569-20-000652-PLNG

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Planning Department
231 NE Fifth Street ○ McMinnville, OR 97128
(503) 434-7311 Office ○ (503) 474-4955 Fax
www.mcminnvilleoregon.gov

Three Mile Lane Development Review

Applicant Information

Applicant is: ☐ Property Owner ☐ Contract Buyer ☐ Option Holder ☐ Agent ☐ Other

Applicant Name ALEXANDER TAAM Phone 425-559-2773

Contact Name Phone
(If different than above)

Address 929 108TH AVE NE

City, State, Zip BELLEVUE, WA 98004

Contact Email ATAAM@FREIHEITARCH.COM

Property Owner Information

Property Owner Name MCDONALDS COPORATION Phone
(If different than above)

Contact Name ALBERT PALACIOS Phone 312-485-7551

Address 2999 OAK ROAD STE 900

City, State, Zip WALNUT CREEK, CA 98004

Contact Email albert.palacios@us.mcd.com

Site Location and Description

(If metes and bounds description, indicate on separate sheet)

Property Address 225 NE NORTON LN

Assessor Map No. R4422CD01602 - Total Site Area

Subdivision Block Lot

Comprehensive Plan Designation Zoning Designation C-3

Describe the project in detail and how it will be consistent with the applicable requirements of the Three Mile Lane Planned Development Overlay ordinances (Nos. 4131 and 4572 and associated design standards). Please note the architectural features and materials to be used. *(Attach additional pages if necessary).*

In addition to this completed application, the applicant must provide two (2) copies of the following:

- ☐ *For new construction or for structural modifications, a site plan (drawn to scale, with a north arrow, legible, and of a reproducible size), indicating the existing site conditions including topography, structures, utilities, vegetation, and access.*
- ☐ *Relevant building and construction drawings, including building elevations of all sides visible from a public street, and proposed signage and landscaping.*
- ☐ *A narrative describing the architectural features that will be used in the building's design, including materials and colors.*
- ☐ *Other information deemed necessary to show consistency with the requirements of the Three Mile Lane planned development ordinances and/or required by the Planning Director.*

I certify that statements contained herein, along with the evidence submitted, are in all respects true and are correct to the best of my knowledge and belief.

Applicant's Signature _____ Date _____

Property Owner's Signature _____ Date _____

FREIHEIT
ARCHITECTURE

425.827.210
freiheitarch.com

929 108th Avenue NE Suite 210
Bellevue, WA 98004

August 10, 2020

17-500 McMinnville
Planning Department

225 NE E Norton Ln
McMinnville OR
503-434-7311

Project Narrative
McDonald's Restaurant Revision for the 3 Mile Lane Design Review:

The owner has elected to revise the drive-thru to add a second lane. To support this addition, we need to reconfigure the drive-thru lane layout. We are proposing new signage for the addition of the second drive-thru lane, which includes relocating the gateway, adding a small directional sign, a second pre-browse board, a second order-ready canopy, and a second menu board.

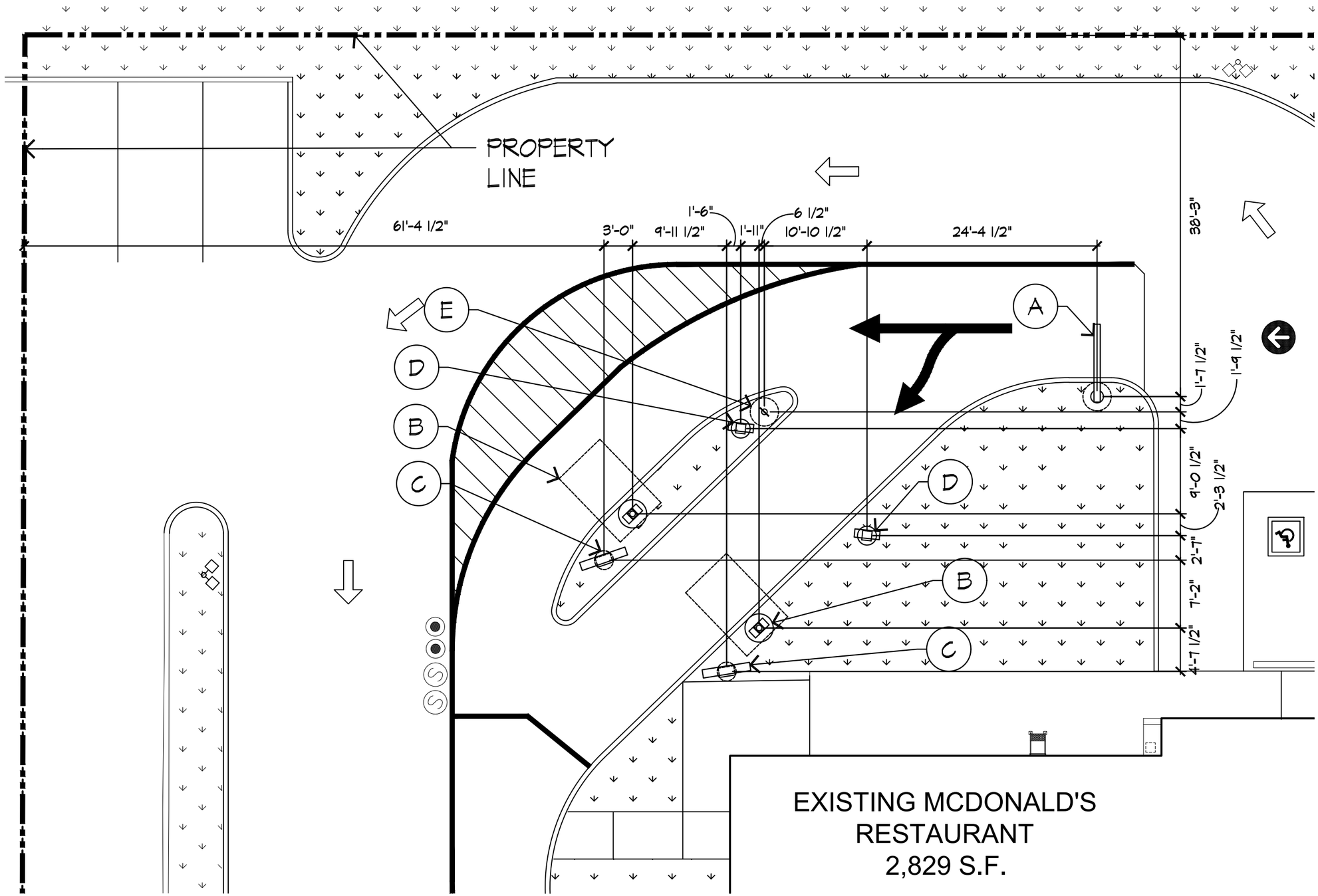
Since we had to reconfigure the drive- thru the trash corral has been relocated away from the building to make sure the site circulation still works. Due to the proposed location, per section 17.61 of the MMC, we will be providing landscaping 3' tall around three sides of the structure as well as the required space needed for a garbage truck to approach the trash enclosure.

Per section 17.60 of the MMC it requires us to have one space per 200 square feet of floor area. Since the buildings square footage is 2,829 sqft we would need a minimum of 14 stalls. We are currently proposing 26 with the new site configuration.

Revisions are clouded noted by delta 2 dated 6.1.2020
Enclosed with this submittal please find the revised plans and additional reports and documents regarding these revisions.

SIGN KEY:

- (A) "WELCOME" GATEWAY SIGN (1 NEW)
- (B) CUSTOMER ORDER CANOPY (2 NEW)
- (C) DIGITAL MENU BOARD (2 NEW)
- (D) PRE-BROWSE BOARD (2 NEW)
- (E) "ANY LANE, ANY TIME" SIGN (1 NEW)



SIGN LOCATION SKETCH (PROP. LINE)

SCALE: 1" = 30'

0' 30' 45' 60'

MCDONALD'S #36-0160 MCMINNVILLE

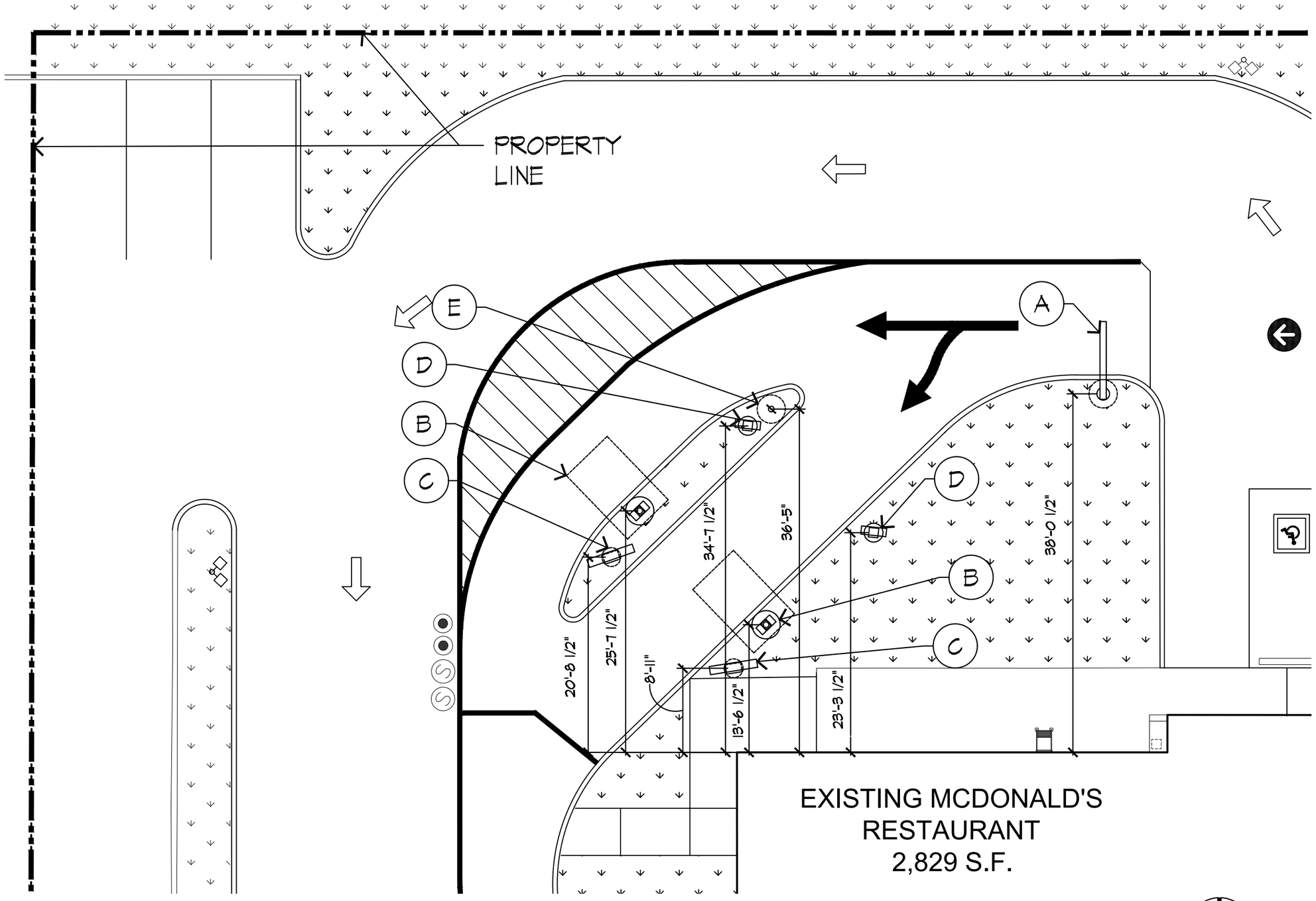
PRELIMINARY BRAND REVIEW | 225 NE NORTON LN MCMINNVILLE, OR | 07.18.2018

FREIHEIT ARCHITECTURE

A17-500

SIGN KEY:

- (A) "WELCOME" GATEWAY SIGN (1 NEW)
- (B) CUSTOMER ORDER CANOPY (2 NEW)
- (C) DIGITAL MENU BOARD (2 NEW)
- (D) PRE-BROWSE BOARD (2 NEW)
- (E) "ANY LANE, ANY TIME" SIGN (1 NEW)



SIGN LOCATION SKETCH (BUILDING)

SCALE: 1" = 30'

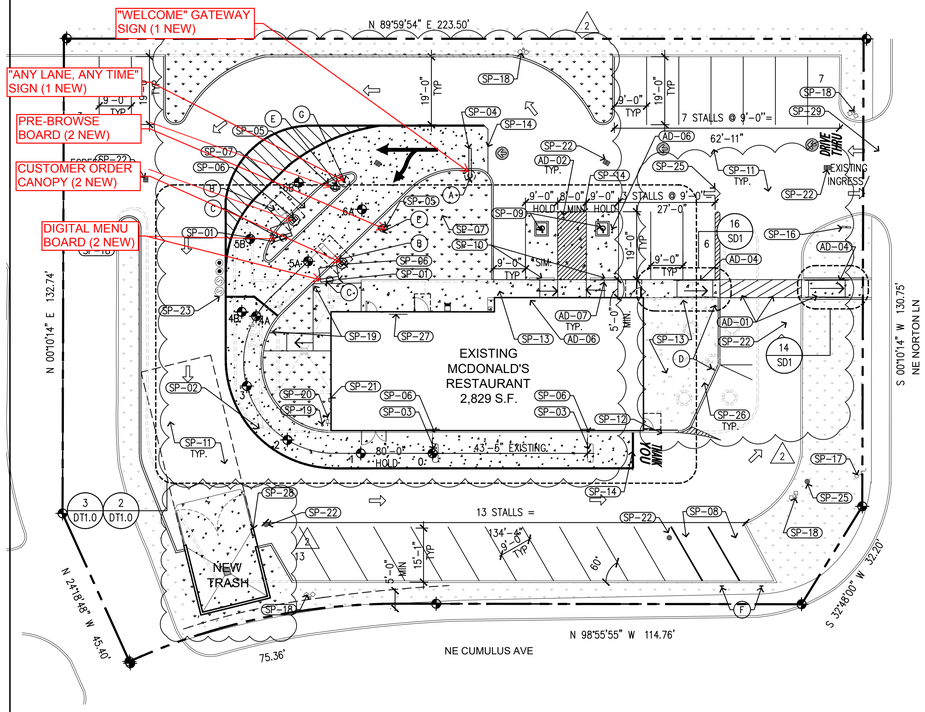
MCDONALD'S #36-0160 MCMINNVILLE

PRELIMINARY BRAND REVIEW | 225 NE NORTON LN MCMINNVILLE, OR | 07.18.2018

FREIHEIT ARCHITECTURE

A17-500

Recieved 12/21/2020



SITE PLAN

SCALE: 1"= 20'-0"
0 5 10 20 40FT.

PROJECT DATA

SITE AREA: 0.81 ACRE

EXISTING PARKING: 49 STALLS

PARKING REQUIRED: 1 PER 4 SEATS, OR 1 PER 100 SF OF DINING AREA, WHICHEVER IS GREATER= 16 STALLS (BASED ON 846 SF DINING AREA)

PARKING PROVIDED: 49 STALLS

ACCESSIBLE REQUIRED: 2 STALLS (BASED ON 49 PROVIDED)

ACCESSIBLE PROVIDED: 2 STALLS

ZONING: C3 COMMERCIAL

BUILDING AREA: 2,829 SQ. FT.

OCCUPANCY : A-2 (EXISTING)

TYPE OF CONSTRUCTION: V-B (EXISTING)

SITE PLAN KEYNOTES

(SP-01) REMOVE EXISTING & INSTALL (1) NEW DIGITAL MENU BOARD AS SHOWN. SEE DETAIL 2/DT1.0 FOR EXACT LOCATION AND 10/DT1.1. LOCATE EXISTING UTILITIES PRIOR TO EXCAVATING FOOTING.

(SP-02) REMOVE EXISTING CUSTOMER ORDER DISPLAY & INSTALL (1) CUSTOMER ORDER CANOPY AS SHOWN PER DETAIL 6/DT1.2. SEE DETAIL 2/DT1.0 FOR EXACT LOCATION. LOCATE EXISTING UTILITIES PRIOR TO EXCAVATING FOOTING.

(SP-03) INSTALL NEW VEHICLE DETECTOR LOOP AT NEW ORDER POINT PER 2/DT1.0. (OPTIONAL AT DRIVE THRU BOOTH) PATCH & REPAIR CONCRETE PAD AT DRIVE-THRU AS NECESSARY. SEE 18/DT1.1 & 20 DT1.1.

(SP-04) REMOVE EXISTING & INSTALL NEW GATEWAY SIGN PACKAGE AS SHOWN. COORDINATE LOCATION WITH McDONALD'S CONSTRUCTION MANAGER TO ENSURE BEST VISIBILITY FROM SITE ENTRANCE. SEE DETAIL 8/DT1.2 FOR MORE INFO. LOCATE UNDERGROUND UTILITIES PRIOR TO EXCAVATION.

(SP-05) REMOVE EXISTING & INSTALL NEW PRE-BROWSE MENU BOARD PER DETAIL 12/DT1.1. VERIFY LOCATION WITH McDONALD'S CONSTRUCTION MANAGER & DETAIL 2/DT1.0.

(SP-06) INSTALL SPEECH/HEARING IMPAIRED SIGNAGE ON THE DRIVE-THRU C.O.D. & EACH DRIVE-THRU SERVICE WINDOW. SEE DETAILS 7/SD1 & 9/A4.4. PICTURE MENU, CLIPBOARD AND PENCILS ARE TO BE PROVIDED AT EACH DRIVE-THRU WINDOW.

(SP-07) PATCH AND REPAIR EXISTING LANDSCAPE AS NECESSARY TO ACCOMMODATE DEMOLITION AND NEW CONSTRUCTION. NEW LANDSCAPING TO MATCH EXISTING ADJACENT. ENSURE PLANTINGS DO NOT INHIBIT VIEW TO DRIVE THRU SIGNS.

(SP-08) DESIGNATED PULL FORWARD PARKING STALLS & SIGNAGE PER McDONALD'S STANDARDS. EXISTING SIGNS TO REMAIN; PROTECT FROM DAMAGE. RESTRIPE STALLS TO BE (2) COATS TRAFFIC YELLOW.

(SP-09) REMOVE EXISTING ASPHALT PAVING FOR INSTALLATION OF NEW CONCRETE PAD AT ACCESSIBLE PARKING STALLS, ACCESS AISLE & CROSSWALK. COORDINATE WITH (AD-01) & (AD-02) FOR REQUIRED SLOPES. ENSURE FLUSH TRANSITION TO ADJACENT ASPHALT.

(SP-10) INSTALL CONCRETE WHEELSTOPS AT LOCATIONS SHOWN. SEE DETAIL 12/SD1.

(SP-11) PATCH AND REPAIR EXISTING ASPHALT PAVING FOR INSTALLATION OF NEW CONSTRUCTION SEAL COAT ALL ASPHALT WITH NEW ASPHALTIC LAYER. STRIPE PARKING STALLS AND SYMBOLS AS SHOWN. PAINTS TO BE TRAFFIC WHITE (2 COATS) AT PARKING AND TRAFFIC YELLOW (2 COATS) AT DRIVE-THRU. SEE DETAIL 1/SD1, 2/SD1, & 3/SD1.

(SP-12) REMOVE EXISTING GUARDRAIL FOR INSTALL OF NEW CONSTRUCTION. REINSTALL PER DETAIL 10/SD1. VERIFY REUSE WITH McDONALD'S CONSTRUCTION MANAGER INSTALL PER McDONALD'S SPECIFICATIONS. FINISH PER ELEVATIONS. ENSURE 18" CLEAR PROVIDED AT DOOR LATCH.

(SP-13) APPROXIMATE LINE OF NEW CONCRETE WORK TO EXISTING CONCRETE TO REMAIN.

(SP-14) APPROXIMATE LINE OF CONCRETE PAD TO ASPHALT TRANSITION.

(SP-15) NOT USED.

(SP-16) EXISTING DIRECTIONAL SIGN TO REMAIN. PROTECT FROM DAMAGE.

(SP-17) EXISTING FLAG POLE TO REMAIN. VERIFY IF LIGHT FOR FLAG POLE IS MOUNTED TO BUILDING. IF EXISTS, REMOVE & REINSTALL TO ACCOMMODATE NEW CONSTRUCTION.

(SP-18) EXISTING LOT LIGHTING TO REMAIN.

(SP-19) EXISTING BOLLARDS, PROTECT FROM DAMAGE. FINISH PER ELEVATIONS.

(SP-20) EXISTING GAS METER ASSEMBLY TO REMAIN; PROTECT FROM DAMAGE.

(SP-21) EXISTING ELECTRICAL METER ASSEMBLY TO REMAIN; PROTECT FROM DAMAGE.

(SP-22) EXISTING CATCH BASIN TO REMAIN.

(SP-23) RELOCATE EXISTING GREASE INTERCEPTOR TO LOCATION SHOWN; PROTECT FROM DAMAGE. REFER TO CIVIL FOR ADDITIONAL INFORMATION

(SP-24) NOT USED.

(SP-25) EXISTING MANHOLE TO REMAIN.

(SP-26) REMOVE EXISTING EXTERIOR SEATING & INSTALL NEW SEATING PACKAGE BY OWNER THAT PROVIDES 5% MIN ACCESSIBLE SEATS. LOCATE ACCESSIBLE SEATS ON 36" MIN WIDE ACCESSIBLE ROUTE & MARK WITH INTERNATIONAL SYMBOL OF ACCESSIBILITY. PROVIDE 30" WIDE X 19" DEEP X 27" AFF MIN KNEE SPACE & 30" WIDE X 48" DEEP MIN CLEAR FLOOR SPACE AT EACH ACCESSIBLE SEAT. ENSURE 34" AFF MAX TABLE HEIGHT. DISPERSE ACCESSIBLE SEATS AMONG VARIOUS TABLE TYPES & SIZES. PATCH & REPAIR EXISTING CONCRETE PATIO AS NECESSARY & ENSURE MAX 1.5% SLOPE IN ALL DIRECTIONS AT SEATING AREA; REPLACE PATIO AS NECESSARY TO ENSURE SLOPE REQUIREMENTS. PROTECT EXISTING PLANTERS FROM DAMAGE.

(SP-27) EXISTING BIKE RACK TO REMAIN; PROTECT FROM DAMAGE.

