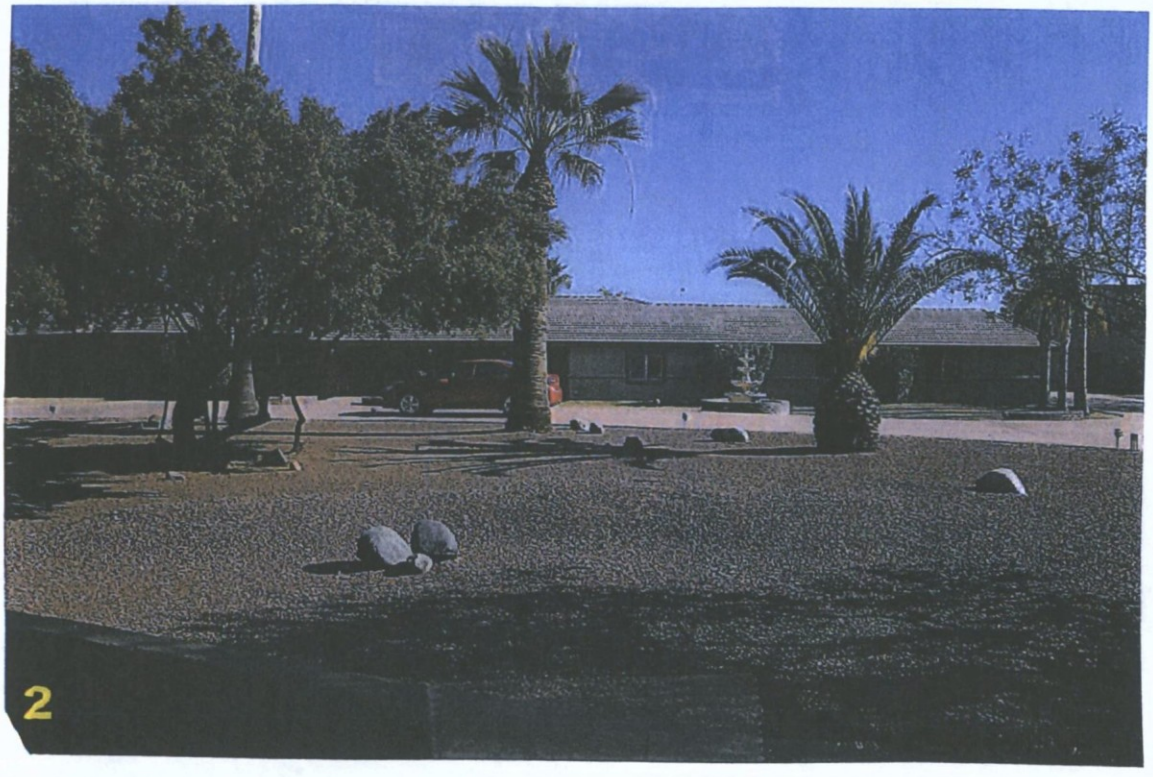
Simulations
Records Packet
Photos
All Graphics (no plans)

