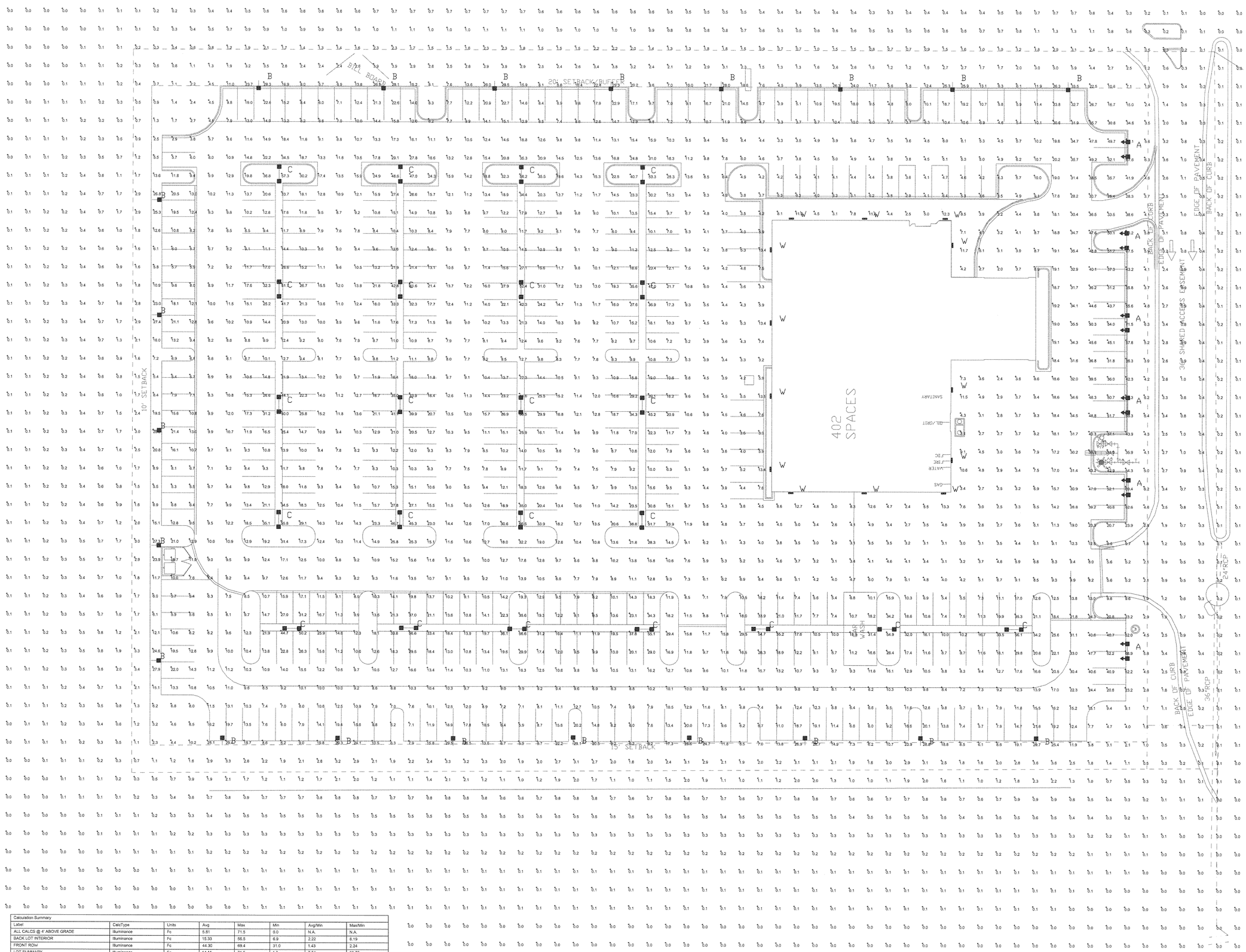

Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
ALL CALCS @ 4" ABOVE GRADE	Illuminance	Fc	5.81	71.5	0.0	N.A.	N.A.
BACK LOT INTERIOR	Illuminance	Fc	15.33	56.5	6.9	2.22	8.19
FRONT ROW	Illuminance	Fc	44.30	69.4	31.0	1.43	2.24
LOT SUMMARY	Illuminance	Fc	14.11	71.5	1.8	7.84	39.72
SIDE LOT	Illuminance	Fc	18.17	56.6	5.4	3.36	10.48