(SP-28) NEW TRASH CORRAL AT LOCATION SHOWN. SEE SHEETS T1.0 &T1.1 FOR MORE INFORMATION. PAINT TRASH ENCLOSURE GATES TO MATCH BASE BUILDING COLOR PER ELEVATION SHEETS A2.0 & A2.1

(SP-29) NEW FRONTAGE IMPROVEMENTS PER CIVIL DRAWINGS.

ADA SITE PLAN KEYNOTES

(AD-01) REMOVE EXISTING & INSTALL NEW BROOM-FINISH, SLIP-RESISTANT CONCRETE AS SHOWN. PROVIDE 5% MAX SLOPE IN DIRECTION OF TRAVEL & 1.5% MAX CROSS SLOPE AT CROSSWALK; REGRADE PARKING LOT AND SEALCOAT AS NECESSARY. PROVIDE APPROPRIATE GRADED NON-ABRUPT TRANSITION TO ADJACENT PARKING LOT. ENSURE THERE IS NO CHANGE OF LEVEL GREATER THAN 1/4" OR 1/2" WITH BEVEL.

(AD-02) RELOCATE & RESTRIPE EXISTING BARRIER-FREE ACCESSIBLE STALLS (TYP. OF 2) AS SHOWN, WITH ACCESS AISLE BETWEEN STALLS. WIDTH OF STALLS AND ACCESS AISLE TO BE MEASURED FROM CENTER OF STRIPING. ENSURE ALL SLOPES AT NEW PARKING STALLS AND ACCESS AISLE DO NOT EXCEED 1.5% IN ALL DIRECTIONS; REGRADE PARKING LOT AND SEALCOAT AS NECESSARY. PROVIDE APPROPRIATE GRADED NON-ABRUPT TRANSITION TO ADJACENT PARKING STALLS. PAINT ACCESSIBLE SYMBOL AT STALLS PER 4/SD1. ENSURE EXISTING ACCESSIBLE PARKING STALL SIGNS ARE MOUNTED AT EACH STALL WITH BOTTOM OF THE LOWEST SIGN AT 60" MIN. ABOVE ADJACENT PARKING SURFACE (TYP. OF 2) PER DETAIL 6/SD1. INSTALL NEW "VAN ACCESSIBLE" SIGN TO BE LOCATED AT STALL WITH PASSENGER SIDE ADJACENT TO 96" MIN WIDE ACCESS AISLE.

(AD-03) REMEDIATION OCCURS IN (AD-02)

(AD-04) REMOVE EXISTING CURB RAMP & SIDEWALK & INSTALL NEW BROOM-FINISH, SLIP-RESISTANT CONCRETE PEDESTRIAN RAMP AS SHOWN. PROVIDE 8% MAX SLOPE IN DIRECTION OF TRAVEL & 1.5% MAX CROSS SLOPE. PROVIDE 5' DEEP X FULL RAMP WIDTH TOP & BOTTOM LANDINGS WITH 1.5% SLOPE IN ALL DIRECTIONS. PROVIDE EDGE PROTECTION & HANDRAILS AT EACH SIDE OF RAMP. HANDRAILS TO BE 34"-38" ABOVE RAMP SURFACE & EXTEND 12" MIN BEYOND TOP & BOTTOM OF RAMP; SEE DETAIL 15/SD1.

(AD-05) REMEDIATION OCCURS IN (AD-04)

(AD-06) REMOVE EXISTING CURB RAMP & CONCRETE SIDEWALKS & PROVIDE NEW SLIP RESISTANT, CONCRETE IN-LINE CURB RAMP AS SHOWN & PER DETAIL 9/SD1. SLOPE IN DIRECTION OF TRAVEL TO BE 8% MAX WITH 1.5% MAX CROSS SLOPE. PROVIDE 5'-0" MIN DEEP X FULL RAMP WIDTH TOP & BOTTOM LANDINGS WITH 1.5% MAX SLOPE IN ALL DIRECTIONS. ENSURE TOP AND BOTTOM TRANSITIONS ARE FLUSH WITH 1/4" MAX CHANGE IN LEVEL OR 1/2" WITH BEVEL. PROVIDE 5% MAX GUTTER PAN SLOPE.

(AD-07) REMOVE EXISTING SIDEWALK TO EXTENT SHOWN & INSTALL NEW WITH A SLIP RESISTANT BROOM FINISH. ENSURE 5'-0" MIN WIDTH AT SIDEWALK ON NON-DRIVE THRU SIDE OF BUILDING, AT EXTERIOR ENTRY DOOR. PROVIDE MAX 5% SLOPE IN DIRECTION OF TRAVEL & 1.5% MAX CROSS SLOPE. PROVIDE 5'X5' LANDING WITH MAX 1.5% SLOPE IN ALL DIRECTIONS AT EACH DOOR & CHANGE OF DIRECTION. ENSURE THERE IS NO CHANGE OF LEVEL OR THRESHOLD GREATER THAN 1/4" OR 1/2" WITH BEVEL. SEE DETAILS 8/SD1 & 11/SD1. REMOVE & REPLACE CONCRETE CURBS ALONG AREA OF NEW WORK. FLOAT ASPHALT AT AREAS OF PARKING LOT ADJACENT TO NEW CURBS AS NECESSARY TO MAINTAIN TYPICAL 6" MAX CURB. PROVIDE APPROPRIATE GRADED NON-ABRUPT TRANSITION TO EXISITNG ASPHALT PARKING LOT. EXTENT SHOWN IS ASSUMED MIN WORK FOR ACCESSIBILITY COMPLIANCE. GC TO VERIFY WITH EXISTING CONDITIONS & CONFIRM EXTENT OF WORK WITH MCDONALD'S CONSTRUCTION MANAGER.

(AD-08) REMEDIATION OCCURS IN (AD-04)

(AD-09) SEE FLOOR PLAN.

(AD-10) REMEDIATION OCCURS IN (SP-06)

(AD-11) SEE FLOOR PLAN.

(AD-12) REMEDIATION OCCURS IN (AD-07)

(AD-13) THRU (AD-18) SEE FLOOR PLAN.

(AD-19) REMEDIATION OCCURS IN (SP-26)

SIGN LEGEND

(A) "WELCOME" GATEWAY SIGN (1 NEW)
(B) CUSTOMER ORDER CANOPY (1 NEW)
(C) DIGITAL MENU BOARD (1 NEW)
(D) PULL FORWARD STALL SIGNS (2 EXISTING)
(E) PRE-BROWSE BOARD (1 NEW)
(F) MOBILE PICKUP STALL SIGNS (2 EXISTING)
(G) "ANY LANE, ANY TIME" SIGN (1 NEW)

LEGEND

- EXISTING CONCRETE CURBING TO REMAIN/ REPAIR
- NEW CONCRETE CURBING
- EXISTING CONSTRUCTION TO BE DEMOLISHED
- NEW STRIPING
- EXISTING LANDSCAPING TO REMAIN
- NEW LANDSCAPING
- EXISTING CONCRETE TO REMAIN
- NEW CONCRETE
- EXISTING LOT LIGHT

GENERAL NOTES

1. PROPOSED UTILITIES ARE SHOWN IN SCHEMATIC ONLY. EXACT LOCATIONS SHALL BE DETERMINED TO ALLOW FOR THE MOST ECONOMICAL INSTALLATION.
2. THE CONTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES TO DETERMINE EXACT POINT OF SERVICE CONNECTION AT EXISTING UTILITY. REFER TO THE BUILDING ELECTRICAL AND PLUMBING DRAWINGS FOR UTILITY SERVICE ENTRANCE LOCATIONS, SIZES, AND CIRCUITING.
3. FINISH WALK AND CURB ELEVATIONS SHALL BE 6" ABOVE FINISH PAVEMENT.

PAVING SPECIFICATION

(MINIMUM 3" TOTAL COMPACTED ASPHALT THICKNESS)

NOTE: McDONALD'S ENGINEER RESERVES THE RIGHT TO REQUEST A COMPACTION TEST AND/OR A CORE SAMPLE. IF TESTS PROVE CORRECT, PER ABOVE SPECIFICATION, TESTS WILL BE AT THE EXPENSE OF McDONALD'S. OTHERWISE, G.C. WILL BE CHARGED.

LOT LIGHTING RECOMMENDATION

EXISTING LOT LIGHTS TO REMAIN. VERIFY WITH McDONALD'S CONSTRUCTION MANAGER IF CLEAN/RELAMP OR NO WORK DURING THIS PROJECT.

PARKING INFORMATION

TOTAL SPACES		
29	14	9'-0" X 19'-0" SPACES @ 90°
	13	9'-0" X 15'-1" SPACES @ 60°
	2	ADA 9'-0" X 19'-0" SPACES @ 90°

UTILITY INFORMATION

	SIZE	TYPE	LOCATION
SANITARY SEWER	EXISTING		
WATER	EXISTING		
STORM SEWER	EXISTING		
ELECTRIC	EXISTING		
GAS	EXISTING		

SURVEY INFORMATION

PLAN SCALE: 1" = 20'

STREET ADDRESS
225 NE NORTON LN

CITY: MCMINNVILLE
STATE: OR
COUNTY: YAMHILL

REGIONAL DWG. NO: 36-0160
CORPORATE DWG. NO.: 12714

REV	DATE	DESCRIPTION	BY
–	8/28/2018	LEGAL CLEARANCE	FHA
–	PERMIT SUBMITAL		FHA
1	06/06/2019	DOT & CITY FRONTAGE	FHA
2	6/1/2020	SB5 DRIVE THRU AND KITCHEN OWNER REVISION	FHA

PREPARED BY:
FREIHEIT ARCHITECTURE

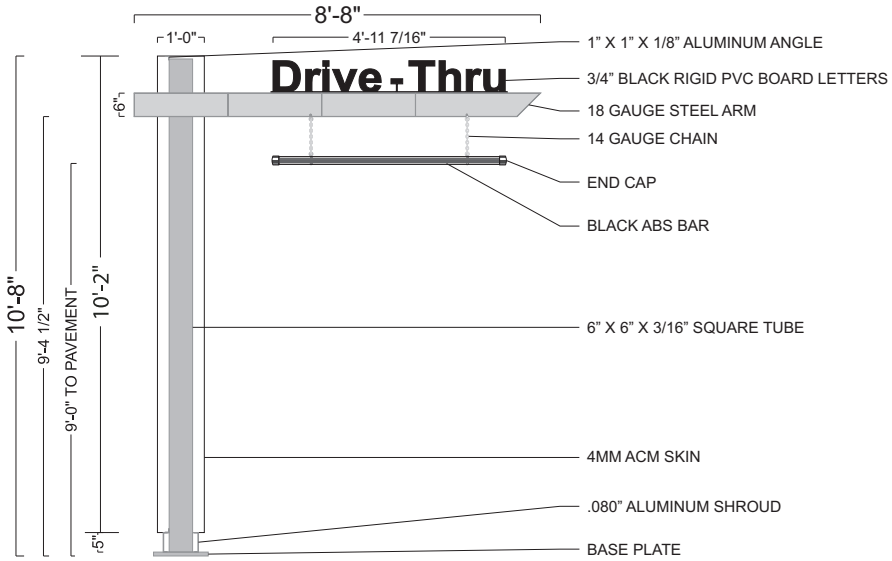
PREPARED FOR:
McDonald's USA, LLC

DRAWN BY: JLT
REVIEWED BY: JLT
DATE ISSUED: AUG 2018

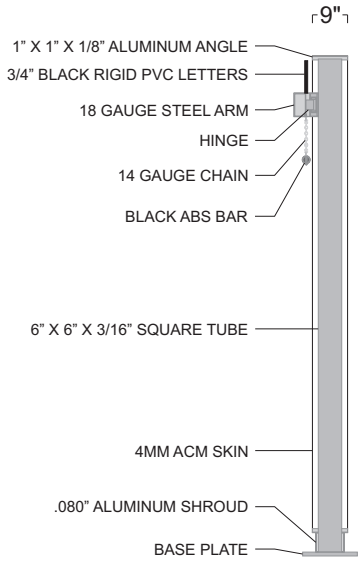
TITLE: 2018 MRP REMODEL CORE 16
DESCRIPTION: WOOD FRAMING WALLS, WOOD FRAMING ROOF, BRICK WAINSCOT AND LAP SIDING EXTERIOR FINISH
SITE ID: 36-0160
SITE ADDRESS: 225 NE NORTON LN MCMINNVILLE, OR 97128

SHEET NO: SP-2
SITE PLAN

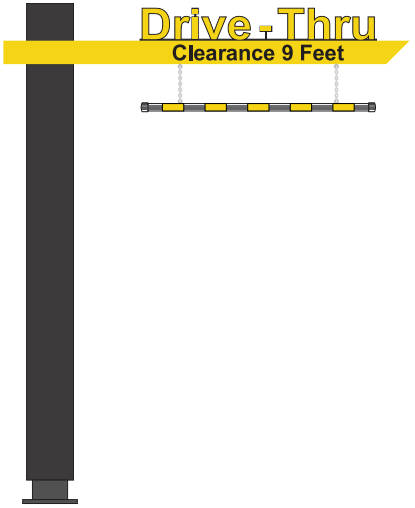
AIT-500 - #12714



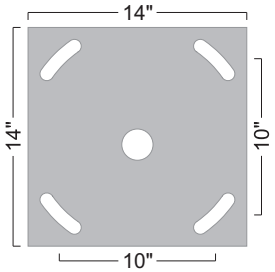
FRONT VIEW
SCALE: 1/4" = 1'-0"



END VIEW
SCALE: 1/4" = 1'-0"



GRAPHIC DETAIL
SCALE: 1/4" = 1'-0"

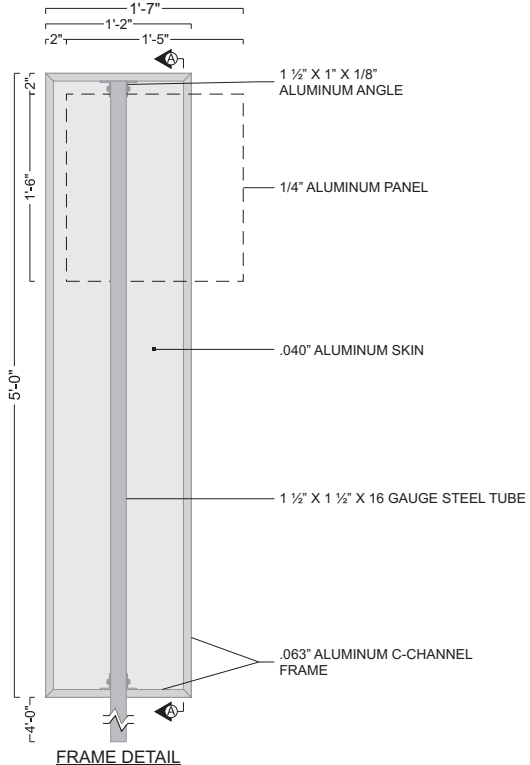


1" X 14" X 14" PLATE
7/8" HOLES
2" CENTER HOLE
3/4" ANCHOR BOLTS

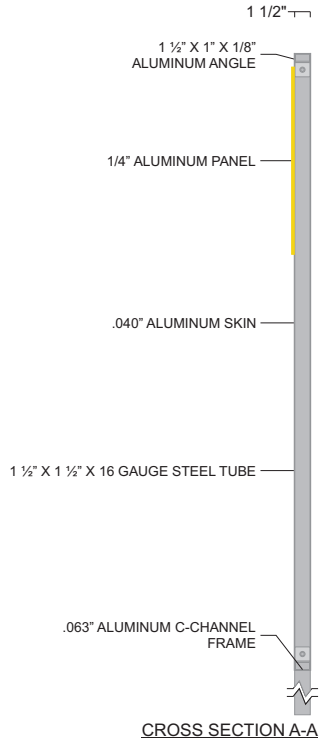
BASE PLATE DETAIL
SCALE: 1" = 1'-0"

POLE COVER DETAIL
DESIGN FACTOR: TBD
4MM WHITE ACM POLE COVER
.080" ALUMINUM CAP AND SHROUD
EXTERIOR FINISH:
POLE COVER
GRAY FORD-MED DK PLATINUM
SHROUD AND BASE PLATE - MATCH
B.M. 1631 MIDNIGHT OIL
CLEARANCE BAR DETAIL
BLACK ACM PIPE W/ 7725-15 YELLOW VINYL STRIPES APPLIED TO 1ST SURFACE
SQUARE FEET: BOXED = 92.44
ACTUAL = 15.68

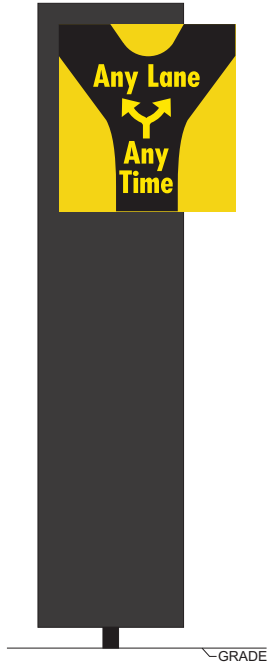
SWING ARM DETAIL
DESIGN FACTOR: TBD
18 GAUGE STEEL ARM WITH HINGE
W/ 1ST SURFACE PAINT AND VINYL DECORATION:
MATCH PMS 109 C YELLOW - SWING ARM
7725-12 BLACK VINYL - "CLEARANCE 9 FEET" COPY
"DRIVE-THRU" LETTER DETAIL
3/4" BLACK RIGID PVC BOARD ROUTED LETTERS W/ 1ST SURFACE VINYL DECORATION:
7725-15 BRIGHT YELLOW - "DRIVE-THRU" COPY
BLACK - COPY OUTLINE



FRAME DETAIL
SCALE: 1" = 1'-0"



CROSS SECTION A-A
SCALE: 1" = 1'-0"

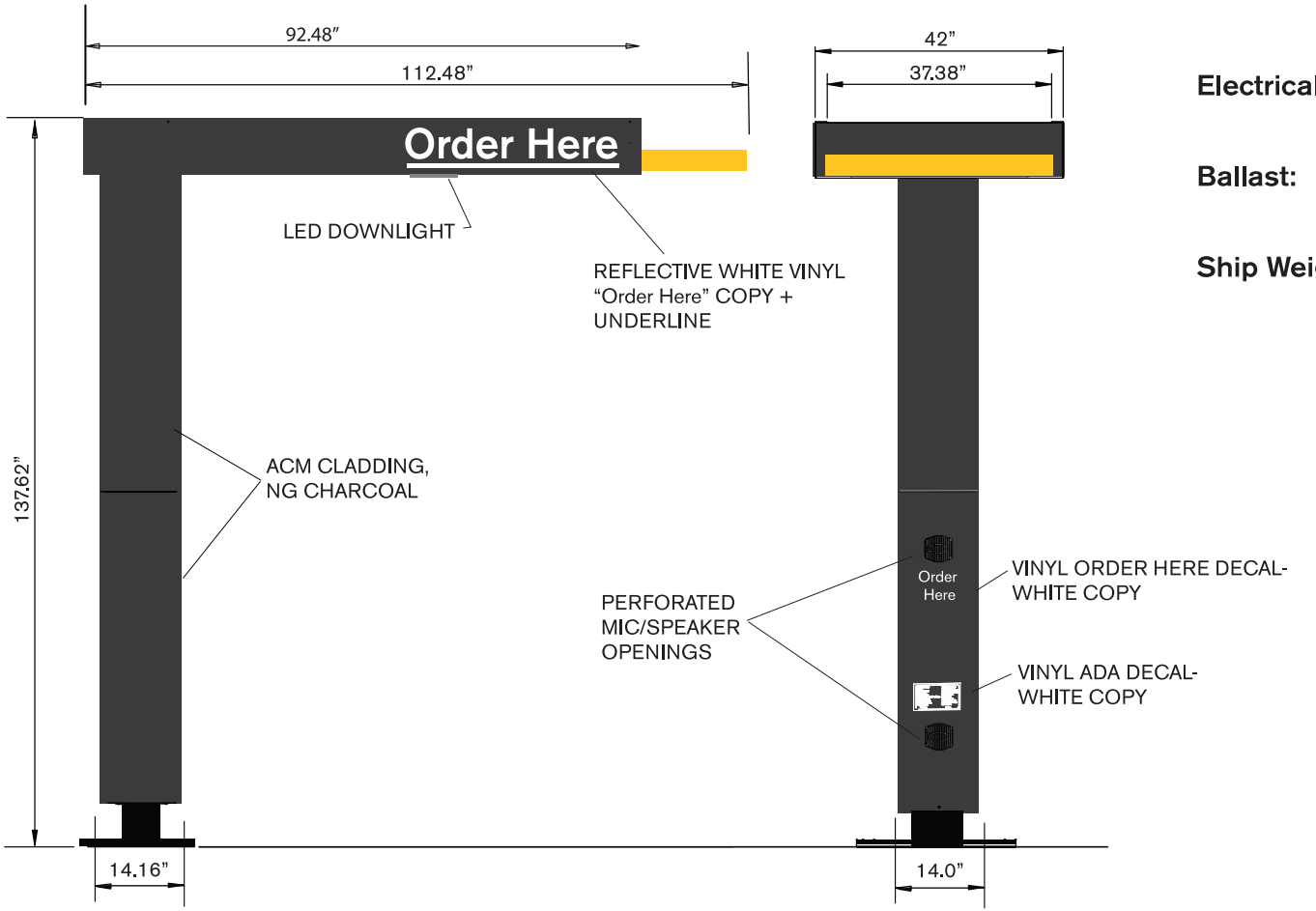


GRAPHIC DETAIL
SCALE: 1" = 1'-0"

FRAME DETAIL
DESIGN FACTOR: TBD
1 ½" X 3/4" X .063" ALUMINUM C-CHANNEL FRAME
.040" ALUMINUM SKINS
EXTERIOR FINISH: BONE WHITE
SQUARE FOOTAGE: BOXED = 7.92, ACTUAL = 6.46

FACE DETAIL
1/4" ALUMINUM PANEL W/ 1ST SURFACE PAINT
& VINYL DECO.:
YELLOW DUPONT CENTARI 5000- BACK-
GROUND, COPY & ARROW
3630-22 BLACK - LANES

Slim Springboard Canopy w/Audio Only - Yellow



Illumination: LED Downlighting

Electrical: 1.5 Amps 120 volt, 60 Hz

Ballast:

Ship Weight:

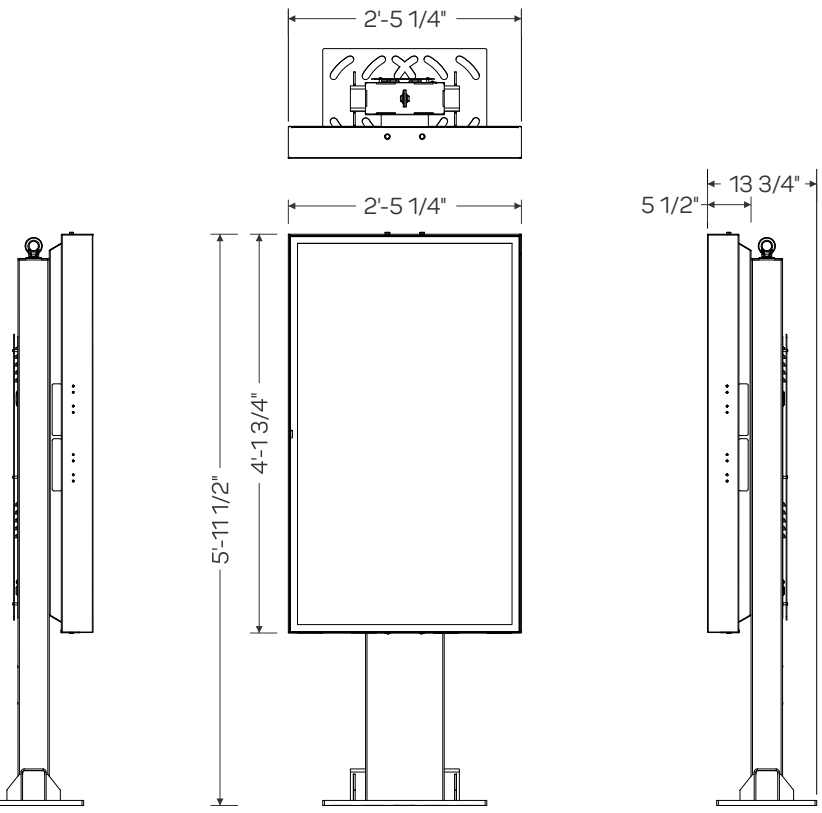
Everbrite, LLC, 315 Marion Ave., South Milwaukee, WI, 53172 P: 888-857-4078 F: 877-430-7363 www.everbrite.com

PSB

Frame	**Hot dip galvanized + anti-graffiti powder coated steel**
Brackets	**Hot dip galvanized**
Panels	**Aluminium + anti-graffiti powdercoat**
Access fasteners	**Security Torx**
Media player access	**Dual camlock**
Eyebolt	**Stainless crane on**
Baseplate	**McDonalds spec triple mounting pattern option**

ODMB 02 SINGLE

Displays	**Samsung OH55F**
Hardware	**Stratacache Spectra NG**
Heating/Cooling	**Watlow 100W Heater** **Sunon 120mm AC Fan**
Power Supply Units	**60W DC Media Player Power Supply**
Power Cables	**1 x IEC Power Cable**
Electrical Components	**Isolated Ground** **2 x IG Receptacles** **20A Circuit Breaker**
Communication Cables	**2 x HDMI** **1 x RS232**
Certification	**UL Certified**



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

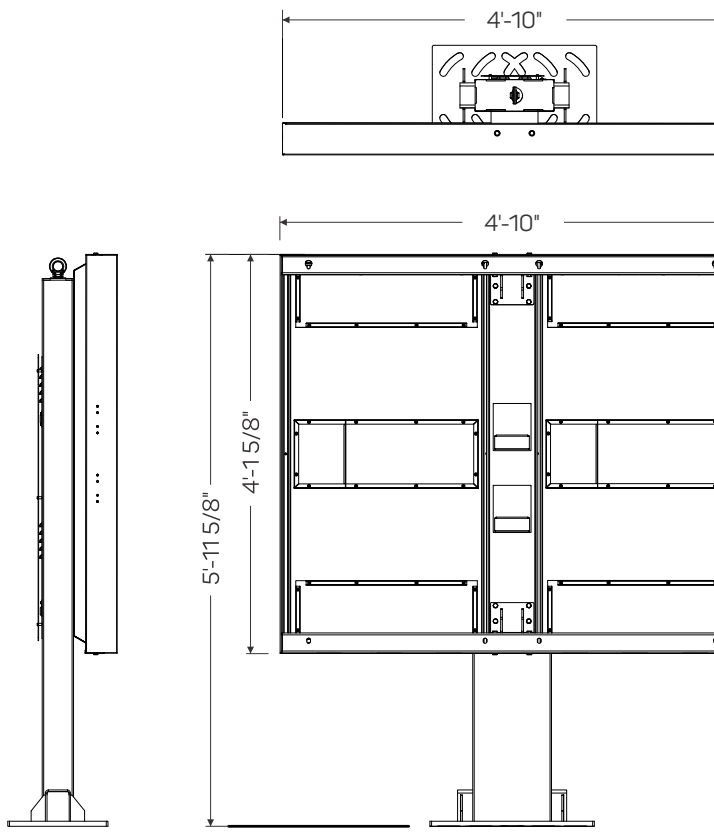
GRAPHIC DETAIL
NOT TO SCALE

MB

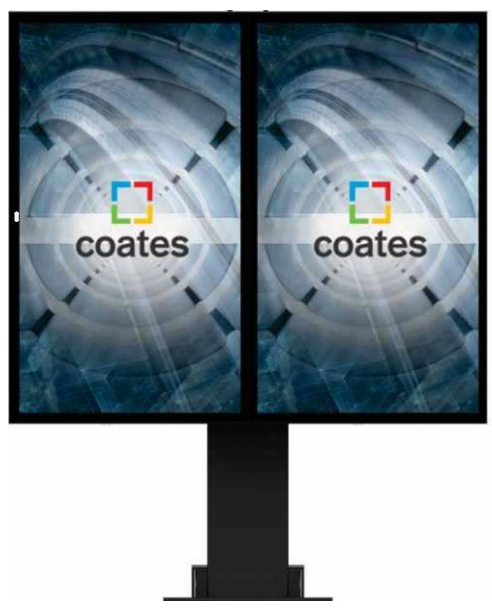
Frame	**Hot dip galvanized + anti-graffiti powder coated steel**
Brackets	**Hot dip galvanized**
Panels	**Aluminium + anti-graffiti powdercoat**
Access fasteners	**Security Torx**
Media player access	**Dual camlock**
Eyebolt	**Stainless crane on**
Baseplate	**McDonalds spec triple mounting pattern option**

ODMB 02 DOUBLE

Displays	**2 x Samsung OH55F**
Hardware	**2 x Stratacache Spectra NG**
Heating/Cooling	**Watlow 100W Heater** **Sunon 120mm AC Fan**
Power Supply Units	**2 x 60W DC Media Player Power Supply**
Power Cables	**2 x IEC Power Cables**
Electrical Components	**Isolated Ground** **2 x IG Receptacles** **20A Circuit Breaker**
Communication Cables	**4 x HDMI** **2 x RS232**
Certification	**UL Certified**



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



GRAPHIC DETAIL
NOT TO SCALE

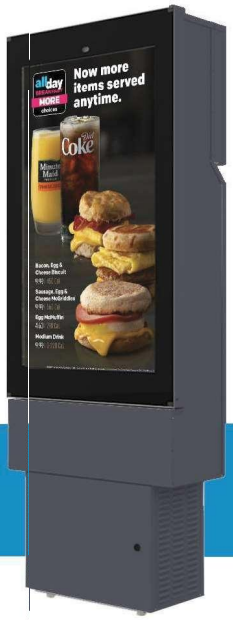
Customer:	Date:	Prepared By:	Note: Color output may not be exact when viewing or printing this drawing. All colors used are PMS or the closest CMYK equivalent. If these colors are incorrect, please provide the correct PMS match and a revision to this drawing will be made.	persona SIGNS | LIGHTING | IMAGE
Location:	File Name:		Eng: -	

DISTRIBUTED BY SIGN UP COMPANY
700 21st Street Southwest
PO Box 210
Watertown, SD 57201-0210
1.800.843.9888 • www.personasigns.com

STRATACACHE

Elevate 55P Series
Outdoor Digital Menu Board

The Elevate 55P Series Digital Menu Boards are designed to fully support outdoor rugged sunlight readable applications; a total solution that is 100% site-serviceable and out-of-box ready for immediate deployment. They offer affordability and best-in-class performance for your drive-thru menu board and other all weather exposed digital media applications. Best-in-class reliability with proven in-field installations exceeding 6 years of service.

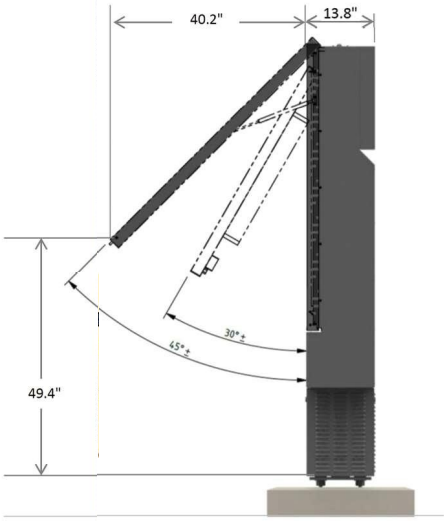


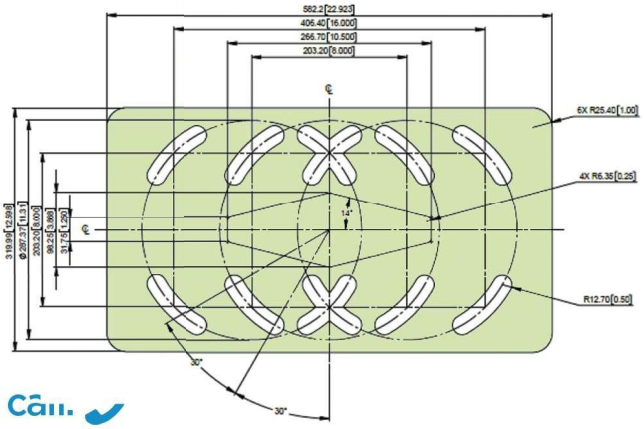
2 Riverplace, Suite 100 | Dayton, OH 45405 | 937.224.0485 | 800.244.8915 | www.stratacache.com

STRATACACHE

Elevate 55P Series
Outdoor Menu Board

	MODEL	Single Screen Presell (PN#: G1S-55-S)	Dual Screen Menu Board (PN#: G1S-55-D)
Description	Configuration	1 x 1 Single Panel	1 x 2 Double Panel
LCD Panel	Panel Size	1 x 55" diag	2 x 55" diag
	Orientation	Portrait	
	Native Resolution (W x H)	1080 x 1920	2160 x 1920
	Brightness (Typical)	3000/3500 cd/m^2	
	Contrast Ratio	1300:1	
	LCD Technology	IPS RGB+W with QLP - polarized eyewear compatible	
	Viewing Angle	178° x 178°	
	External Control	Yes - RS232C	
Connectivity	Content	ActiVia for Media 4.0 - Select 3rd Party CMS Supported	
	Data Access	CAT 6 Standard | Optional Wi-Fi / 4GLTE	
Audio	Speakers	Optional	
	Microphone	Optional	
Enclosure	Thermal Management	Direct Air Cooling System (DACS) US Patent# 8472174 B2	
	Cover Glass	Proprietary AR treated tempered safety glass (UL48 Listed)	
	Ingress Protection	IP56 - NEMA 4	
	Mount Design	Universal Base-Plate - flexible mounting options	
	Accessibility	Front access via Security Compression Latches	
	Dimensions (inches HxWxD)	88.68 x 33.85 x 13.8	88.68 x 60.86 x 13.8
	Net Weight	600 lbs	850 lbs
Special Features	Ambient Light Sensor	Yes - Auto Backlight Brightness Dimming (min. 300 NIT for night sky conditions)	
	Field Serviceability	All Components Fully Field Serviceable	
	Easy Access Module Swap	Yes - Front access door - Gas strut supported.	
	Remote Monitoring	Remote monitoring, diagnostics and control	
Power	Input Power	120/240V 50/60Hz	
	Consumption (Typical/Max)	320W/500W	520W/800W
	Cable Access	From bottom via sealed gland in free standing baseplate	
	Termination	Circuit breaker / Surge Suppression / EMI Filter	
Approval	Safety	UL, cUL, UL48, TUV	
	EMC	FCC Class "A" CE Mark	
Environmental	Operating Temperature	-22°F to +122°F Under full solar exposed conditions	
	Wind Load Rating	Per Florida Building Code IBC-20122 to 180 mph	
	Operating Humidity	10% to 100% RH	





For more information call.

USA & Canada - +1.800.244.8915 Ext. 296 **AUS - +61.8.8152.0455**
EU - +44.20.3170.5543 **India - +91.80.4623.0000**

DEI
DIBBLE ENGINEERS INC

October 25, 2018

Freiheit Architecture
Attn: Matt Grinnell, Permit & Entitlement Coordinator
929 108th Ave NE, Suite 210
Bellevue, WA 98004

Re: McDonald's McMinnville, OR
225 NE Norton LN
McMinnville, OR
DEI Project #: 18-1351

Dear Mr. Grinnell:

Dibble Engineers, Inc. (DEI) has completed a review of the foundations for the Digital Menu Board, Digital Pre-Sell Board, Order Canopy, and Single Gateway Sign foundations proposed for installation at the McDonald's location above.

DEI calculated the wind and seismic loading for the signs based on weights and dimensions provided by Freiheit Architecture. Based on our review and calculations, the sign foundations are acceptable for installation with the dimensions, reinforcing, and sign anchorage shown on the attached redlined detail sheets DT1.1 and DT1.2. Note that the signs are proprietarily designed, pre-manufactured units, and our scope did not include review of the signs themselves.

Supplemental structural calculations for the sign foundations and sign anchorage are attached with this letter.

Please contact us with any questions, and we will be happy to assist.

Sincerely,
DIBBLE ENGINEERS, INC.

EXPIRES: DECEMBER 31, 2021

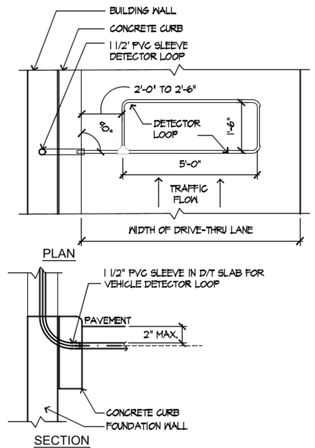
07/30/2020

TJ Hamad
Design Engineer
TJ@dibbleengineers.com

Attachments: Redlined Detail Sheets DT1.1 & DT1.2, Structural Calculations

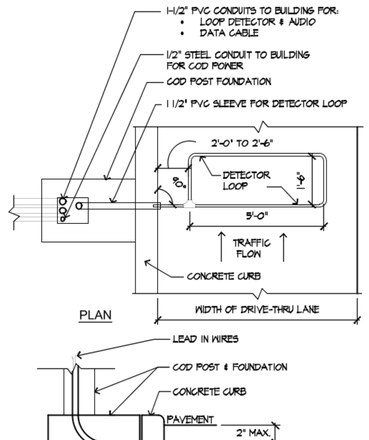
NOTES

1. VERIFY CONDUIT SIZES AND LAYOUT WITH DETECTOR LOOP MANUFACTURER.
2. CENTER VEHICLE DETECTOR LOOP IN DRIVE THRU LANE. INSTALL PER MFR. RECOMMENDATIONS.
3. SEE SHEET DT1.0 FOR DIMENSIONS OF DRIVE-THRU LANE CONCRETE PAD FOR DETECTOR LOOP.
4. NO STEEL (REBAR OR ELECTRICAL WIRE) SHALL BE USED WITHIN 2' OF LOOP.
5. DETECTOR LOOP MANUFACTURERS:
   DETECTOR LOOPS MAY BE BY ONE OF THE FOLLOWING COMPANIES OR EQUAL.
   3M: 1-800-328-0033
   HME: 1-800-848-4468
6. DETECTOR LOOP MATERIAL:
   PVC TUBING 1/2" ID, 100 PSI LOOP MADE FROM ONE LENGTH OF THIN FOURTEEN GAUGE STRANDED WIRE. LEAD-IN IS PRE-TWISTED AT FACTORY.
7. DETECTOR LOOP CONSTRUCTION:
   FORMED WITH ONE CONTINUOUS LENGTH OF PVC WITH NO SHARP CORNERS AS DETAILED. WIRE LOOPED, FORMED & PIGTAILED AS DETAILED.



NOTE: DETECTOR LOOPS AT PRESENTATION AND ORDER WINDOWS ARE OPTIONAL.
GC TO INSTALL PVC SLEEVES TO FACILITATE POSSIBLE FUTURE LOOP INSTALLATION.

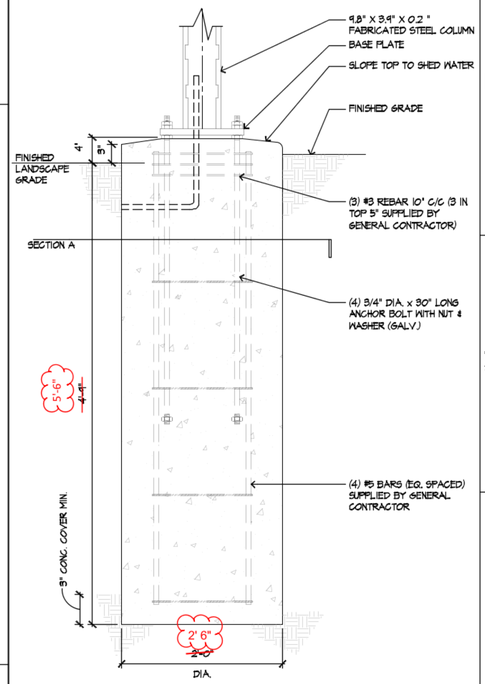
B - DT WINDOW DETECTOR LOOP



A - C.O.D. DETECTOR LOOP

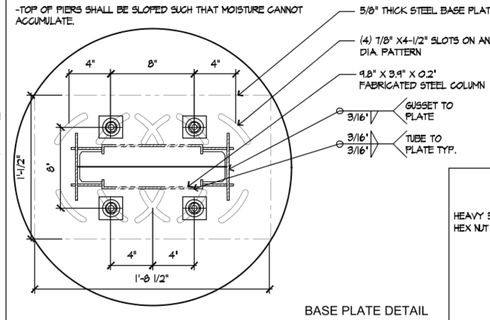
18 DT1.1 DETECTOR LOOP DETAIL
SCALE: NOT TO SCALE
DETECTOR_LOOP.DWG

NOTES:
-TOP OF PIERS SHALL BE SLOPED SUCH THAT MOISTURE CANNOT ACCUMULATE.

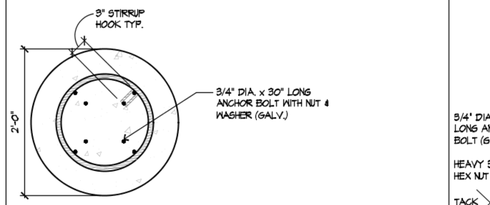


10 DT1.1 DIGITAL MENU BOARD
SCALE: NOT TO SCALE

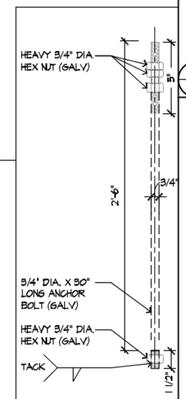
NOTES:
-TOP OF PIERS SHALL BE SLOPED SUCH THAT MOISTURE CANNOT ACCUMULATE.



BASE PLATE DETAIL

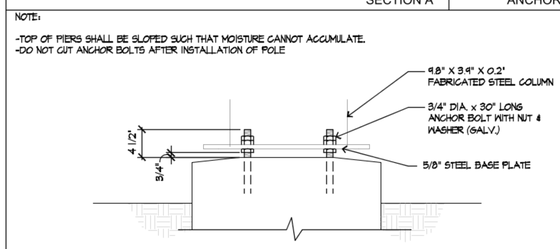


SECTION A



ANCHOR BOLT

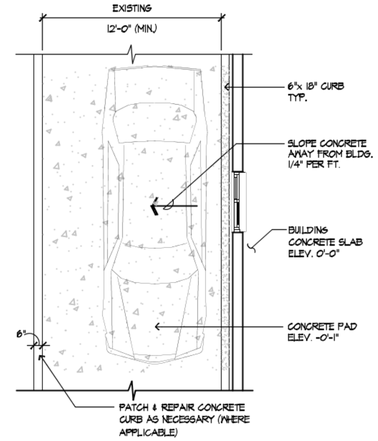
NOTE:
-TOP OF PIERS SHALL BE SLOPED SUCH THAT MOISTURE CANNOT ACCUMULATE.
-DO NOT CUT ANCHOR BOLTS AFTER INSTALLATION OF POLE



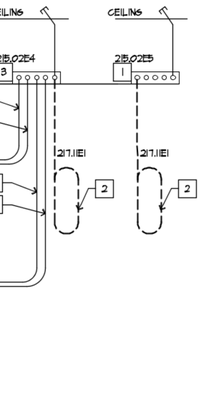
CONNECTION DETAIL

NOTES:
1. G.C. TO COORDINATE THE RESPONSIBILITIES OF THE ELECTRICAL CONTRACTOR AND THE SIGN SUPPLIER.
2. GENERAL CONTRACTOR TO INSTALL PRE-FORMED, PRE-WIRED VEHICLE DETECTOR LOOP.
3. #12 GREEN GROUNDING CONDUCTOR MUST BE RUN WITH CIRCUIT CONDUCTORS FROM GROUND BUS IN PANEL LP TO ALL MENU BOARDS AND REFERENCE BOARDS.
4. ALL UNDERGROUND CONDUIT FOR AUDIO TO BE P.V.C. NO METAL ALLOWED.
5. ALL GALVANIZED ANCHOR BOLTS TO BE SUPPLIED BY THE CONTRACTOR.