4-UP-2013
3/14/13

A



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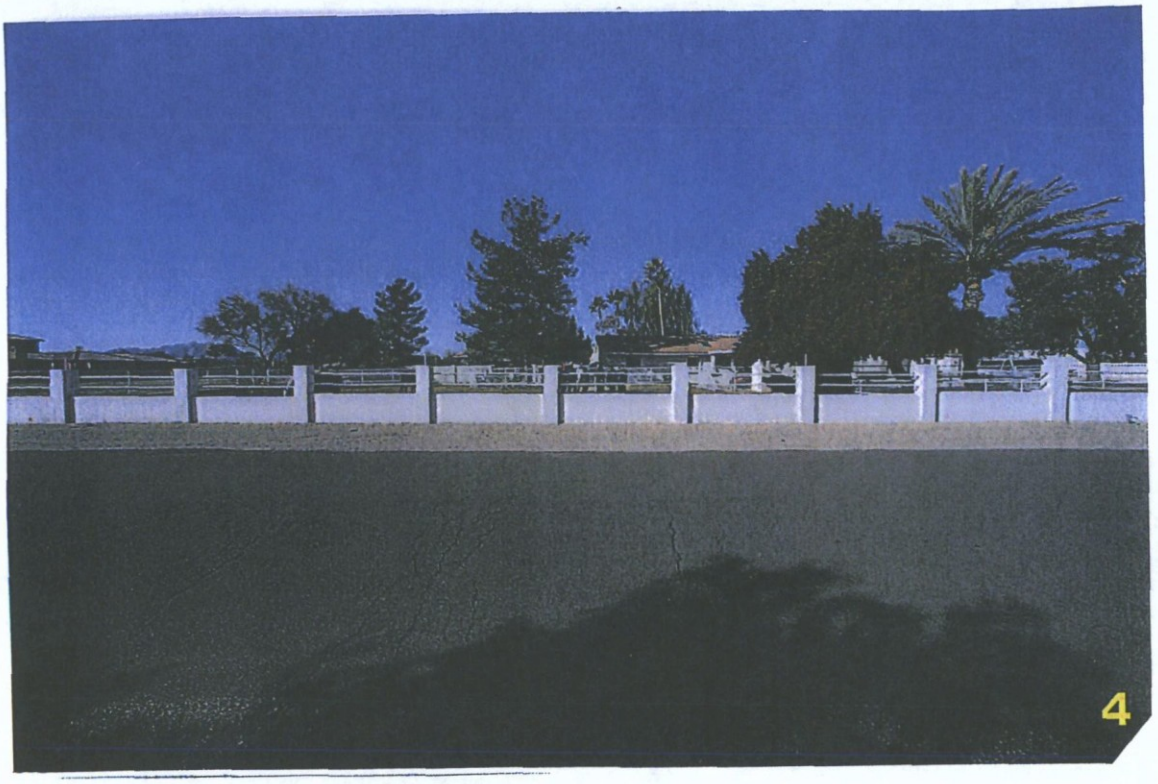

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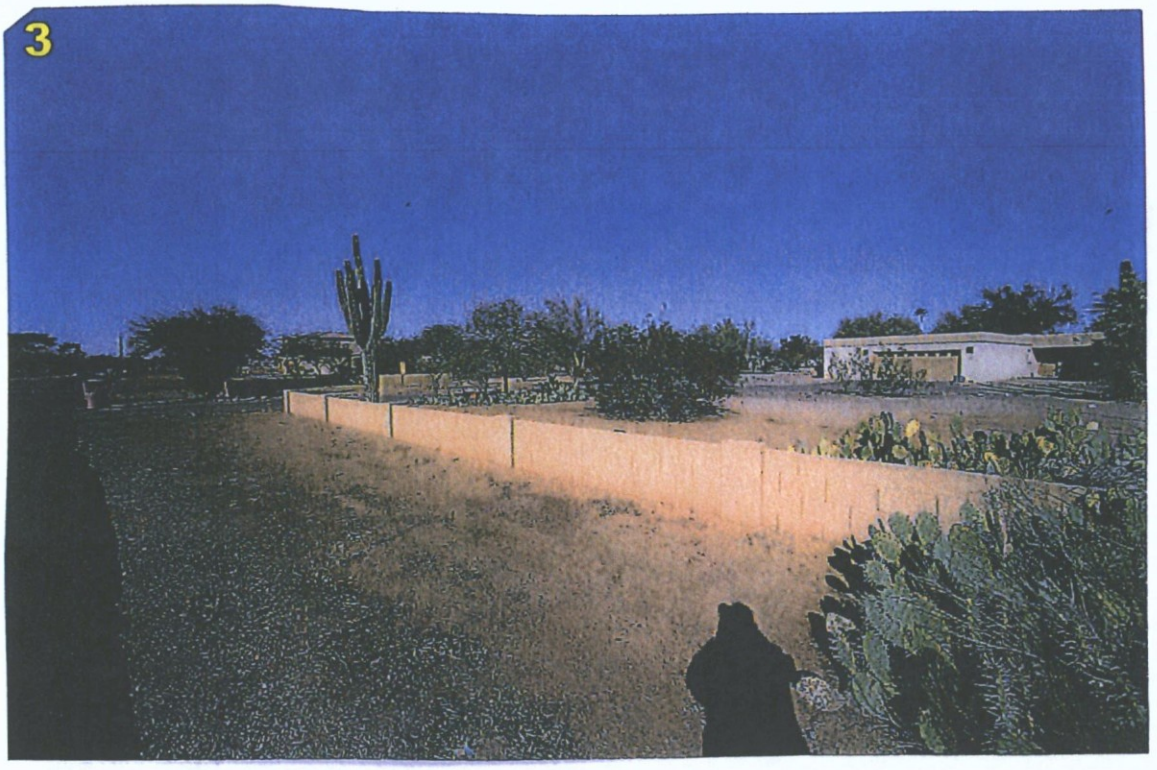