Luminaire Schedule								
Symbol	Qty	Label	Arrangement	Description	LLF	Lumens/Lamp	Arr. Lum. Lumens	Arr. Watts
	6	A	D180° 2RTD	XLCL-(1)FT-L-(1)FT-R-LED-HO-CW-HSS-24' MH	1.000	N.A.	96164	1093.4
	21	B	SINGLE	XLCM-FT-LED-HO-CW-SINGLE-24' MH	1.000	N.A.	30937	275.6
	23	C	D180°	XLCM-5-LED-HO-CW-D180-24' MH	1.000	N.A.	62284	552.8
	13	W	SINGLE	XLCW-FT-LED-HO-CW-UE-18' MH	1.000	N.A.	5113	56.1

E 1/102 **SITE LIGHTING PHOTOMETRIC**
SCALE: 1" = 20'-0"

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Client:
William L. Grainger

P. O. Box 7267
GARDEN CITY, GA 31408

Project Number: 15221
Project Name:
Grainger Nissan

224 Robert Smalls Parkway,
Beaufort, SC 29906

Sheet Title:
Site Lighting Photometric

Sheet Number:
E102

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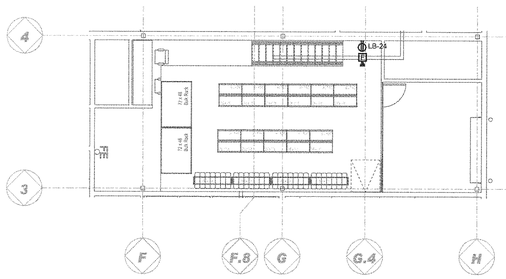
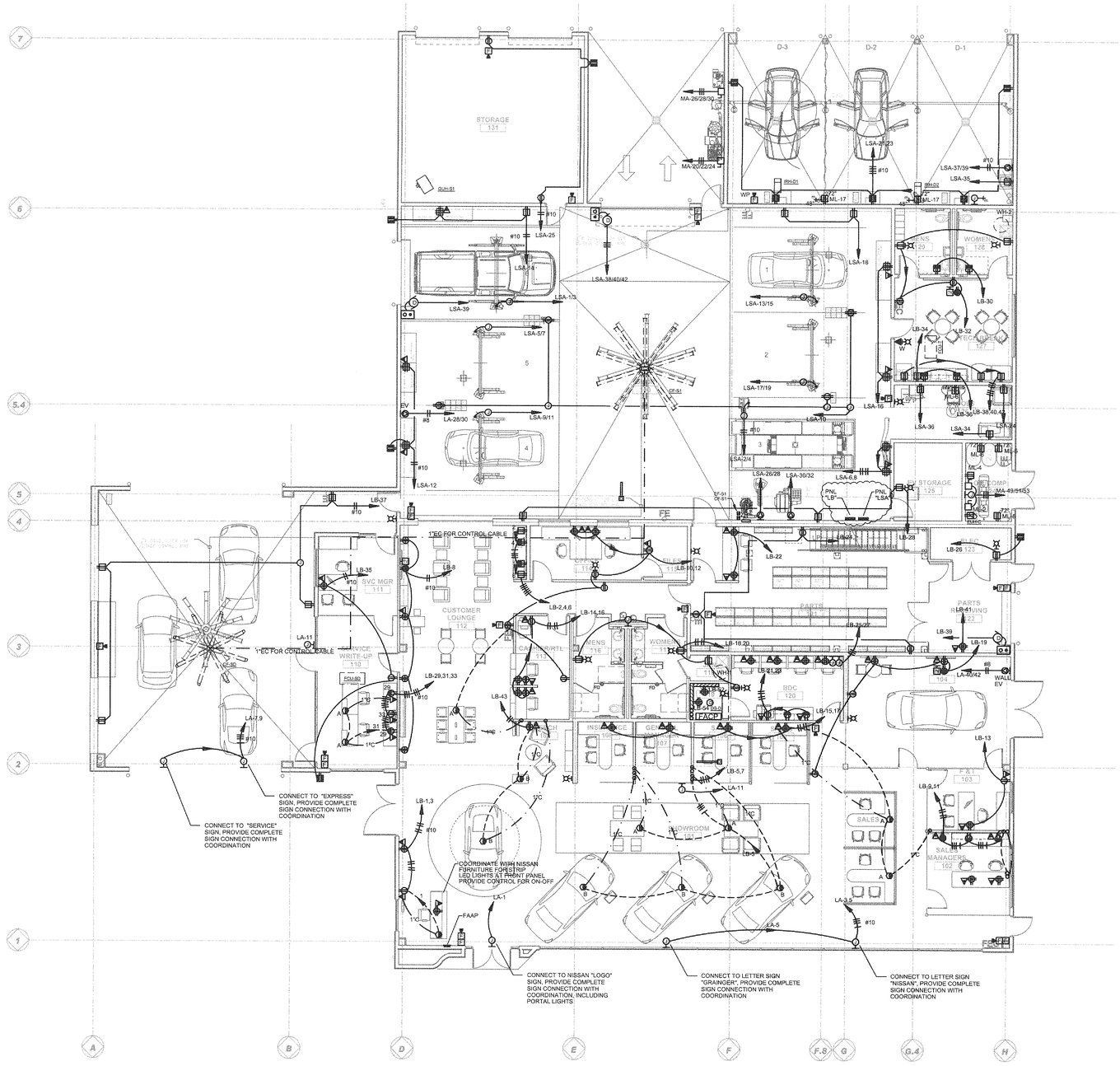