1 DT1.1 -- SCALE: -- NOTES.DWG



2 DT1.1 D/T CONCRETE PAD
SCALE: 1/4" = 1'-0"
CONCRETE_PAD.DWG

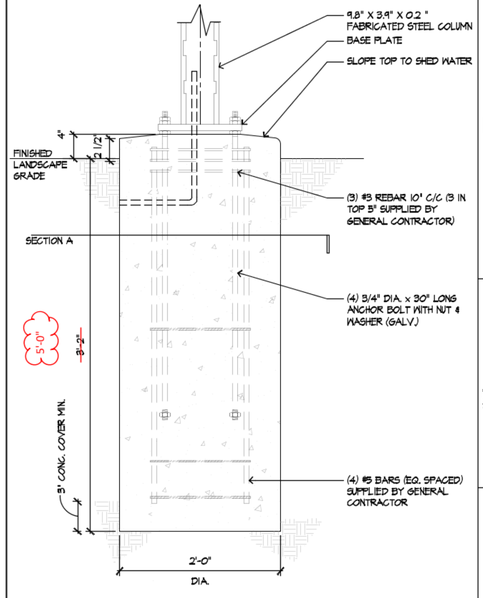


KEYNOTES

1. ELECTRICAL EQUIPMENT ITEM 2|5.02E5 IN PRESENTATION BOOTH. PROVIDE 2" HOLE & GROMMET IN JUNCTION BOX COVER PLATE FOR POS DATA CABLES. PROVIDE 2 1/2"C ABOVE CEILING.
2. OPTIONAL DRIVE-THRU WINDOW DETECTOR LOOP FOR ORDER & PRESENTATION WINDOWS - SEE 18/DT1.1. G.C. TO INSTALL PVC SLEEVES TO FACILITATE POSSIBLE FUTURE LOOP INSTALLATION.
3. ELECTRICAL EQUIPMENT ITEM #2|5.02E4 IN ORDER/CASH BOOTH. PROVIDE 2" HOLE & GROMMET IN JUNCTION BOX COVER PLATE FOR POS DATA CABLES. PROVIDE 2 1/2"C ABOVE CEILING.
4. PROVIDE STEEL CONDUIT AND CONDUCTOR PER POS & COD ISOLATED GROUND/ DEDICATED CIRCUIT DETAIL. 1/2"C-2#12 & #12 GROUND & |#12 ISOLATED GROUND. PROVIDE 1 CB PER COD.
5. 1 1/2" PVC CONDUIT FOR REMOTE LOOP DETECTOR & COD AUDIO CABLES. EC TO PROVIDE 3 PULL STRINGS INSIDE CONDUIT.
6. 1 1/2"C FOR COD DATA CABLES. EC TO PROVIDE 3 PULL STRINGS INSIDE CONDUIT.
7. CONDUIT FOR COD LOOP DETECTOR, ELECTRICAL EQUIPMENT ITEM 2|7.1|E|* - SEE 18/DT1.1.
8. 1/2"C-2#12, POWER FOR MENU BOARD ILLUMINATION.
9. "ORDER HERE" CANOPY LIGHTS.

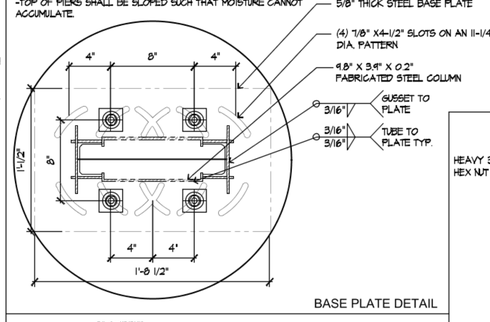
20 DT1.1 DRIVE-THRU SITE WIRING DIAGRAM
SCALE: NOT TO SCALE
SITE_WIRING.DWG

NOTES:
-TOP OF PIERS SHALL BE SLOPED SUCH THAT MOISTURE CANNOT ACCUMULATE.

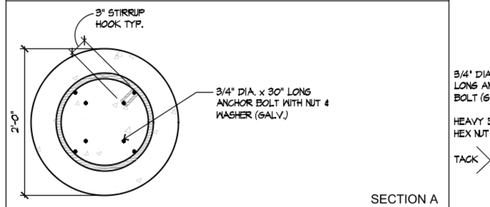


12 DT1.1 DIGITAL PRE-BROWSE BOARD
SCALE: NOT TO SCALE

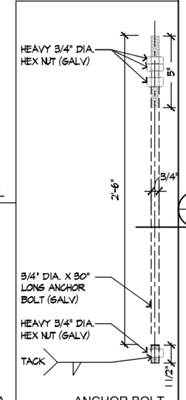
NOTES:
-TOP OF PIERS SHALL BE SLOPED SUCH THAT MOISTURE CANNOT ACCUMULATE.



BASE PLATE DETAIL

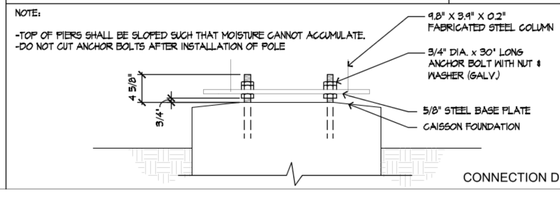


SECTION A



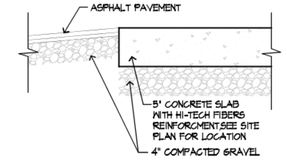
ANCHOR BOLT

NOTE:
-TOP OF PIERS SHALL BE SLOPED SUCH THAT MOISTURE CANNOT ACCUMULATE.
-DO NOT CUT ANCHOR BOLTS AFTER INSTALLATION OF POLE

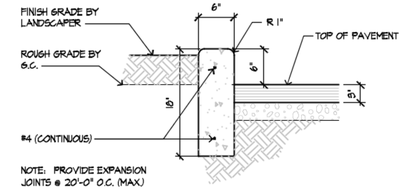


CONNECTION DETAIL

NOTE: SLOPE PAVEMENT TO FOLLOW LOT FOR DRAINAGE



3 DT1.1 DRIVE THRU PAD DETAIL
SCALE: 1/4" = 1'-0"
DRIVE-THRU_PAD.DWG



4 DT1.1 6" X 18" CURB SECTION
SCALE: 1/4" = 1'-0"
CURB.DWG

FHO | BY | DESCRIPTION | DATE | REV

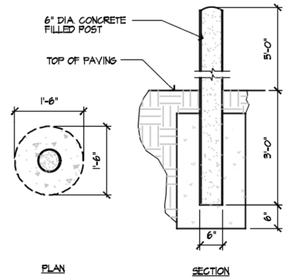
PREPARED BY:
FREIHEIT ARCHITECTURE

PREPARED FOR:
McDonald's USA, LLC

DRAWN BY	STD ISSUE DATE
REVIEWED BY	DATE ISSUED

TITLE: 2018 MRP REMODEL CORE 16
DESCRIPTION

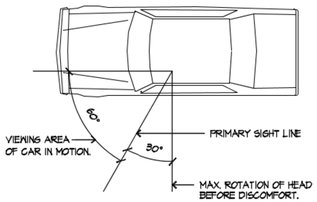
SHEET NO: DT1.1
DRIVE THRU DTLS



5 DT1.2 D/T POST DETAIL

SCALE: NOT TO SCALE

DT_POST.DWG



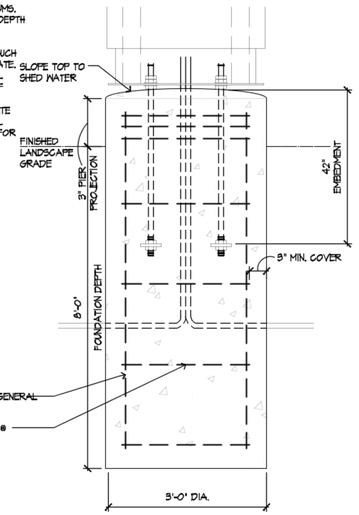
1 DT1.2 VEHICLE SIGHT LINES

SCALE: NOT TO SCALE

VEHICLE_SIGHT_LINES.DWG

NOTE:

-USE 3000 PSI CONCRETE COMPRESSIVE STRENGTH (fc)
-PIER DEPTHS REQUIRED ARE MINIMUMS. ALL PIERS TO EXTEND TO FROST DEPTH AS DETERMINED BY LOCAL JURISDICTION.
-TOP OF PIERS SHALL BE SLOPED SUCH THAT MOISTURE CANNOT ACCUMULATE.
-MINIMUM ALLOWABLE LATERAL SOIL BEARING PRESSURE 100 PSF/FT OF DEPTH (x2)
-PROVIDE A MINIMUM OF 3" CONCRETE COVER FOR ALL EMBEDDED STEEL
-ALL FOUNDATIONS ARE DESIGNED FOR SINGLE OR DOUBLE PIER COLUMNS
-ALL REINFORCING BY GENERAL CONTRACTOR

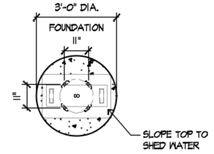


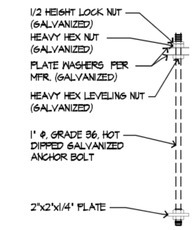
6 DT1.2 ORDER HERE CANOPY FOUNDATION

SCALE: NOT TO SCALE

NOTE:

-TOP OF PIERS SHALL BE SLOPED SUCH THAT MOISTURE CANNOT ACCUMULATE.
-USE F1554 GRADE 36 BOLTS MINIMUM
-USE HOT DIPPED GALVANIZED BOLTS
-ANCHOR BOLTS TO BE SET IN ACCORDANCE WITH AISC CODE OF STANDARD PRACTICE
-ANCHOR RODS, NUTS & WASHERS SHALL BE SHIPPED AS AN ASSEMBLY FROM THE SIGN/ LIGHTING MANUFACTURER
-DO NOT CUT ANCHOR BOLTS AFTER INSTALLATION OF POLE

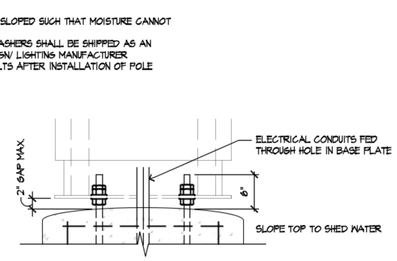




ANCHOR BOLT

NOTE:

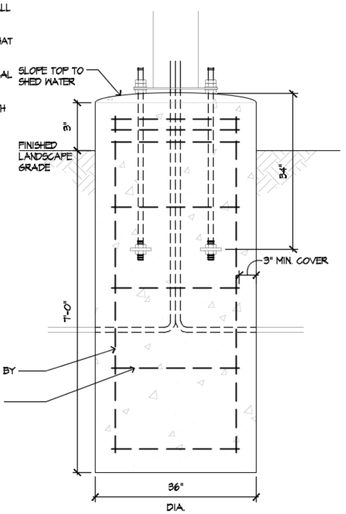
-TOP OF PIERS SHALL BE SLOPED SUCH THAT MOISTURE CANNOT ACCUMULATE.
-ANCHOR RODS, NUTS & WASHERS SHALL BE SHIPPED AS AN ASSEMBLY FROM THE SIGN/ LIGHTING MANUFACTURER
-DO NOT CUT ANCHOR BOLTS AFTER INSTALLATION OF POLE



CONNECTION DETAIL

NOTE:

-USE 3000 PSI CONCRETE COMPRESSIVE STRENGTH (fc)
-PIER DEPTHS REQUIRED ARE MINIMUMS. ALL PIERS TO EXTEND TO FROST DEPTH AS DETERMINED BY LOCAL JURISDICTION.
-TOP OF PIERS SHALL BE SLOPED SUCH THAT MOISTURE CANNOT ACCUMULATE.
-ELECTRICAL CONTRACTOR TO PROVIDE INFORMATION ON CONDUIT AND ELECTRICAL REQUIREMENTS.
-MINIMUM ALLOWABLE LATERAL SOIL BEARING PRESSURE 100 PSF/FT OF DEPTH (x2).
-3" MIN. CONCRETE COVER FOR REINFORCEMENT
-ALL REINFORCING BY GENERAL CONTRACTOR

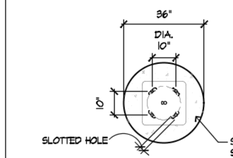


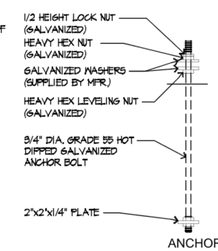
8 DT1.2 GATEWAY SIGN FOUNDATION

SCALE: NOT TO SCALE

NOTE:

-TOP OF PIERS SHALL BE SLOPED SUCH THAT MOISTURE CANNOT ACCUMULATE.
-HOT DIPPED GALVANIZED BOLTS
-F1554 GRADE 36 ANCHOR BOLTS
-ANCHOR BOLTS TO BE SET IN ACCORDANCE WITH AISC CODE OF STANDARD PRACTICE
-ANCHOR RODS, NUTS & WASHERS SHALL BE SHIPPED AS AN ASSEMBLY FROM THE SIGN/ LIGHTING MANUFACTURER
-DO NOT CUT ANCHOR BOLTS AFTER INSTALLATION OF POLE

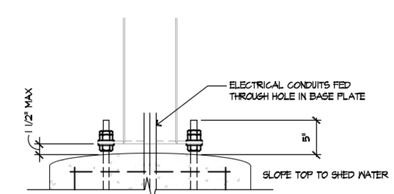




ANCHOR BOLT

NOTE:

-TOP OF PIERS SHALL BE SLOPED SUCH THAT MOISTURE CANNOT ACCUMULATE.
-ANCHOR RODS, NUTS & WASHERS SHALL BE SHIPPED AS AN ASSEMBLY FROM THE SIGN/ LIGHTING MANUFACTURER
-DO NOT CUT ANCHOR BOLTS AFTER INSTALLATION OF POLE



CONNECTION DETAIL

BY	DESCRIPTION	DATE	REV
FHO			

PREPARED BY:

FREIHEIT ARCHITECTURE

PREPARED FOR:

McDonald's USA, LLC

DRAWN BY	STD ISSUE DATE
REVIEWED BY	
DATE ISSUED	

SITE: 2018 MRP REMODEL CORE 16

SHEET NO. DT1.2

DRIVE THRU DETAILS

Dibble Engineers, Inc.	Project No.: 18-1351	Sheet No.:
Project: McDonald's McMinnville		Date: 11/15/2018
Subject: Drive Thru Sign Footings - Summary Page		By: TJ

Site Wind Properties:

V =	120	*mph*	*(ASCE 7 Figure 26.5-1A)*
Exposure =	C	-	*(ASCE 7 Section 26.7)*
K_{zt} =	1.00	-	*(ASCE 7 Section 26.8.2)*

Site Seismic Properties:

S_{DS} =	0.731	*g*	*(USGS App.)*
S_1 =	0.478	*g*	*(USGS App.)*

Site Snow Load:

S =	25	*psf*	*(ASCE 7 Figure 7-1 or Jurisdiction)*

Sign Foundation Depths:

		Depth			
Sign	**Diameter**	**Assumed**	**Required**		**Δ**
(-)	*(ft)*	*(ft)*	*(ft)*	*(ft - inches)*	*(ft)*
Digital Menu Board	2.5	5.25	5.25	5' - 3"	0.00
Digital Presell Board	2	4.61	4.61	4' - 7 1/3"	0.00
Order Canopy	3	6.36	6.36	6' - 4 1/3"	0.00
Gateway (Single)	3	4.10	4.10	4' - 1 1/5"	0.00
				Total:	**0.00**

Dibble Engineers, Inc.	Project No.: 18-1351	Sheet No.:
Project: McDonald's McMinnville		Date: 11/15/2018
Subject: Non-Constrained Embedded Post Footing - Digital Menu Board		By: TJ

Sign Properties:

Type =	Digital Menu	-	*(sign type)*
Weight =	850	*lbs*	*(per Freiheit Architecture)*
Area =	32.76	ft^2	*(per attached sign data)*

Wind Loading:

I =	1.00	-	*(ASCE 7 Table 1.5-2)*
V =	120	*mph*	*(ASCE 7 Figure 26.5-1A)*
Exposure =	C	-	*(ASCE 7 Section 26.7)*
K_z =	0.85	-	*(ASCE 7 Table 29.3-1)*
K_{zt} =	1.00	-	*(ASCE 7 Section 26.8.2)*
K_d =	0.85	-	*(ASCE 7 Table 26.6-1, 0.85 for Solid Signs)*
G =	0.85	-	*(assumed per ASCE 7 Section 26.9.1)*
C_f =	1.75	-	*(ASCE 7 Figure 29.4-1)*
q_h =	26.63	*psf*	*(ASCE 7 Equation 29.3-1)*
W =	**1297.90**	***lb***	*(ASCE 7 Equation 29.4-1)*
0.6W =	**778.74**	***lb***	*(For ASD Load Combinations)*

Seismic Loading:

S_{DS} =	0.731	*g*	*(USGS App.)*
S_1 =	0.478	*g*	*(USGS App.)*
R =	3.0	-	*(ASCE 7 Table 15.4-2, 3.0 for Signs)*
I =	1.0	-	*(ASCE 7 Table 1.5-2)*
C_s =	0.244	-	*(ASCE 7 Sections 12.8.1.1 and 15.4.1)*
E =	**207.12**	***lb***	*(ASCE 7 Equation 12.8-1)*
0.7E =	**144.98**	***lb***	*(For ASD Load Combinations)*

Dibble Engineers, Inc.	Project No.: 18-1351	Sheet No.:
Project: McDonald's McMinnville		Date: 11/15/2018
Subject: Non-Constrained Embedded Post Footing - Digital Menu Board		By: TJ

Check Lateral:

$d = 0.5A\{1 + [1 + (4.36h/A)]^{1/2}\}$ *IBC EQ 18-1*

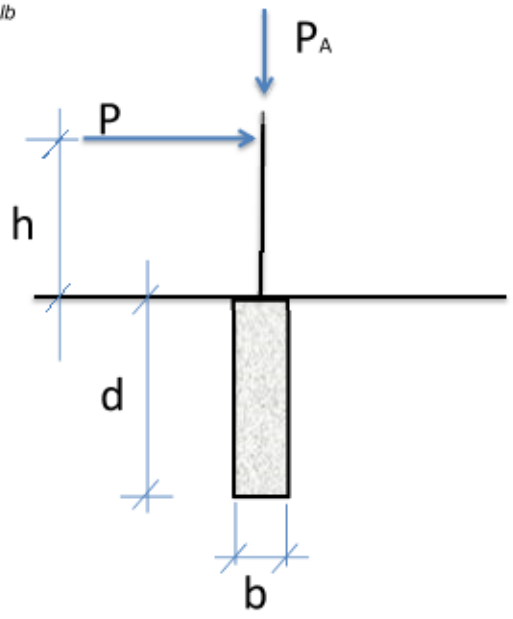
b =	2.5	*ft*	*(post/footing diameter)*
$d_{assumed}$ =	5.25	*ft*	*(assumed depth of embedment/footing)*
h =	7.33	*ft*	*(height of aplied load above ground)*
P =	778.74	*lbs*	*(applied load per calculations above)*
S =	100	*psf/ft*	*(lateral soil bearing pressure per IBC table 1806.2)*
I_2 =	2	-	*(increase for poles that can deflect 1/2" per IBC 1806.3.4)*
S_1 =	350.18	*psf*	*(lateral soil bearing pressure at d/3)*
A =	2.08	-	*(2.34P/(S , b))*
d =	**5.25**	***ft***	*(Required depth of embedment. Shoud match assumed.)*

Check Bearing:

P_A =	850	*lbs*		*(vertical load)*
A =	4.91	*ft^2*		*(bearing area)*
P/A =	173	*psf*	< 1500 psf, OK	*(bearing pressure - 1500 psf allowable per IBC table 1806.2)*

LRFD Attachment Forces - Sign to Footing

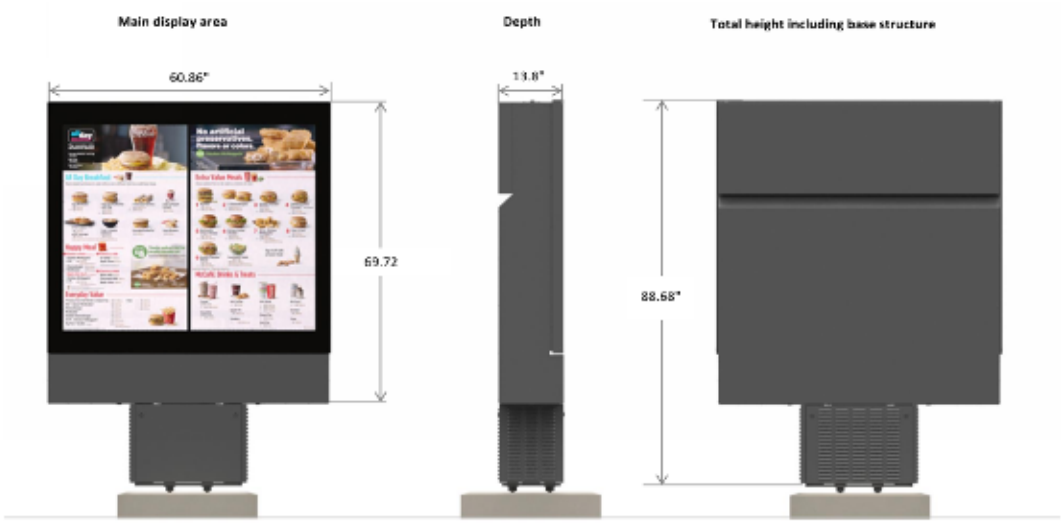
V =	1298	*lbs*
M =	9514	*ft-lb*



Dibble Engineers, Inc.	Project No.: 18-1351	Sheet No.:
Project: McDonald's McMinnville		Date: 11/15/2018
Subject: Non-Constrained Embedded Post Footing - Digital Menu Board		By: TJ

Weight and Dimensional Info per Freiheit Architecture:

Weight = 850 *lbs*



Dibble Engineers, Inc.	Project No.: 18-1351	Sheet No.:
Project: McDonald's McMinnville		Date: 11/15/2018
Subject: Non-Constrained Embedded Post Footing - Digital Presell Board		By: TJ

Sign Properties:

Type =	Digital Presell	-	*(sign type)*
Weight =	600	*lbs*	*(per Freiheit Architecture)*
Area =	19.75	ft^2	*(per attached sign data)*

Wind Loading:

I =	1.00	-	*(ASCE 7 Table 1.5-2)*
V =	120	*mph*	*(ASCE 7 Figure 26.5-1A)*
Exposure =	C	-	*(ASCE 7 Section 26.7)*
K_z =	0.85	-	*(ASCE 7 Table 29.3-1)*
K_{zt} =	1.00	-	*(ASCE 7 Section 26.8.2)*
K_d =	0.85	-	*(ASCE 7 Table 26.6-1, 0.85 for Solid Signs)*
G =	0.85	-	*(assumed per ASCE 7 Section 26.9.1)*
C_f =	1.65	-	*(ASCE 7 Figure 29.4-1)*
q_h =	26.63	*psf*	*(ASCE 7 Equation 29.3-1)*
W =	**737.75**	***lb***	*(ASCE 7 Equation 29.4-1)*
0.6W =	**442.65**	***lb***	*(For ASD Load Combinations)*

Seismic Loading:

S_{DS} =	0.731	*g*	*(USGS App.)*
S_1 =	0.478	*g*	*(USGS App.)*
R =	3.0	-	*(ASCE 7 Table 15.4-2, 3.0 for Signs)*
I =	1.0	-	*(ASCE 7 Table 1.5-2)*
C_s =	0.244	-	*(ASCE 7 Sections 12.8.1.1 and 15.4.1)*
E =	**146.20**	***lb***	*(ASCE 7 Equation 12.8-1)*
0.7E =	**102.34**	***lb***	*(For ASD Load Combinations)*

Dibble Engineers, Inc.	Project No.: 18-1351	Sheet No.:
Project: McDonald's McMinnville		Date: 11/15/2018
Subject: Non-Constrained Embedded Post Footing - Digital Presell Board		By: TJ

Check Lateral:

$d = 0.5A\{1 + [1 + (4.36h/A)]^{1/2}\}$ *IBC EQ 18-1*

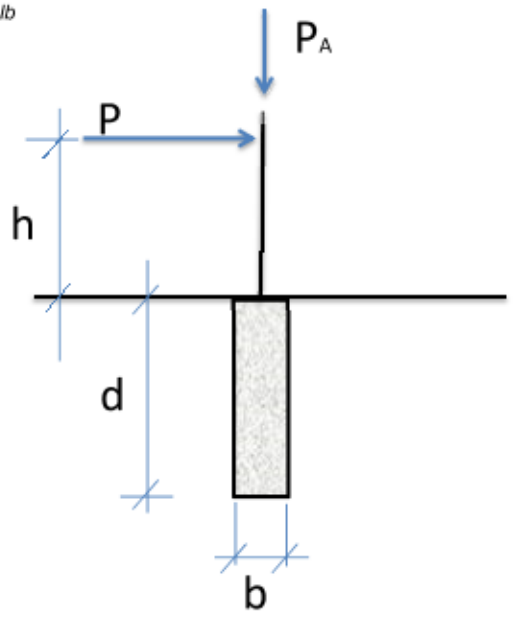
b =	2	*ft*	*(post/footing diameter)*
$d_{assumed}$ =	4.61	*ft*	*(assumed depth of embedment/footing)*
h =	7.33	*ft*	*(height of aplied load above ground)*
P =	442.65	*lbs*	*(applied load per calculations above)*
S =	100	*psf/ft*	*(lateral soil bearing pressure per IBC table 1806.2)*
I_2 =	2	-	*(increase for poles that can deflect 1/2" per IBC 1806.3.4)*
S_1 =	307.21	*psf*	*(lateral soil bearing pressure at d/3)*
A =	1.69	-	*(2.34P/(S , b))*
d =	**4.61**	***ft***	*(Required depth of embedment. Shoud match assumed.)*

Check Bearing:

P_A =	600	*lbs*		*(vertical load)*
A =	3.14	ft^2		*(bearing area)*
P/A =	191	*psf*	< 1500 psf, OK	*(bearing pressure - 1500 psf allowable per IBC table 1806.2)*

LRFD Attachment Forces - Sign to Footing

V =	738	*lbs*
M =	5408	*ft-lb*

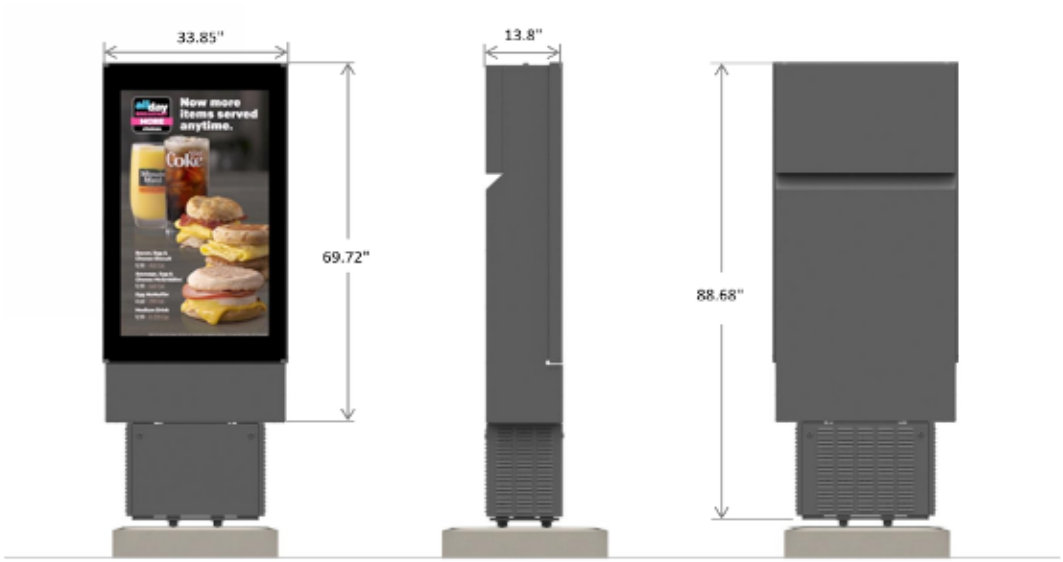


Weight and Dimensional Info per Freiheit Architecture:

Dibble Engineers, Inc.	Project No.: 18-1351	Sheet No.:
Project: McDonald's McMinnville		Date: 11/15/2018
Subject: Non-Constrained Embedded Post Footing - Digital Presell Board		By: TJ

Weight = 600 *lbs*

Main display area | **Depth** | **Total height including base structure**



Dibble Engineers, Inc.	Project No.: 18-1351	Sheet No.:
Project: McDonald's McMinnville		Date: 11/15/2018
Subject: Non-Constrained Embedded Post Footing - Order Canopy		By: TJ

Sign Properties:

Type =	Order Canopy	-	*(sign type)*
Weight =	850	*lbs*	*(per Freiheit Architecture)*
Area =	20	ft^2	*(per attached sign data)*
Roof Area =	36	ft^2	*(per attached sign data)*

Horizontal Wind Loading:

I =	1.00	-	*(ASCE 7 Table 1.5-2)*
V =	120	*mph*	*(ASCE 7 Figure 26.5-1A)*
Exposure =	C	-	*(ASCE 7 Section 26.7)*
K_z =	0.85	-	*(ASCE 7 Table 29.3-1)*
K_{zt} =	1.00	-	*(ASCE 7 Section 26.8.2)*
K_d =	0.85	-	*(ASCE 7 Table 26.6-1, 0.85 for Solid Signs)*
G =	0.85	-	*(assumed per ASCE 7 Section 26.9.1)*
C_f =	1.85	-	*(ASCE 7 Figure 29.4-1)*
q_h =	26.63	*psf*	*(ASCE 7 Equation 29.3-1)*
W_H =	**837.65**	***lb***	*(ASCE 7 Equation 29.4-1)*

Vertical Wind Loading:

C_N =	1.90	-	*(ASCE 7 Figure 27.4-4)*
p =	43.01	*psf*	*(ASCE 7 Equation 27.4-3)*
W_V =	**1548.51**	***lb***	*(vertical wind Load)*
L =	4.50	*ft*	*(canopy roof moment arm)*
h =	7.79	*ft*	*(height of applied wind/seismic load)*
W_{Veq} =	**894.52**	***lb***	*(equivalent horizontal wind load)*
$0.6W_{H+Veq}$ =	**1039.30**	***lb***	*(total equivalent horizontal wind load)*

Seismic Loading:

S_{DS} =	0.731	*g*	*(USGS App.)*
S_1 =	0.478	*g*	*(USGS App.)*
R =	3.0	-	*(ASCE 7 Table 15.4-2, 3.0 for Signs)*
I =	1.0	-	*(ASCE 7 Table 1.5-2)*
C_s =	0.244	-	*(ASCE 7 Sections 12.8.1.1 and 15.4.1)*
E =	**207.12**	***lb***	*(ASCE 7 Equation 12.8-1)*
0.7E =	**144.98**	***lb***	*(For ASD Load Combinations)*

Gravity Loading:

D =	15	*psf*	*(dead load)*
S =	25	*psf*	*(snow load)*
L =	4.5	*ft*	*(canopy roof moment arm)*
h =	7.79	*ft*	*(height of applied wind/seismic load)*
P_D =	**312**	***lbs***	*(equivalent horizontal dead load)*
P_S =	**520**	***lbs***	*(equivalent horizontal snow load)*

Dibble Engineers, Inc.	Project No.: 18-1351	Sheet No.:
Project: McDonald's McMinnville		Date: 11/15/2018
Subject: Non-Constrained Embedded Post Footing - Order Canopy		By: TJ

Load Combinations: (Equivalent Horizontal Force)

P_3 =	832 *lbs*	*(D + S)*
P_5 =	1351 *lbs*	*(D + [0.6w or 0.7E])*
P_6 =	1481 *lbs*	*(D + 0.75S + 0.75[0.6W or 0.7E])*
P =	**1481 *lbs***	*(worst-case equivalent horizontal force)*

Check Lateral:

$d = 0.5A\{1 + [1 + (4.36h/A)]^{1/2}\}$ *IBC EQ 18-1*

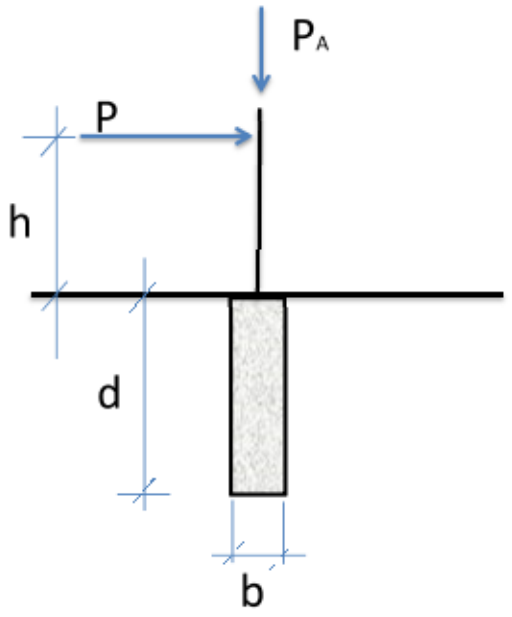
b =	3 *ft*	*(post/footing diameter)*
$d_{assumed}$ =	6.36 *ft*	*(assumed depth of embedment/footing)*
h =	7.79 *ft*	*(height of aplied load above ground)*
P =	1481.34 *lbs*	*(equivalent lateral load per calculations above)*
S =	100 *psf/ft*	*(lateral soil bearing pressure per IBC table 1806.2)*
I_2 =	2 -	*(increase for poles that can deflect 1/2" per IBC 1806.3.4)*
S_1 =	424.07 *psf*	*(lateral soil bearing pressure at d/3)*
A =	2.72 -	*(2.34P/(S , b))*
d =	**6.36 *ft***	*(Required depth of embedment. Shoud match assumed.)*

Check Bearing:

P_A =	1750 *lbs*		*(vertical load = Weight + Snow)*
A =	7.07 ft^2		*(bearing area)*
P/A =	248 *psf*	< 1500 psf, OK	*(bearing pressure - 1500 psf allowable per IBC table 1806.2)*

LRFD Attachment Forces - Sign to Footing

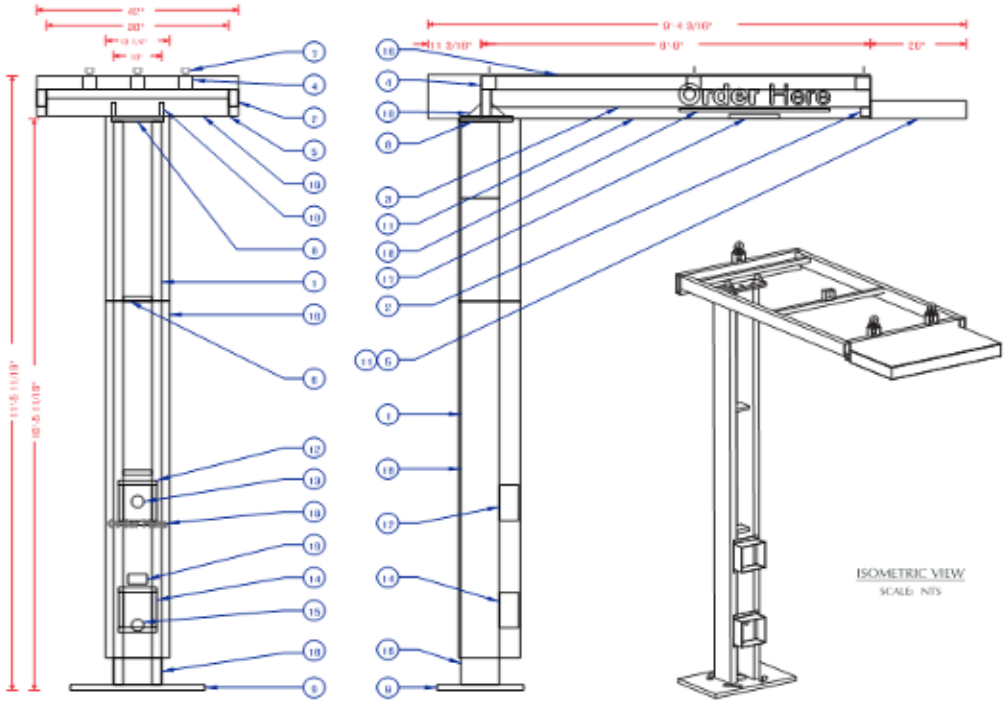
V =	**838 *lbs***	*(maximum of 1.0W and 1.0E)*
M_1 =	3402 *lb-ft*	*(1.4D)*
M_2 =	16143 *lb-ft*	*(1.2D + 1.6S + 0.5W)*
M_3 =	18435 *lb-ft*	*(1.2D + 1.0W +0.5S)*
M_4 =	5339 *lb-ft*	*(1.2D + 1.0E + 0.2S)*
M =	**18435 *lb-ft***	*(worst-case moment)*



Dibble Engineers, Inc.	Project No.: 18-1351	Sheet No.:
Project: McDonald's McMinnville		Date: 11/15/2018
Subject: Non-Constrained Embedded Post Footing - Order Canopy		By: TJ

Weight and Dimensional Info per Freiheit Architecture:

Weight = 850 *lbs*



Dibble Engineers, Inc.	Project No.: 18-1351	Sheet No.:
Project: McDonald's McMinnville		Date: 11/15/2018
Subject: Non-Constrained Embedded Post Footing - Gateway Sign (Single)		By: TJ

Sign Properties:

Type =	Gateway (Single)	-	*(sign type)*
Weight =	450	*lbs*	*(per Freiheit Architecture)*
Area =	20	ft^2	*(per attached sign data)*

Wind Loading:

I =	1.00	-	*(ASCE 7 Table 1.5-2)*
V =	120	*mph*	*(ASCE 7 Figure 26.5-1A)*
Exposure =	C	-	*(ASCE 7 Section 26.7)*
K_z =	0.85	-	*(ASCE 7 Table 29.3-1)*
K_{zt} =	1.00	-	*(ASCE 7 Section 26.8.2)*
K_d =	0.85	-	*(ASCE 7 Table 26.6-1, 0.85 for Solid Signs)*
G =	0.85	-	*(assumed per ASCE 7 Section 26.9.1)*
C_f =	1.9	-	*(ASCE 7 Figure 29.4-1)*
q_h =	26.63	*psf*	*(ASCE 7 Equation 29.3-1)*
W =	**860.29**	***lb***	*(ASCE 7 Equation 29.4-1)*
0.6W =	**516.17**	***lb***	*(For ASD Load Combinations)*

Seismic Loading:

S_{DS} =	0.731	*g*	*(USGS App.)*
S_1 =	0.478	*g*	*(USGS App.)*
R =	3.0	-	*(ASCE 7 Table 15.4-2, 3.0 for Signs)*
I =	1.0	-	*(ASCE 7 Table 1.5-2)*
C_s =	0.244	-	*(ASCE 7 Sections 12.8.1.1 and 15.4.1)*
E =	**109.65**	***lb***	*(ASCE 7 Equation 12.8-1)*
0.7E =	**76.76**	***lb***	*(For ASD Load Combinations)*

Dibble Engineers, Inc.	Project No.: 18-1351	Sheet No.:
Project: McDonald's McMinnville		Date: 11/15/2018
Subject: Non-Constrained Embedded Post Footing - Gateway Sign (Single)		By: TJ

Check Lateral:

$d = 0.5A\{1 + [1 + (4.36h/A)]^{1/2}\}$ *IBC EQ 18-1*

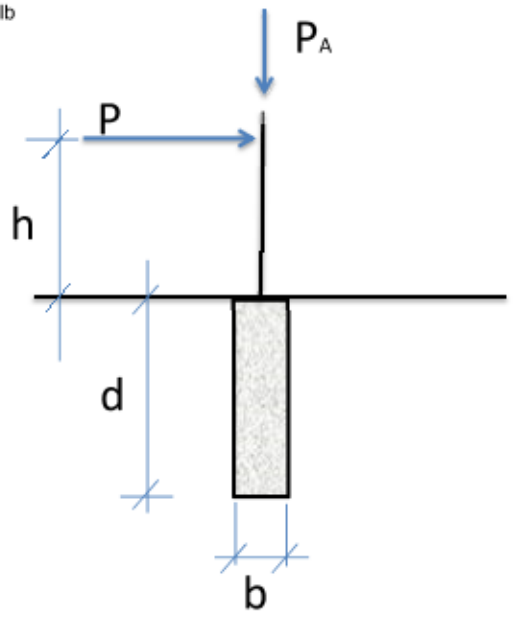
b =	3	*ft*	*(post/footing diameter)*
$d_{assumed}$ =	4.10	*ft*	*(assumed depth of embedment/footing)*
h =	6.7	*ft*	*(height of aplied load above ground)*
P =	516.17	*lbs*	*(applied load per calculations above)*
S =	100	*psf/ft*	*(lateral soil bearing pressure per IBC table 1806.2)*
I_2 =	2	-	*(increase for poles that can deflect 1/2" per IBC 1806.3.4)*
S_1 =	273.24	*psf*	*(lateral soil bearing pressure at d/3)*
A =	1.47	-	*(2.34P/(S , b))*
d =	**4.10**	***ft***	*(Required depth of embedment. Shoud match assumed.)*

Check Bearing:

P_A =	450	*lbs*		*(vertical load)*
A =	7.07	*ft^2*		*(bearing area)*
P/A =	64	*psf*	< 1500 psf, OK	*(bearing pressure - 1500 psf allowable per IBC table 1806.2)*

LRFD Attachment Forces - Sign to Footing

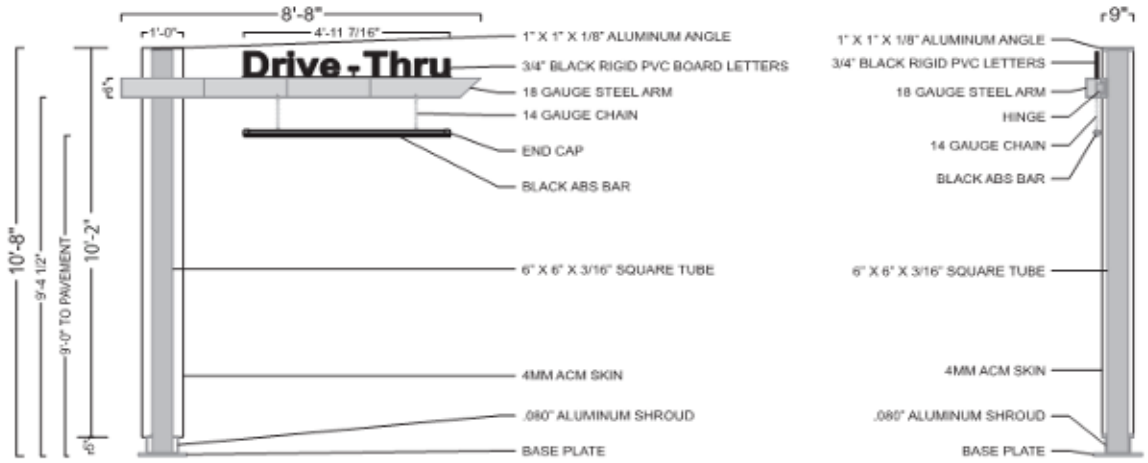
V =	860	lbs
M =	5764	ft-lb



Weight and Dimensional Info per Freiheit Architecture:

Dibble Engineers, Inc.	Project No.: 18-1351	Sheet No.:
Project: McDonald's McMinnville		Date: 11/15/2018
Subject: Non-Constrained Embedded Post Footing - Gateway Sign (Single)		By: TJ

Weight = 450 *lbs*

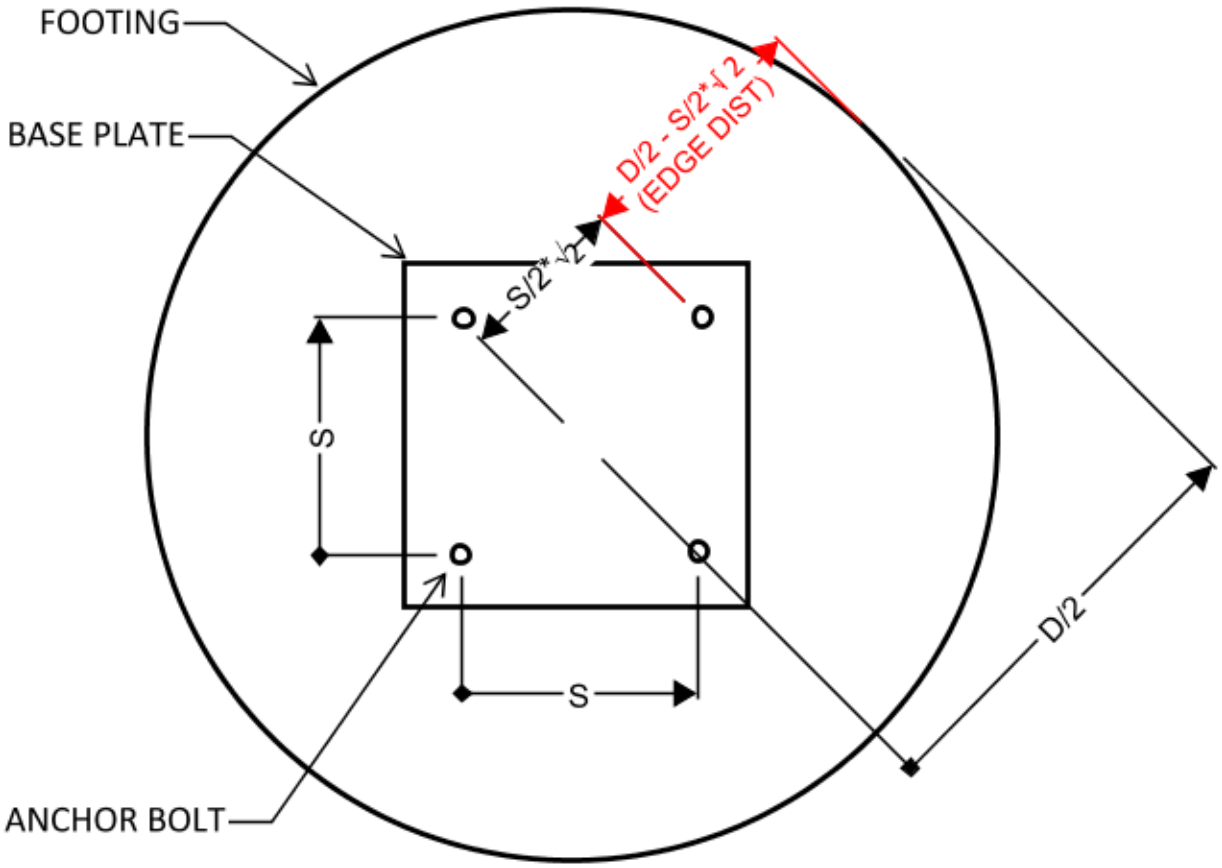


FRONT VIEW
SCALE: 1/4" = 1'-0"