2 / E 201 **MEZZ FLOOR - ELECTRICAL**
SCALE: 1/8" = 1'-0"



1 / E 201 **FLOOR PLAN - ELECTRICAL**
SCALE: 1/8" = 1'-0"

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Client:
William L. Grainger

P. O. Box 7267
GARDEN CITY, GA 31408

Project Number: 15221
Project Name:
Grainger Nissan

224 Robert Smalls Parkway,
Beaufort, SC 29906

Sheet Title:
Floor Plan - Electrical

Sheet Number:
E201

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ROOF - ELECTRICAL

E 1/203 SCALE: 1/8" = 1'-0"

ELECTRICAL NOTES:

1. CONTRACTOR SHALL REFER TO MECHANICAL EQUIPMENT SCHEDULE LOCATED ON DRAWING E003 FOR MECHANICAL EQUIPMENT CONNECTION REQUIREMENT. NEW ROOF TOP EQUIPMENT IS EQUIPPED WITH MAINTENANCE RECEPTACLE, FACTORY INSTALLED AND POWERED THROUGH TRANSFORMER FURNISHED AND INSTALLED PRIOR TO UNIT DISCONNECT.

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Doug L. Wells SC Reg. 13371

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Client:
William L. Grainger

P. O. Box 7267
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Project Number: 15221