END VIEW
SCALE: 1/4" = 1'-0"

DEI
DIBBLE ENGINEERS INC

PROJECT NAME	MCDONALD'S	SHEET #	
PROJECT #		DATE	
SUBJECT	BOLT EDGE DISTANCE CALCULATIONS	BY	JCM



Footing Diameter	Bolt Spacing	Edge Distance
D *(in)*	S *(in)*	E *(in)*
24	8	6.34
30	8	9.34
36	10	10.93
36	11	10.22

Company:	Dibble Engineers	Date:	8/16/2017
Engineer:		Page:	1/6
Project:	McD's		
Address:	1029 Market St		
Phone:	425-828-4200		
E-mail:			

1.Project information

Customer company: Freiheit Architecture
Customer contact name:
Customer e-mail:
Comment:

Project description: Digital Menu Board
Location:
Fastening description:

2. Input Data & Anchor Parameters

General
Design method:ACI 318-14
Units: Imperial units

Anchor Information:
Anchor type: Cast-in-place
Material: F1554 Grade 36
Diameter (inch): 0.750
Effective Embedment depth, h_{ef} (inch): 24.000
Anchor category: -
Anchor ductility: Yes
h_{min} (inch): 25.50
C_{min} (inch): 4.50
S_{min} (inch): 4.50

Base Material
Concrete: Normal-weight
Concrete thickness, h (inch): 50.00
State: Cracked
Compressive strength, f'_c (psi): 3000
$\Psi_{c,V}$: 1.0
Reinforcement condition: B tension, B shear
Supplemental reinforcement: Not applicable
Reinforcement provided at corners: No
Ignore concrete breakout in tension: No
Ignore concrete breakout in shear: No
Ignore 6do requirement: No
Build-up grout pad: No

Base Plate
Length x Width x Thickness (inch): 12.00 x 12.00 x 0.50

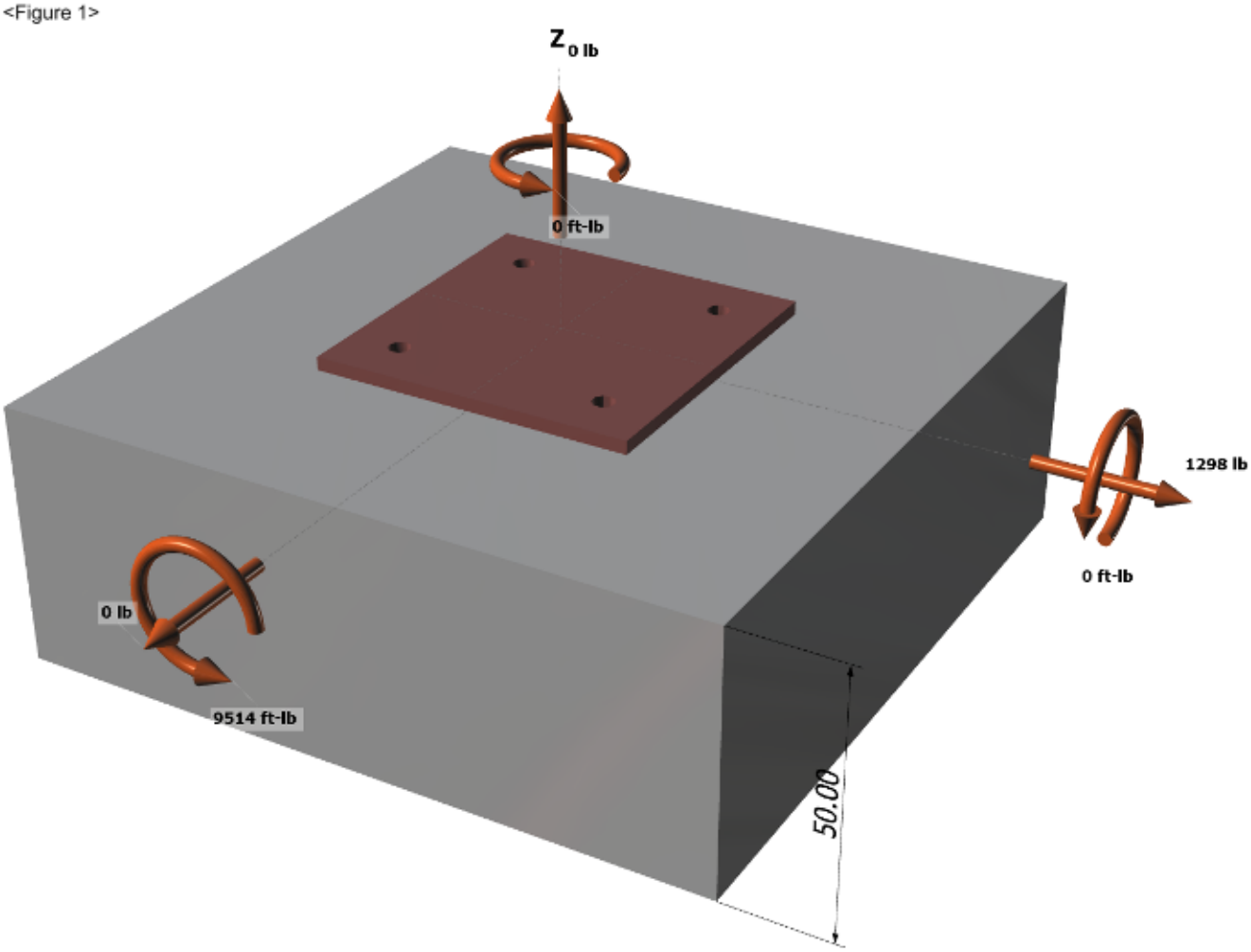
Recommended Anchor
Anchor Name: Heavy Hex Bolt - 3/4"Ø Heavy Hex Bolt, F1554 Gr. 36

Load and Geometry
Load factor source: ACI 318 Section 5.3
Load combination: not set
Seismic design: Yes
Anchors subjected to sustained tension: Not applicable
Ductility section for tension: 17.2.3.4.3 (d) is satisfied
Ductility section for shear: 17.2.3.5.3 (c) is satisfied
Ω_0 factor: not set
Apply entire shear load at front row: No
Anchors only resisting wind and/or seismic loads: No

Strength level loads:

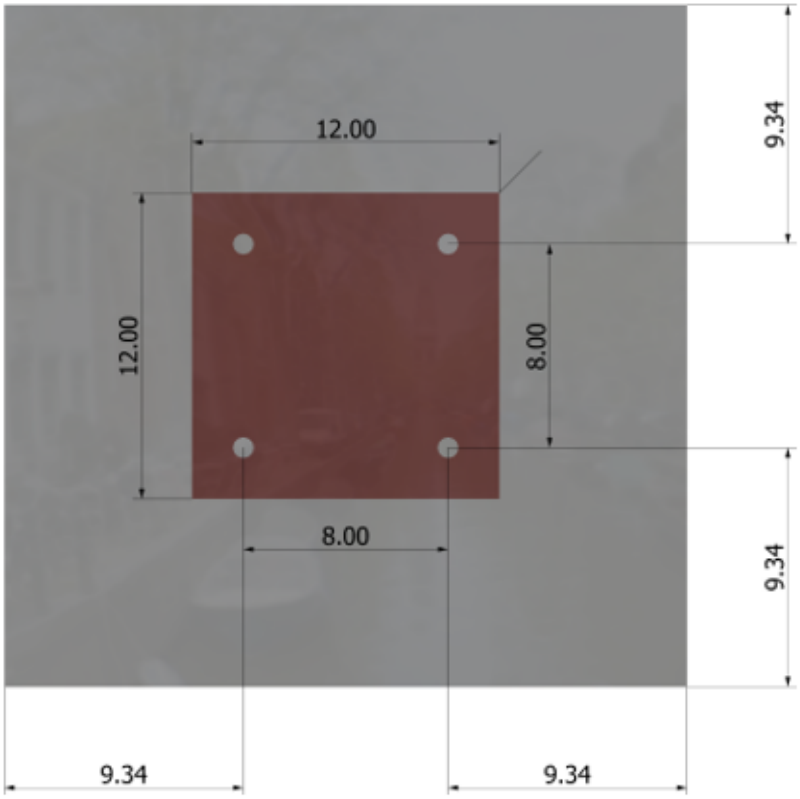
N_{ua} [lb]: 0
V_{uax} [lb]: 0
V_{uay} [lb]: 1298
M_{ux} [ft-lb]: 9514
M_{uy} [ft-lb]: 0
M_{uz} [ft-lb]: 0

<Figure 1>



Company:	Dibble Engineers	Date:	8/16/2017
Engineer:		Page:	3/6
Project:	McD's		
Address:	1029 Market St		
Phone:	425-828-4200		
E-mail:			

<Figure 2>

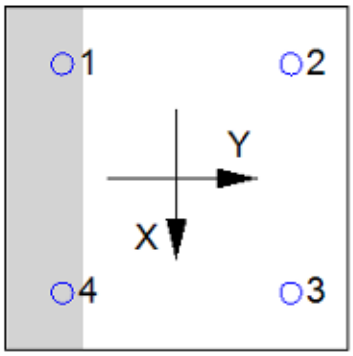


3. Resulting Anchor Forces

Anchor	Tension load, N_{ua} (lb)	Shear load x, V_{uax} (lb)	Shear load y, V_{uay} (lb)	Shear load combined, $\sqrt{(V_{uax})^2+(V_{uay})^2}$ (lb)
1	0.0	0.0	324.5	324.5
2	6281.7	0.0	324.5	324.5
3	6281.7	0.0	324.5	324.5
4	0.0	0.0	324.5	324.5
Sum	12563.5	0.0	1298.0	1298.0

Maximum concrete compression strain (‰): 0.18
Maximum concrete compression stress (psi): 764
Resultant tension force (lb): 12563
Resultant compression force (lb): 12563
Eccentricity of resultant tension forces in x-axis, e'_{Nx} (inch): 0.00
Eccentricity of resultant tension forces in y-axis, e'_{Ny} (inch): 0.00
Eccentricity of resultant shear forces in x-axis, e'_{Vx} (inch): 0.00
Eccentricity of resultant shear forces in y-axis, e'_{Vy} (inch): 0.00

<Figure 3>



4. Steel Strength of Anchor in Tension (Sec. 17.4.1)

N_{sa} (lb)	ϕ	ϕN_{sa} (lb)
19370	0.75	14528

5. Concrete Breakout Strength of Anchor in Tension (Sec. 17.4.2)

$N_b = 16\lambda_a\sqrt{f'_c}h_{ef}^{5/3}$ (Eq. 17.4.2.2b)

λ_a	f'_c (psi)	h_{ef} (in)	N_b (lb)
1.00	3000	11.560	51794

$0.75\phi N_{cbg} = 0.75\phi\,(A_{Nc}/A_{Nco})\,\Psi_{ec,N}\Psi_{ed,N}\Psi_{c,N}\Psi_{cp,N}N_b$ (Sec. 17.3.1 & Eq. 17.4.2.1b)

A_{Nc} (in²)	A_{Nco} (in²)	$c_{a,min}$ (in)	$\Psi_{ec,N}$	$\Psi_{ed,N}$	$\Psi_{c,N}$	$\Psi_{cp,N}$	N_b (lb)	ϕ	$0.75\phi N_{cbg}$ (lb)
711.82	1202.70	9.34	1.000	0.862	1.00	1.000	51794	0.70	13866

6. Pullout Strength of Anchor in Tension (Sec. 17.4.3)

$0.75\phi N_{pn} = 0.75\phi\Psi_{c,P}N_p = 0.75\phi\Psi_{c,P}8A_{brg}f'_c$ (Sec. 17.3.1, Eq. 17.4.3.1 & 17.4.3.4)

$\Psi_{c,P}$	A_{brg} (in²)	f'_c (psi)	ϕ	$0.75\phi N_{pn}$ (lb)
1.0	0.91	3000	0.70	11479

7. Side-Face Blowout Strength of Anchor in Tension (Sec. 17.4.4)

$0.75\phi N_{sbg} = 0.75\phi\{(1+c_{a2}/c_{a1})/4\}(1+s/6c_{a1})N_{sb} = 0.75\phi\{(1+c_{a2}/c_{a1})/4\}(1+s/6c_{a1})(160c_{a1}\sqrt{A_{brg}})\lambda_a\sqrt{f'_c}$ (Sec. 17.3.1, Eq. 17.4.4.1 & 17.4.4.2)

s (in)	c_{a1} (in)	c_{a2} (in)	A_{brg} (in²)	λ_a	f'_c (psi)	ϕ	$0.75\phi N_{sb}$ (lb)
8.00	9.34	9.34	0.91	1.00	3000	0.70	23435

8. Steel Strength of Anchor in Shear (Sec. 17.5.1)

V_{sa} (lb)	ϕ_{grout}	ϕ	$\phi_{grout}\phi V_{sa}$ (lb)
11625	1.0	0.65	7556

9. Concrete Breakout Strength of Anchor in Shear (Sec. 17.5.2)

Shear perpendicular to edge in y-direction:

$V_{by} = \min|7(l_e/d_a)^{0.2}\sqrt{d_a}\lambda_a\sqrt{f'_c}c_{a1}^{1.5}; 9\lambda_a\sqrt{f'_c}c_{a1}^{1.5}|$ (Eq. 17.5.2.2a & Eq. 17.5.2.2b)

l_e (in)	d_a (in)	λ_a	f'_c (psi)	c_{a1} (in)	V_{by} (lb)
6.00	0.750	1.00	3000	17.34	35594

$\phi V_{cbgy} = \phi\,(A_{Vc}/A_{Vco})\,\Psi_{ec,V}\Psi_{ed,V}\Psi_{c,V}\Psi_{h,V}V_{by}$ (Sec. 17.3.1 & Eq. 17.5.2.1b)

A_{Vc} (in²)	A_{Vco} (in²)	$\Psi_{ec,V}$	$\Psi_{ed,V}$	$\Psi_{c,V}$	$\Psi_{h,V}$	V_{by} (lb)	ϕ	ϕV_{cbgy} (lb)
693.95	1353.04	1.000	0.808	1.000	1.000	35594	0.70	10322

Shear parallel to edge in y-direction:

$V_{bx} = \min|7(l_e/d_a)^{0.2}\sqrt{d_a}\lambda_a\sqrt{f'_c}c_{a1}^{1.5}; 9\lambda_a\sqrt{f'_c}c_{a1}^{1.5}|$ (Eq. 17.5.2.2a & Eq. 17.5.2.2b)

l_e (in)	d_a (in)	λ_a	f'_c (psi)	c_{a1} (in)	V_{bx} (lb)
6.00	0.750	1.00	3000	9.34	14071

$\phi V_{cbgy} = \phi\,(2)(A_{Vc}/A_{Vco})\,\Psi_{ec,V}\Psi_{ed,V}\Psi_{c,V}\Psi_{h,V}V_{bx}$ (Sec. 17.3.1, 17.5.2.1(c) & Eq. 17.5.2.1b)

A_{Vc} (in²)	A_{Vco} (in²)	$\Psi_{ec,V}$	$\Psi_{ed,V}$	$\Psi_{c,V}$	$\Psi_{h,V}$	V_{bx} (lb)	ϕ	ϕV_{cbgy} (lb)
373.79	392.56	1.000	1.000	1.000	1.000	14071	0.70	18757

10. Concrete Pryout Strength of Anchor in Shear (Sec. 17.5.3)

$\phi V_{cpg} = \phi k_{cp}N_{cbg} = \phi k_{cp}(A_{Nc}/A_{Nco})\,\Psi_{ec,N}\Psi_{ed,N}\Psi_{c,N}\Psi_{cp,N}N_b$ (Sec. 17.3.1 & Eq. 17.5.3.1b)

k_{cp}	A_{Nc} (in²)	A_{Nco} (in²)	$\Psi_{ec,N}$	$\Psi_{ed,N}$	$\Psi_{c,N}$	$\Psi_{cp,N}$	N_b (lb)	ϕ	ϕV_{cpg} (lb)
2.0	711.82	348.94	1.000	1.000	1.000	1.000	18469	0.70	52746

11. Results

Interaction of Tensile and Shear Forces (Sec. 17.6.)

Tension	Factored Load, N_{ua} (lb)	Design Strength, ϕN_n (lb)	Ratio	Status
Steel	6282	14528	0.43	Pass
Concrete breakout	**12563**	**13866**	**0.91**	**Pass (Governs)**
Pullout	6282	11479	0.55	Pass
Side-face blowout	12563	23435	0.54	Pass

Shear	Factored Load, V_{ua} (lb)	Design Strength, ϕV_n (lb)	Ratio	Status
Steel	325	7556	0.04	Pass
T Concrete breakout y+	**1298**	**10322**	**0.13**	**Pass (Governs)**
|| Concrete breakout x-	**649**	**18757**	**0.03**	**Pass (Governs)**

Pryout	1298	52746	0.02	Pass

Interaction check	$N_{ua}/\phi N_n$	$V_{ua}/\phi V_n$	Combined Ratio	Permissible	Status
Sec. 17.6..1	0.91	0.00	90.6%	1.0	Pass

3/4"Ø Heavy Hex Bolt, F1554 Gr. 36 with hef = 24.000 inch meets the selected design criteria.

12. Warnings

- Per designer input, ductility requirements for tension have been determined to be satisfied – designer to verify.

- Per designer input, ductility requirements for shear have been determined to be satisfied – designer to verify.

- Designer must exercise own judgement to determine if this design is suitable.

SIMPSON Strong-Tie

Anchor Designer™ Software
Version 2.6.6794.0

Company:	Dibble Engineers, Inc.	Date:	7/31/2018
Engineer:		Page:	1/6
Project:	McD's		
Address:	1029 Market St		
Phone:	425-828-4200		
E-mail:			

1.Project information

Customer company: Freiheit Architecture
Customer contact name:
Customer e-mail:
Comment:

Project description: Digital PreSell Board
Location:
Fastening description:

2. Input Data & Anchor Parameters

General
Design method:ACI 318-14
Units: Imperial units

Anchor Information:
Anchor type: Cast-in-place
Material: F1554 Grade 36
Diameter (inch): 0.750
Effective Embedment depth, h_{ef} (inch): 24.000
Anchor category: -
Anchor ductility: Yes
h_{min} (inch): 25.50
C_{min} (inch): 4.50
S_{min} (inch): 4.50

Base Material
Concrete: Normal-weight
Concrete thickness, h (inch): 36.00
State: Cracked
Compressive strength, f'_c (psi): 3000
$\Psi_{c,V}$: 1.0
Reinforcement condition: B tension, B shear
Supplemental reinforcement: Not applicable
Reinforcement provided at corners: No
Ignore concrete breakout in tension: No
Ignore concrete breakout in shear: No
Ignore 6do requirement: No
Build-up grout pad: No

Base Plate
Length x Width x Thickness (inch): 12.00 x 12.00 x 0.50

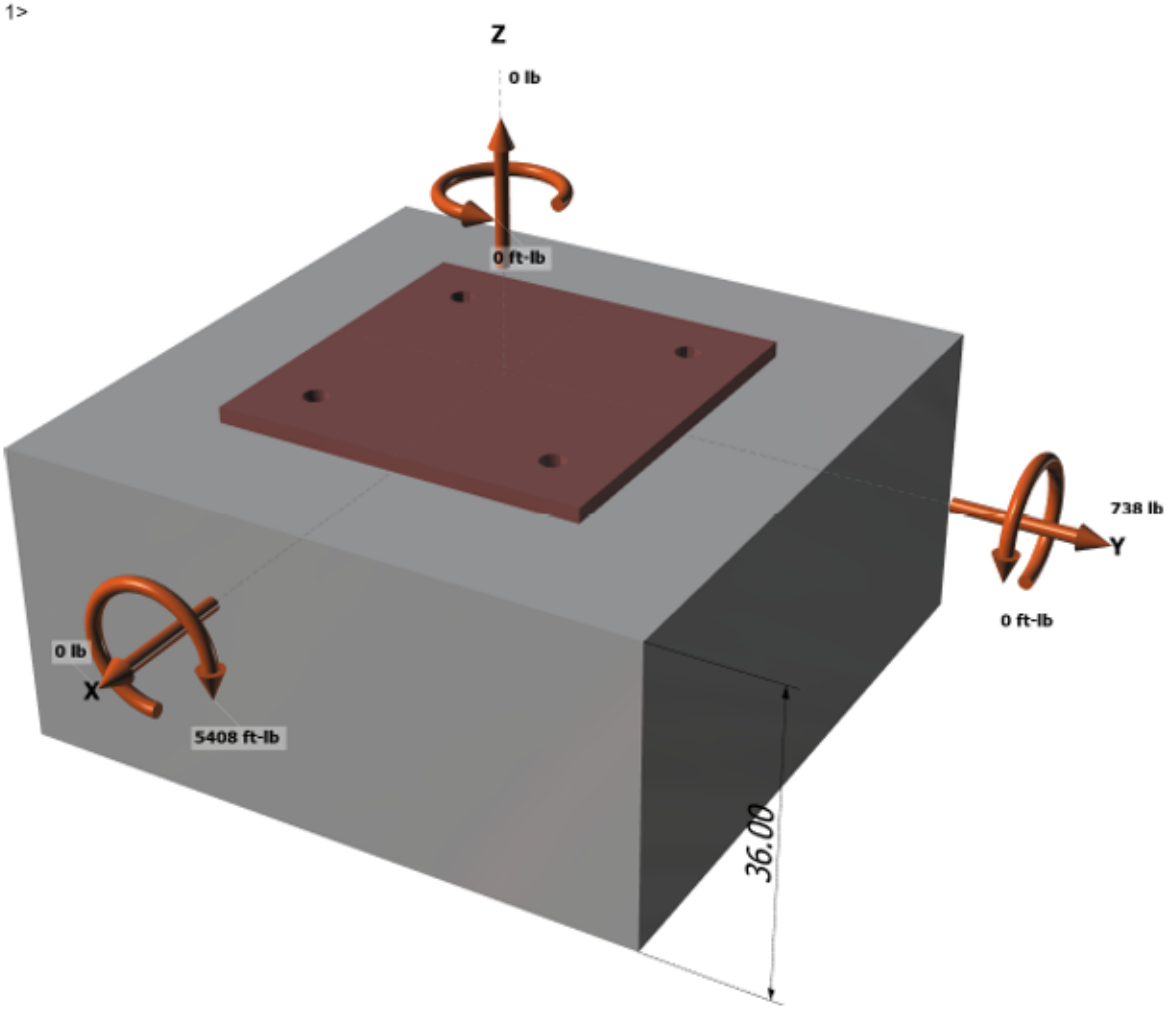
Recommended Anchor
Anchor Name: Heavy Hex Bolt - 3/4"Ø Heavy Hex Bolt, F1554 Gr. 36

Load and Geometry
Load factor source: ACI 318 Section 5.3
Load combination: not set
Seismic design: Yes
Anchors subjected to sustained tension: Not applicable
Ductility section for tension: 17.2.3.4.3 (d) is satisfied
Ductility section for shear: 17.2.3.5.3 (c) is satisfied
Ω_0 factor: not set
Apply entire shear load at front row: No
Anchors only resisting wind and/or seismic loads: Yes

Strength level loads:

N_{ua} [lb]: 0
V_{uax} [lb]: 0
V_{uay} [lb]: 738
M_{ux} [ft-lb]: -5408
M_{uy} [ft-lb]: 0
M_{uz} [ft-lb]: 0

<Figure 1>



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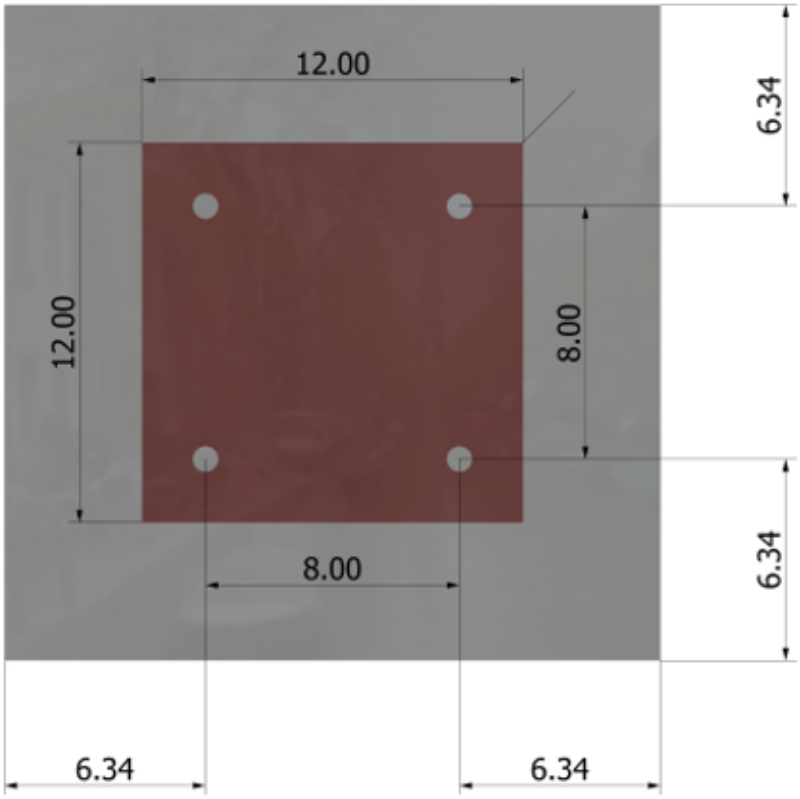
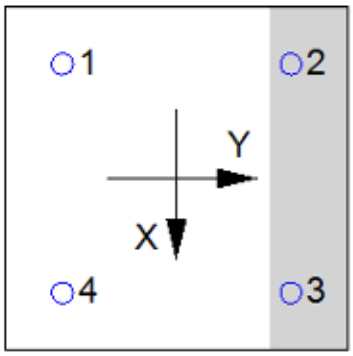


3. Resulting Anchor Forces

Anchor	Tension load, N_{ua} (lb)	Shear load x, V_{uax} (lb)	Shear load y, V_{uay} (lb)	Shear load combined, $\sqrt{(V_{uax})^2+(V_{uay})^2}$ (lb)
1	3571.2	0.0	184.5	184.5
2	0.0	0.0	184.5	184.5
3	0.0	0.0	184.5	184.5
4	3571.2	0.0	184.5	184.5
Sum	7142.3	0.0	738.0	738.0

Maximum concrete compression strain (‰): 0.10
Maximum concrete compression stress (psi): 434
Resultant tension force (lb): 7142
Resultant compression force (lb): 7142
Eccentricity of resultant tension forces in x-axis, e'_{Nx} (inch): 0.00
Eccentricity of resultant tension forces in y-axis, e'_{Ny} (inch): 0.00
Eccentricity of resultant shear forces in x-axis, e'_{Vx} (inch): 0.00
Eccentricity of resultant shear forces in y-axis, e'_{Vy} (inch): 0.00

<Figure 3>



4. Steel Strength of Anchor in Tension (Sec. 17.4.1)

N_{sa} (lb)	ϕ	ϕN_{sa} (lb)
19370	0.75	14528

5. Concrete Breakout Strength of Anchor in Tension (Sec. 17.4.2)

$N_b = 16\lambda_a\sqrt{f'_c}h_{ef}^{5/3}$ (Eq. 17.4.2.2b)

λ_a	f'_c (psi)	h_{ef} (in)	N_b (lb)
1.00	3000	9.560	37738

$0.75\phi N_{cbg} = 0.75\phi\,(A_{Nc}/A_{Nco})\,\Psi_{ec,N}\Psi_{ed,N}\Psi_{c,N}\Psi_{cp,N}N_b$ (Sec. 17.3.1 & Eq. 17.4.2.1b)

A_{Nc} (in²)	A_{Nco} (in²)	$c_{a,min}$ (in)	$\Psi_{ec,N}$	$\Psi_{ed,N}$	$\Psi_{c,N}$	$\Psi_{cp,N}$	N_b (lb)	ϕ	$0.75\phi N_{cbg}$ (lb)
427.66	822.54	6.34	1.000	0.833	1.00	1.000	37738	0.70	8577

6. Pullout Strength of Anchor in Tension (Sec. 17.4.3)

$0.75\phi N_{pn} = 0.75\phi\Psi_{c,P}N_p = 0.75\phi\Psi_{c,P}8A_{brg}f'_c$ (Sec. 17.3.1, Eq. 17.4.3.1 & 17.4.3.4)

$\Psi_{c,P}$	A_{brg} (in²)	f'_c (psi)	ϕ	$0.75\phi N_{pn}$ (lb)
1.0	0.91	3000	0.70	11479

7. Side-Face Blowout Strength of Anchor in Tension (Sec. 17.4.4)

$0.75\phi N_{sbg} = 0.75\phi\{(1+c_{a2}/c_{a1})/4\}(1+s/6c_{a1})N_{sb} = 0.75\phi\{(1+c_{a2}/c_{a1})/4\}(1+s/6c_{a1})(160c_{a1}\sqrt{A_{brg}})\lambda_a\sqrt{f'_c}$ (Sec. 17.3.1, Eq. 17.4.4.1 & 17.4.4.2)

s (in)	c_{a1} (in)	c_{a2} (in)	A_{brg} (in²)	λ_a	f'_c (psi)	ϕ	$0.75\phi N_{sb}$ (lb)
8.00	6.34	6.34	0.91	1.00	3000	0.70	16848

8. Steel Strength of Anchor in Shear (Sec. 17.5.1)

V_{sa} (lb)	ϕ_{grout}	ϕ	$\phi_{grout}\phi V_{sa}$ (lb)
11625	1.0	0.65	7556

9. Concrete Breakout Strength of Anchor in Shear (Sec. 17.5.2)

Shear perpendicular to edge in y-direction:

$V_{by} = \min|7(l_e/d_a)^{0.2}\sqrt{d_a}\lambda_a\sqrt{f'_c}c_{a1}^{1.5}; 9\lambda_a\sqrt{f'_c}c_{a1}^{1.5}|$ (Eq. 17.5.2.2a & Eq. 17.5.2.2b)

l_e (in)	d_a (in)	λ_a	f'_c (psi)	c_{a1} (in)	V_{by} (lb)
6.00	0.750	1.00	3000	14.34	26769

$\phi V_{cbgy} = \phi\,(A_{Vc}/A_{Vco})\,\Psi_{ec,V}\Psi_{ed,V}\Psi_{c,V}\Psi_{h,V}V_{by}$ (Sec. 17.3.1 & Eq. 17.5.2.1b)

A_{Vc} (in²)	A_{Vco} (in²)	$\Psi_{ec,V}$	$\Psi_{ed,V}$	$\Psi_{c,V}$	$\Psi_{h,V}$	V_{by} (lb)	ϕ	ϕV_{cbgy} (lb)
444.83	925.36	1.000	0.788	1.000	1.000	26769	0.70	7102

Shear parallel to edge in y-direction:

$V_{bx} = \min|7(l_e/d_a)^{0.2}\sqrt{d_a}\lambda_a\sqrt{f'_c}c_{a1}^{1.5}; 9\lambda_a\sqrt{f'_c}c_{a1}^{1.5}|$ (Eq. 17.5.2.2a & Eq. 17.5.2.2b)

l_e (in)	d_a (in)	λ_a	f'_c (psi)	c_{a1} (in)	V_{bx} (lb)
6.00	0.750	1.00	3000	6.34	7869

$\phi V_{cbgy} = \phi\,(2)(A_{Vc}/A_{Vco})\,\Psi_{ec,V}\Psi_{ed,V}\Psi_{c,V}\Psi_{h,V}V_{bx}$ (Sec. 17.3.1, 17.5.2.1(c) & Eq. 17.5.2.1b)

A_{Vc} (in²)	A_{Vco} (in²)	$\Psi_{ec,V}$	$\Psi_{ed,V}$	$\Psi_{c,V}$	$\Psi_{h,V}$	V_{bx} (lb)	ϕ	ϕV_{cbgy} (lb)
196.67	180.88	1.000	1.000	1.000	1.000	7869	0.70	11979

10. Concrete Pryout Strength of Anchor in Shear (Sec. 17.5.3)

$\phi V_{cpg} = \phi k_{cp} N_{cbg} = \phi k_{cp}(A_{Nc}/A_{Nco})\,\Psi_{ec,N}\Psi_{ed,N}\Psi_{c,N}\Psi_{cp,N}N_b$ (Sec. 17.3.1 & Eq. 17.5.3.1b)

k_{cp}	A_{Nc} (in²)	A_{Nco} (in²)	$\Psi_{ec,N}$	$\Psi_{ed,N}$	$\Psi_{c,N}$	$\Psi_{cp,N}$	N_b (lb)	ϕ	ϕV_{cpg} (lb)
2.0	427.66	160.78	1.000	1.000	1.000	1.000	9683	0.70	36058

11. Results

Interaction of Tensile and Shear Forces (Sec. 17.6.)

Tension	Factored Load, N_{ua} (lb)	Design Strength, ϕN_n (lb)	Ratio	Status
Steel	3571	14528	0.25	Pass
Concrete breakout	**7142**	**8577**	**0.83**	**Pass (Governs)**
Pullout	3571	11479	0.31	Pass
Side-face blowout	7142	16848	0.42	Pass

Shear	Factored Load, V_{ua} (lb)	Design Strength, ϕV_n (lb)	Ratio	Status
Steel	185	7556	0.02	Pass
T Concrete breakout y+	**738**	**7102**	**0.10**	**Pass (Governs)**
|| Concrete breakout x-	**369**	**11979**	**0.03**	**Pass (Governs)**

Pryout	738	36058	0.02	Pass

Interaction check	$N_{ua}/\phi N_n$	$V_{ua}/\phi V_n$	Combined Ratio	Permissible	Status
Sec. 17.6..1	0.83	0.00	83.3%	1.0	Pass

3/4"Ø Heavy Hex Bolt, F1554 Gr. 36 with hef = 24.000 inch meets the selected design criteria.

12. Warnings

- Per designer input, ductility requirements for tension have been determined to be satisfied – designer to verify.

- Per designer input, ductility requirements for shear have been determined to be satisfied – designer to verify.

- Designer must exercise own judgement to determine if this design is suitable.

Company:	DEI	Date:	8/1/2018
Engineer:		Page:	1/6
Project:	McD's		
Address:	1029 Market St		
Phone:	425-828-4200		
E-mail:			

1.Project information

Customer company: Freiheit Architects
Customer contact name:
Customer e-mail:
Comment:

Project description: Order Here Canopy
Location:
Fastening description:

2. Input Data & Anchor Parameters

General
Design method:ACI 318-14
Units: Imperial units

Anchor Information:
Anchor type: Cast-in-place
Material: F1554 Grade 36
Diameter (inch): 1.000
Effective Embedment depth, h_{ef} (inch): 24.000
Anchor category: -
Anchor ductility: Yes
h_{min} (inch): 25.75
C_{min} (inch): 6.00
S_{min} (inch): 6.00

Base Material
Concrete: Normal-weight
Concrete thickness, h (inch): 36.00
State: Cracked
Compressive strength, f'_c (psi): 3000
$\Psi_{c,V}$: 1.0
Reinforcement condition: B tension, B shear
Supplemental reinforcement: Not applicable
Reinforcement provided at corners: No
Ignore concrete breakout in tension: No
Ignore concrete breakout in shear: No
Ignore 6do requirement: No
Build-up grout pad: No

Base Plate
Length x Width x Thickness (inch): 15.00 x 15.00 x 0.50

Recommended Anchor
Anchor Name: Heavy Hex Bolt - 1"Ø Heavy Hex Bolt, F1554 Gr. 36

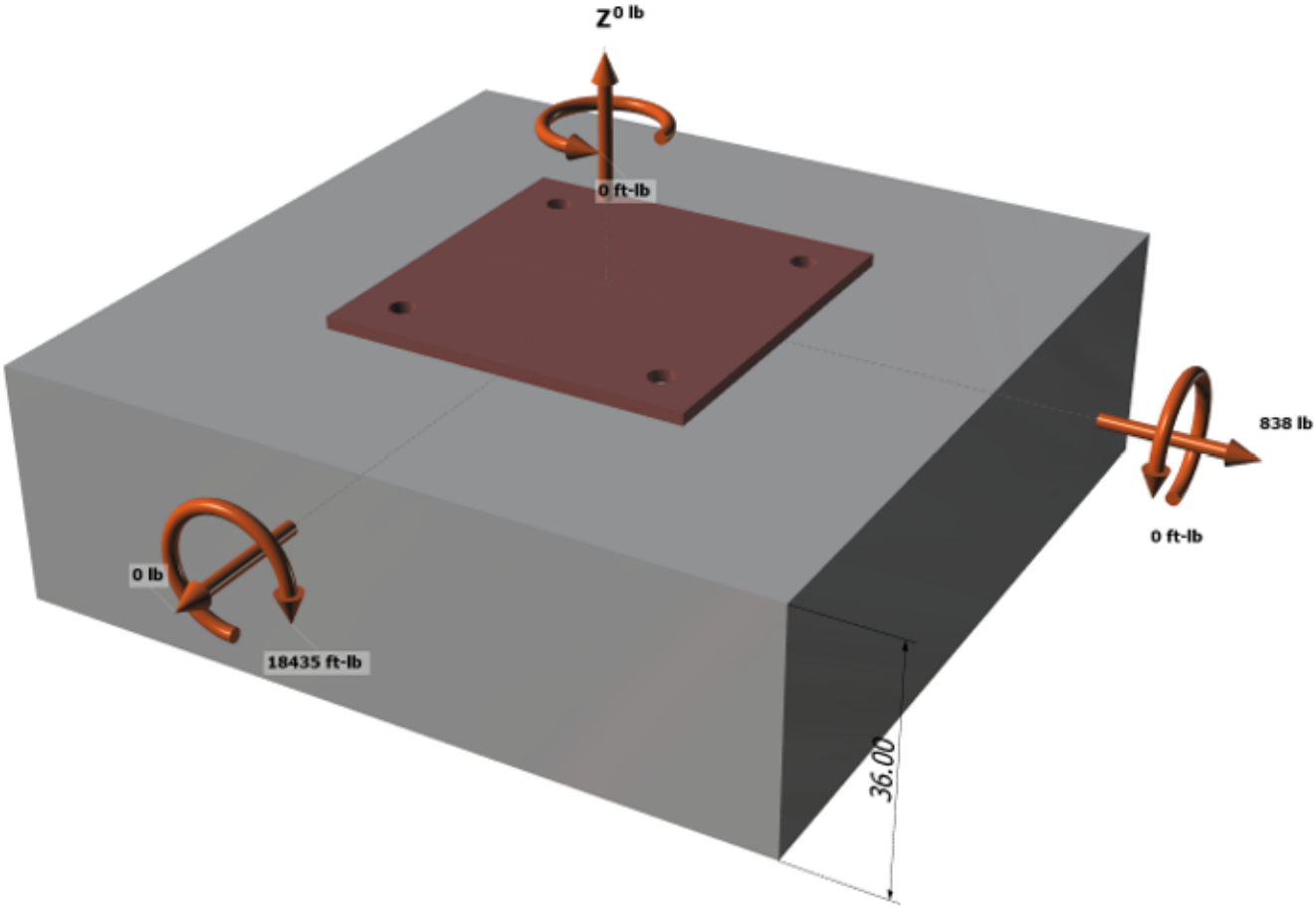
Company:	DEI	Date:	8/1/2018
Engineer:		Page:	2/6
Project:	McD's		
Address:	1029 Market St		
Phone:	425-828-4200		
E-mail:			

Load and Geometry
Load factor source: ACI 318 Section 5.3
Load combination: not set
Seismic design: No
Anchors subjected to sustained tension: Not applicable
Apply entire shear load at front row: No
Anchors only resisting wind and/or seismic loads: No

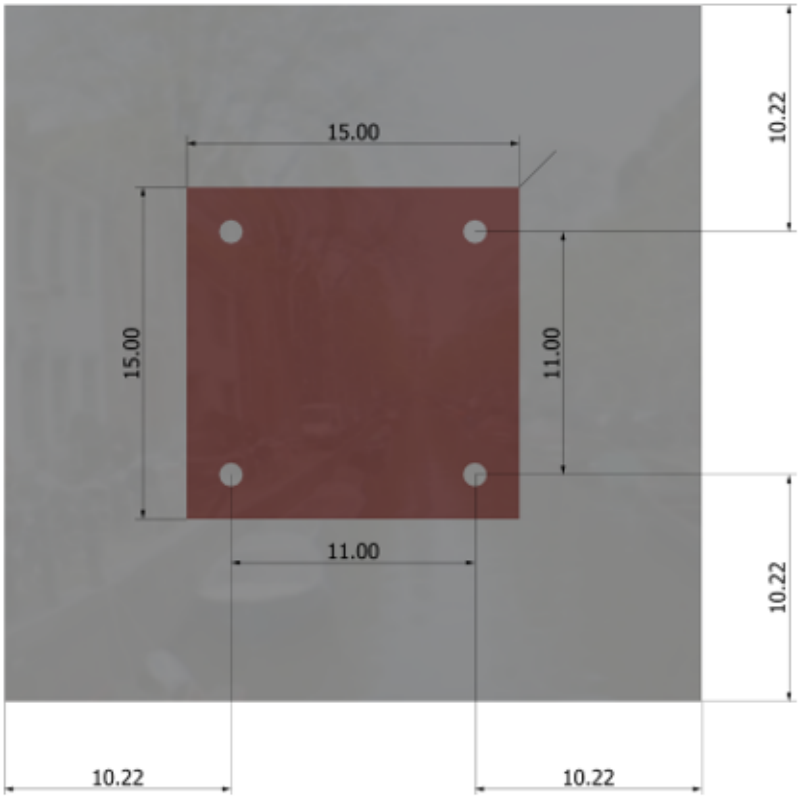
Strength level loads:

N_{ua} [lb]: 0
V_{uax} [lb]: 0
V_{uay} [lb]: 838
M_{ux} [ft-lb]: -18435
M_{uy} [ft-lb]: 0
M_{uz} [ft-lb]: 0

<Figure 1>



<Figure 2>

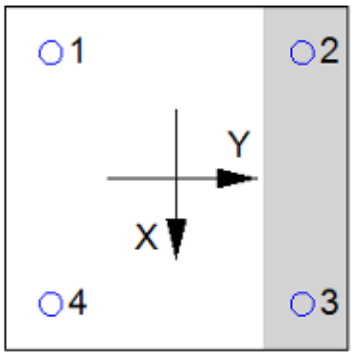


3. Resulting Anchor Forces

Anchor	Tension load, N_{ua} (lb)	Shear load x, V_{uax} (lb)	Shear load y, V_{uay} (lb)	Shear load combined, $\sqrt{(V_{uax})^2+(V_{uay})^2}$ (lb)
1	9407.8	0.0	209.5	209.5
2	0.0	0.0	209.5	209.5
3	0.0	0.0	209.5	209.5
4	9407.8	0.0	209.5	209.5
Sum	18815.6	0.0	838.0	838.0