Project Name:
Grainger Nissan

224 Robert Smalls Parkway,
Beaufort, SC 29906

Sheet Title:
Roof - Electrical

Sheet Number:
E203

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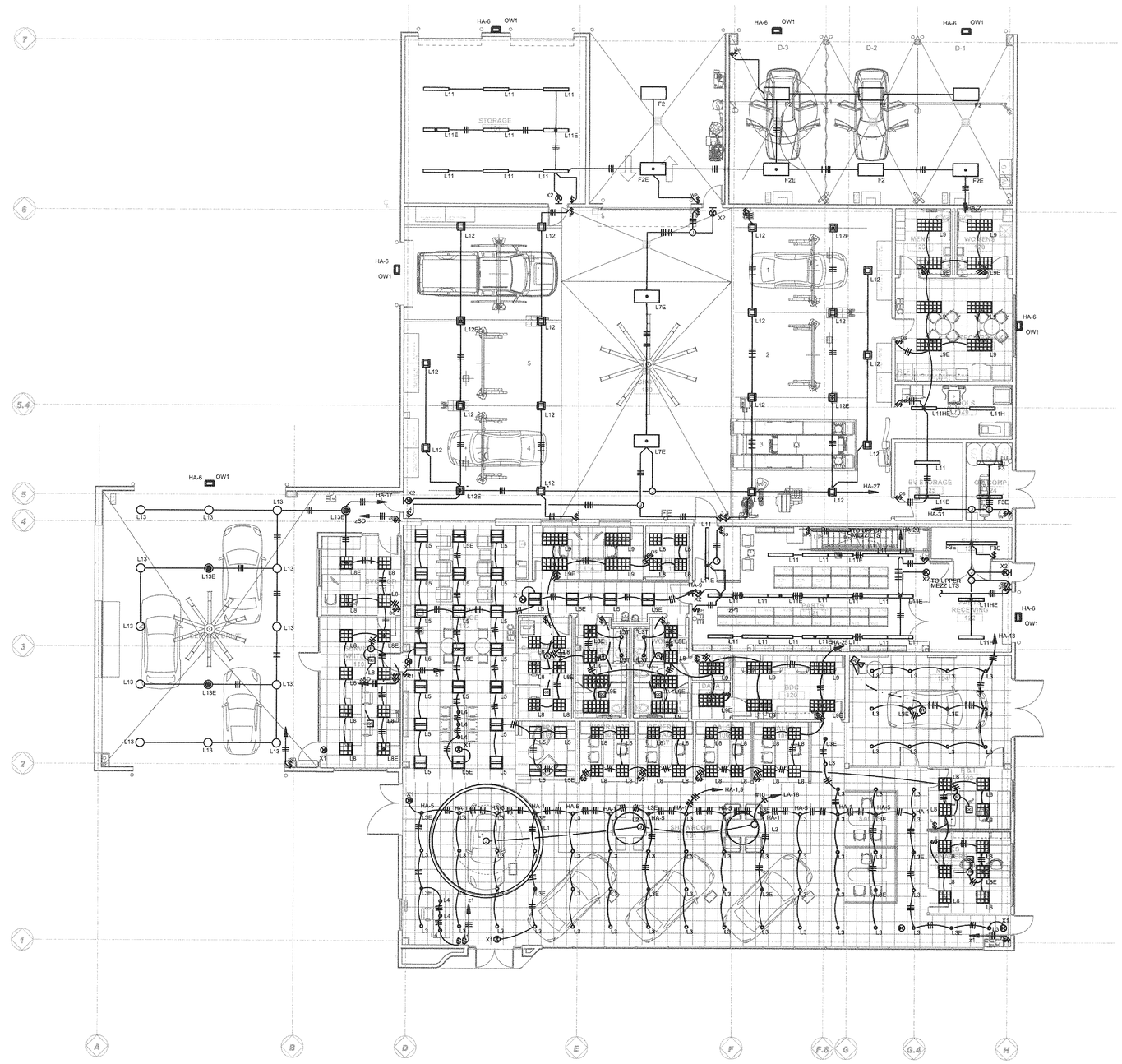
2 / 301 E **MEZZANINE FLOOR - ELECTRICAL LIGHTING**
SCALE: 1/8" = 1'-0"



1 / 301 E **FLOOR PLAN - ELECTRICAL LIGHTING**
SCALE: 1/8" = 1'-0"

DRAWING NOTES:

1. REFER TO PANEL "HA" SCHEDULE ZONE CONTROL FOR ALL CIRCUITS TO BE CONTROLLED BY THE LOW VOLTAGE ZONE SWITCH, "z1".
2. UNLESS NOTED OTHERWISE, ALL EMERGENCY BATTERY (OR INVERTER) BACKUP FIXTURES ARE TO BE ALSO SERVED AS NIGHT LIGHTS ON 24 HOUR OPERATION.

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Client:
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Project Number: 15221
Project Name:
Grainger Nissan

224 Robert Smalls Parkway,
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Sheet Title:
Floor Plan - Electrical Lighting

Sheet Number:
E301

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