Maximum concrete compression strain (‰): 0.15
Maximum concrete compression stress (psi): 673
Resultant tension force (lb): 18816
Resultant compression force (lb): 18816
Eccentricity of resultant tension forces in x-axis, e'_{Nx} (inch): 0.00
Eccentricity of resultant tension forces in y-axis, e'_{Ny} (inch): 0.00
Eccentricity of resultant shear forces in x-axis, e'_{Vx} (inch): 0.00
Eccentricity of resultant shear forces in y-axis, e'_{Vy} (inch): 0.00

<Figure 3>



4. Steel Strength of Anchor in Tension (Sec. 17.4.1)

N_{sa} (lb)	ϕ	ϕN_{sa} (lb)
35150	0.75	26363

5. Concrete Breakout Strength of Anchor in Tension (Sec. 17.4.2)

$N_b = 16\lambda_a\sqrt{f'_c}h_{ef}^{5/3}$ (Eq. 17.4.2.2b)

λ_a	f'_c (psi)	h_{ef} (in)	N_b (lb)
1.00	3000	14.147	72517

$\phi N_{cbg} = \phi\,(A_{Nc}/A_{Nco})\,\Psi_{ec,N}\,\Psi_{ed,N}\,\Psi_{c,N}\,\Psi_{cp,N}N_b$ (Sec. 17.3.1 & Eq. 17.4.2.1b)

A_{Nc} (in²)	A_{Nco} (in²)	$c_{a,min}$ (in)	$\Psi_{ec,N}$	$\Psi_{ed,N}$	$\Psi_{c,N}$	$\Psi_{cp,N}$	N_b (lb)	ϕ	ϕN_{cbg} (lb)
988.47	1801.15	10.22	1.000	0.844	1.00	1.000	72517	0.70	23526

6. Pullout Strength of Anchor in Tension (Sec. 17.4.3)

$\phi N_{pn} = \phi\,\Psi_{c,P}N_p = \phi\,\Psi_{c,P}8A_{brg}f'_c$ (Sec. 17.3.1, Eq. 17.4.3.1 & 17.4.3.4)

$\Psi_{c,P}$	A_{brg} (in²)	f'_c (psi)	ϕ	ϕN_{pn} (lb)
1.0	1.50	3000	0.70	25217

8. Steel Strength of Anchor in Shear (Sec. 17.5.1)

V_{sa} (lb)	ϕ_{grout}	ϕ	$\phi_{grout}\phi V_{sa}$ (lb)
21090	1.0	0.65	13709

9. Concrete Breakout Strength of Anchor in Shear (Sec. 17.5.2)

Shear perpendicular to edge in y-direction:

$V_{by} = \min|7(l_e / d_a)^{0.2}\sqrt{d_a}\lambda_a\sqrt{f'_c}{c_{a1}}^{1.5};\ 9\lambda_a\sqrt{f'_c}{c_{a1}}^{1.5}|$ (Eq. 17.5.2.2a & Eq. 17.5.2.2b)

l_e (in)	d_a (in)	λ_a	f'_c (psi)	c_{a1} (in)	V_{by} (lb)
8.00	1.000	1.00	3000	21.22	48186

$\phi V_{cbgy} = \phi\ (A_{Vc} / A_{Vco})\Psi_{ec,V}\Psi_{ed,V}\Psi_{c,V}\Psi_{h,V}V_{by}$ (Sec. 17.3.1 & Eq. 17.5.2.1b)

A_{Vc} (in^2)	A_{Vco} (in^2)	$\Psi_{ec,V}$	$\Psi_{ed,V}$	$\Psi_{c,V}$	$\Psi_{h,V}$	V_{by} (lb)	ϕ	ϕV_{cbgy} (lb)
1000.74	2026.30	1.000	0.796	1.000	1.000	48186	0.70	13266

Shear parallel to edge in y-direction:

$V_{bx} = \min|7(l_e / d_a)^{0.2}\sqrt{d_a}\lambda_a\sqrt{f'_c}{c_{a1}}^{1.5};\ 9\lambda_a\sqrt{f'_c}{c_{a1}}^{1.5}|$ (Eq. 17.5.2.2a & Eq. 17.5.2.2b)

l_e (in)	d_a (in)	λ_a	f'_c (psi)	c_{a1} (in)	V_{bx} (lb)
8.00	1.000	1.00	3000	10.22	16106

$\phi V_{cbgy} = \phi\ (2)(A_{Vc} / A_{Vco})\Psi_{ec,V}\Psi_{ed,V}\Psi_{c,V}\Psi_{h,V}V_{bx}$ (Sec. 17.3.1, 17.5.2.1(c) & Eq. 17.5.2.1b)

A_{Vc} (in^2)	A_{Vco} (in^2)	$\Psi_{ec,V}$	$\Psi_{ed,V}$	$\Psi_{c,V}$	$\Psi_{h,V}$	V_{bx} (lb)	ϕ	ϕV_{cbgy} (lb)
481.98	470.02	1.000	1.000	1.000	1.000	16106	0.70	23122

10. Concrete Pryout Strength of Anchor in Shear (Sec. 17.5.3)

$\phi V_{cpg} = \phi k_{cp}N_{cbg} = \phi k_{cp}(A_{Nc} / A_{Nco})\Psi_{ec,N}\Psi_{ed,N}\Psi_{c,N}\Psi_{cp,N}N_b$ (Sec. 17.3.1 & Eq. 17.5.3.1b)

k_{cp}	A_{Nc} (in^2)	A_{Nco} (in^2)	$\Psi_{ec,N}$	$\Psi_{ed,N}$	$\Psi_{c,N}$	$\Psi_{cp,N}$	N_b (lb)	ϕ	ϕV_{cpg} (lb)
2.0	988.47	417.79	1.000	1.000	1.000	1.000	21459	0.70	71080

11. Results

Interaction of Tensile and Shear Forces (Sec. 17.6.)

Tension	Factored Load, N_{ua} (lb)	Design Strength, ϕN_n (lb)	Ratio	Status
Steel	9408	26363	0.36	Pass
Concrete breakout	**18816**	**23526**	**0.80**	**Pass (Governs)**
Pullout	9408	25217	0.37	Pass

Shear	Factored Load, V_{ua} (lb)	Design Strength, ϕV_n (lb)	Ratio	Status
Steel	210	13709	0.02	Pass
T Concrete breakout y+	**838**	**13266**	**0.06**	**Pass (Governs)**
|| Concrete breakout x-	**419**	**23122**	**0.02**	**Pass (Governs)**
Pryout	838	71080	0.01	Pass

Interaction check	$N_{ua}/\phi N_n$	$V_{ua}/\phi V_n$	Combined Ratio	Permissible	Status
Sec. 17.6..1	0.80	0.00	80.0%	1.0	Pass

1"Ø Heavy Hex Bolt, F1554 Gr. 36 with hef = 24.000 inch meets the selected design criteria.

12. Warnings

- Designer must exercise own judgement to determine if this design is suitable.

Company:	DEI	Date:	7/18/2017
Engineer:		Page:	1/6
Project:	McD's		
Address:	1029 Market St		
Phone:	425-828-4200		
E-mail:			

1.Project information

Customer company: Freiheit Architecture
Customer contact name:
Customer e-mail:
Comment:

Project description: Single Gateway Sign

Location:
Fastening description:

2. Input Data & Anchor Parameters

General
Design method:ACI 318-14
Units: Imperial units

Anchor Information:
Anchor type: Cast-in-place
Material: F1554 Grade 36
Diameter (inch): 0.750
Effective Embedment depth, h_{ef} (inch): 24.000
Anchor category: -
Anchor ductility: Yes
h_{min} (inch): 25.50
C_{min} (inch): 4.50
S_{min} (inch): 4.50

Base Material
Concrete: Normal-weight
Concrete thickness, h (inch): 36.00
State: Cracked
Compressive strength, f'_c (psi): 3000
$\Psi_{c,V}$: 1.0
Reinforcement condition: B tension, B shear
Supplemental reinforcement: Not applicable
Reinforcement provided at corners: No
Ignore concrete breakout in tension: No
Ignore concrete breakout in shear: No
Ignore 6do requirement: No
Build-up grout pad: No

Base Plate
Length x Width x Thickness (inch): 15.00 x 15.00 x 0.50

Recommended Anchor
Anchor Name: Heavy Hex Bolt - 3/4"Ø Heavy Hex Bolt, F1554 Gr. 36

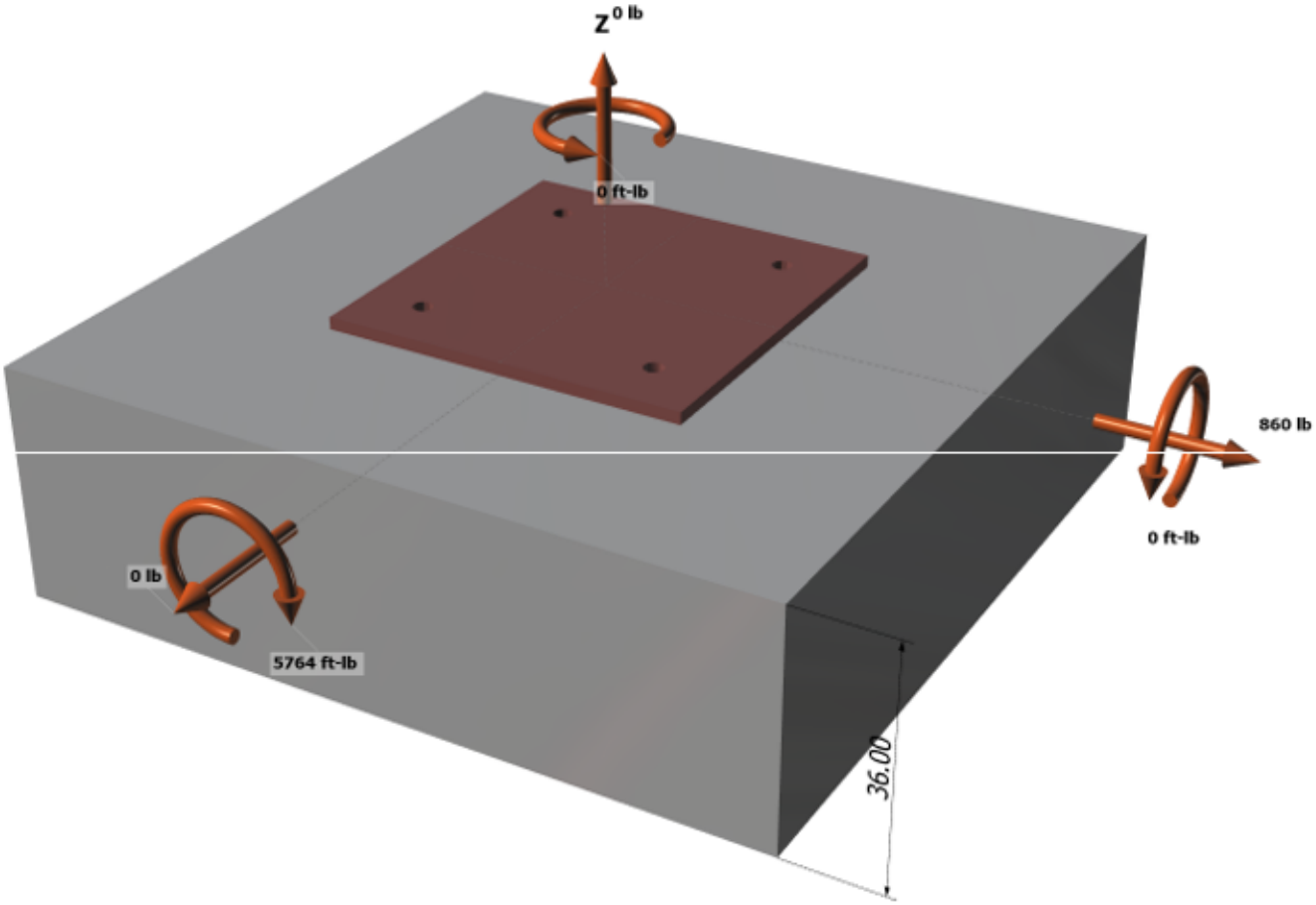
Company:	DEI	Date:	7/18/2017
Engineer:		Page:	2/6
Project:	McD's		
Address:	1029 Market St		
Phone:	425-828-4200		
E-mail:			

Load and Geometry
Load factor source: ACI 318 Section 5.3
Load combination: not set
Seismic design: No
Anchors subjected to sustained tension: Not applicable
Apply entire shear load at front row: No
Anchors only resisting wind and/or seismic loads: No

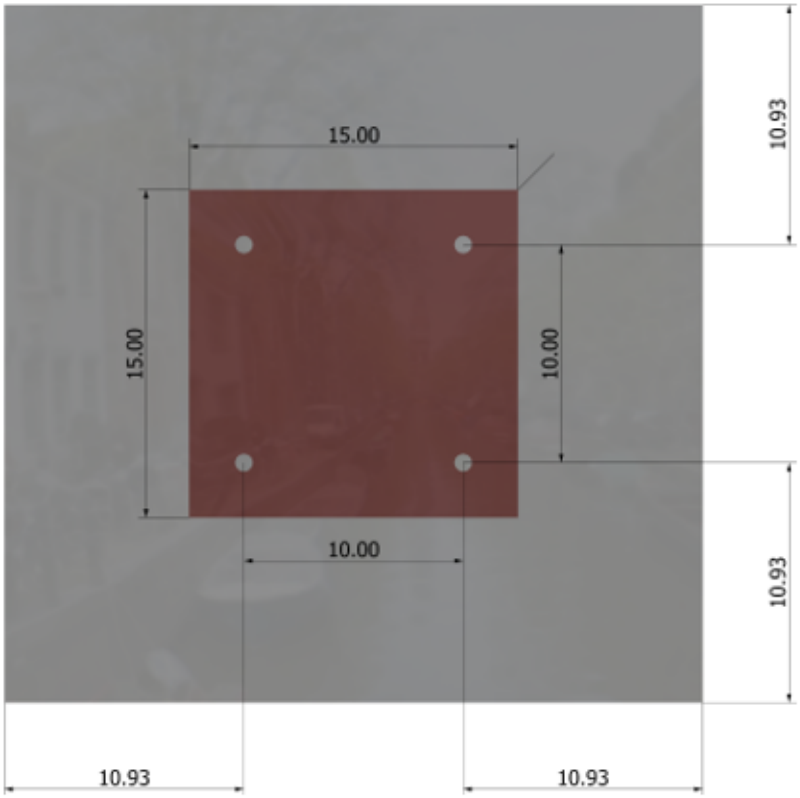
Strength level loads:

N_{ua} [lb]: 0
V_{uax} [lb]: 0
V_{uay} [lb]: 860
M_{ux} [ft-lb]: -5764
M_{uy} [ft-lb]: 0
M_{uz} [ft-lb]: 0

<Figure 1>



<Figure 2>



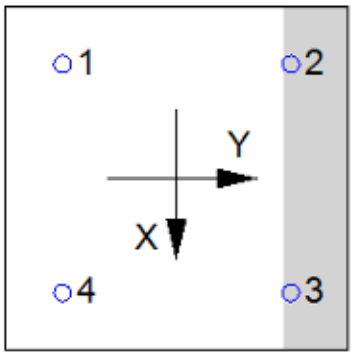
Company:	DEI	Date:	7/18/2017
Engineer:		Page:	4/6
Project:	McD's		
Address:	1029 Market St		
Phone:	425-828-4200		
E-mail:			

3. Resulting Anchor Forces

Anchor	Tension load, N_{ua} (lb)	Shear load x, V_{uax} (lb)	Shear load y, V_{uay} (lb)	Shear load combined, $\sqrt{(V_{uax})^2+(V_{uay})^2}$ (lb)
1	2992.6	0.0	215.0	215.0
2	0.0	0.0	215.0	215.0
3	0.0	0.0	215.0	215.0
4	2992.6	0.0	215.0	215.0
Sum	5985.2	0.0	860.0	860.0

Maximum concrete compression strain (‰): 0.06
Maximum concrete compression stress (psi): 282
Resultant tension force (lb): 5985
Resultant compression force (lb): 5985
Eccentricity of resultant tension forces in x-axis, e'_{Nx} (inch): 0.00
Eccentricity of resultant tension forces in y-axis, e'_{Ny} (inch): 0.00
Eccentricity of resultant shear forces in x-axis, e'_{Vx} (inch): 0.00
Eccentricity of resultant shear forces in y-axis, e'_{Vy} (inch): 0.00

<Figure 3>



4. Steel Strength of Anchor in Tension (Sec. 17.4.1)

N_{sa} (lb)	ϕ	ϕN_{sa} (lb)
19370	0.75	14528

5. Concrete Breakout Strength of Anchor in Tension (Sec. 17.4.2)

$N_b = 16\lambda_a\sqrt{f'_c}h_{ef}^{5/3}$ (Eq. 17.4.2.2b)

λ_a	f'_c (psi)	h_{ef} (in)	N_b (lb)
1.00	3000	13.953	70872

$\phi N_{cbg} = \phi\,(A_{Nc}/A_{Nco})\,\Psi_{ec,N}\,\Psi_{ed,N}\,\Psi_{c,N}\,\Psi_{cp,N}N_b$ (Sec. 17.3.1 & Eq. 17.4.2.1b)

A_{Nc} (in²)	A_{Nco} (in²)	$c_{a,min}$ (in)	$\Psi_{ec,N}$	$\Psi_{ed,N}$	$\Psi_{c,N}$	$\Psi_{cp,N}$	N_b (lb)	ϕ	ϕN_{cbg} (lb)
1015.06	1752.26	10.93	1.000	0.857	1.00	1.000	70872	0.70	24620

6. Pullout Strength of Anchor in Tension (Sec. 17.4.3)

$\phi N_{pn} = \phi\Psi_{c,P}N_p = \phi\Psi_{c,P}8A_{brg}f'_c$ (Sec. 17.3.1, Eq. 17.4.3.1 & 17.4.3.4)

$\Psi_{c,P}$	A_{brg} (in²)	f'_c (psi)	ϕ	ϕN_{pn} (lb)
1.0	0.91	3000	0.70	15305

8. Steel Strength of Anchor in Shear (Sec. 17.5.1)

V_{sa} (lb)	ϕ_{grout}	ϕ	$\phi_{grout}\phi V_{sa}$ (lb)
11625	1.0	0.65	7556

9. Concrete Breakout Strength of Anchor in Shear (Sec. 17.5.2)

Shear perpendicular to edge in y-direction:

$V_{by} = \min|7(l_e / d_a)^{0.2}\sqrt{d_a}\lambda_a\sqrt{f'_c}{c_{a1}}^{1.5};\ 9\lambda_a\sqrt{f'_c}{c_{a1}}^{1.5}|$ (Eq. 17.5.2.2a & Eq. 17.5.2.2b)

l_e (in)	d_a (in)	λ_a	f'_c (psi)	c_{a1} (in)	V_{by} (lb)
6.00	0.750	1.00	3000	20.93	47202

$\phi V_{cbgy} = \phi\ (A_{Vc} / A_{Vco})\ \Psi_{ec,V}\Psi_{ed,V}\Psi_{c,V}\Psi_{h,V}V_{by}$ (Sec. 17.3.1 & Eq. 17.5.2.1b)

A_{Vc} (in^2)	A_{Vco} (in^2)	$\Psi_{ec,V}$	$\Psi_{ed,V}$	$\Psi_{c,V}$	$\Psi_{h,V}$	V_{by} (lb)	ϕ	ϕV_{cbgy} (lb)
1000.24	1971.29	1.000	0.804	1.000	1.000	47202	0.70	13487

Shear parallel to edge in y-direction:

$V_{bx} = \min|7(l_e / d_a)^{0.2}\sqrt{d_a}\lambda_a\sqrt{f'_c}{c_{a1}}^{1.5};\ 9\lambda_a\sqrt{f'_c}{c_{a1}}^{1.5}|$ (Eq. 17.5.2.2a & Eq. 17.5.2.2b)

l_e (in)	d_a (in)	λ_a	f'_c (psi)	c_{a1} (in)	V_{bx} (lb)
6.00	0.750	1.00	3000	10.93	17813

$\phi V_{cbgy} = \phi\ (2)(A_{Vc} / A_{Vco})\ \Psi_{ec,V}\Psi_{ed,V}\Psi_{c,V}\Psi_{h,V}V_{bx}$ (Sec. 17.3.1, 17.5.2.1(c) & Eq. 17.5.2.1b)

A_{Vc} (in^2)	A_{Vco} (in^2)	$\Psi_{ec,V}$	$\Psi_{ed,V}$	$\Psi_{c,V}$	$\Psi_{h,V}$	V_{bx} (lb)	ϕ	ϕV_{cbgy} (lb)
522.34	537.59	1.000	1.000	1.000	1.000	17813	0.70	24231

10. Concrete Pryout Strength of Anchor in Shear (Sec. 17.5.3)

$\phi V_{cpg} = \phi k_{cp}N_{cbg} = \phi k_{cp}(A_{Nc} / A_{Nco})\ \Psi_{ec,N}\Psi_{ed,N}\Psi_{c,N}\Psi_{cp,N}N_b$ (Sec. 17.3.1 & Eq. 17.5.3.1b)

k_{cp}	A_{Nc} (in^2)	A_{Nco} (in^2)	$\Psi_{ec,N}$	$\Psi_{ed,N}$	$\Psi_{c,N}$	$\Psi_{cp,N}$	N_b (lb)	ϕ	ϕV_{cpg} (lb)
2.0	1015.06	477.86	1.000	1.000	1.000	1.000	24001	0.70	71375

11. Results

Interaction of Tensile and Shear Forces (Sec. 17.6.)

Tension	Factored Load, N_{ua} (lb)	Design Strength, ϕN_n (lb)	Ratio	Status
Steel	2993	14528	0.21	Pass
Concrete breakout	**5985**	**24620**	**0.24**	**Pass (Governs)**
Pullout	2993	15305	0.20	Pass

Shear	Factored Load, V_{ua} (lb)	Design Strength, ϕV_n (lb)	Ratio	Status
Steel	215	7556	0.03	Pass
T Concrete breakout y+	**860**	**13487**	**0.06**	**Pass (Governs)**
|| Concrete breakout x-	**430**	**24231**	**0.02**	**Pass (Governs)**
Pryout	860	71375	0.01	Pass

Interaction check	$N_{ua}/\phi N_n$	$V_{ua}/\phi V_n$	Combined Ratio	Permissible	Status
Sec. 17.6..1	0.24	0.00	24.3%	1.0	Pass

3/4"Ø Heavy Hex Bolt, F1554 Gr. 36 with hef = 24.000 inch meets the selected design criteria.

12. Warnings

- Designer must exercise own judgement to determine if this design is suitable.