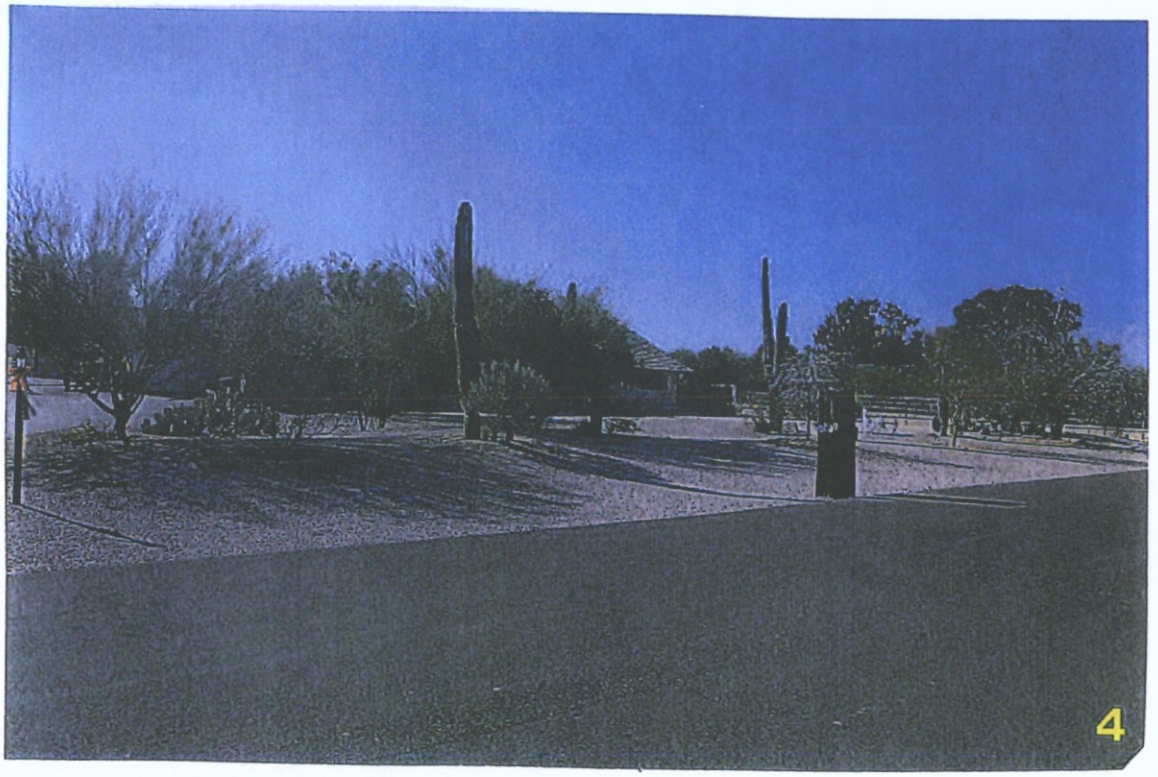

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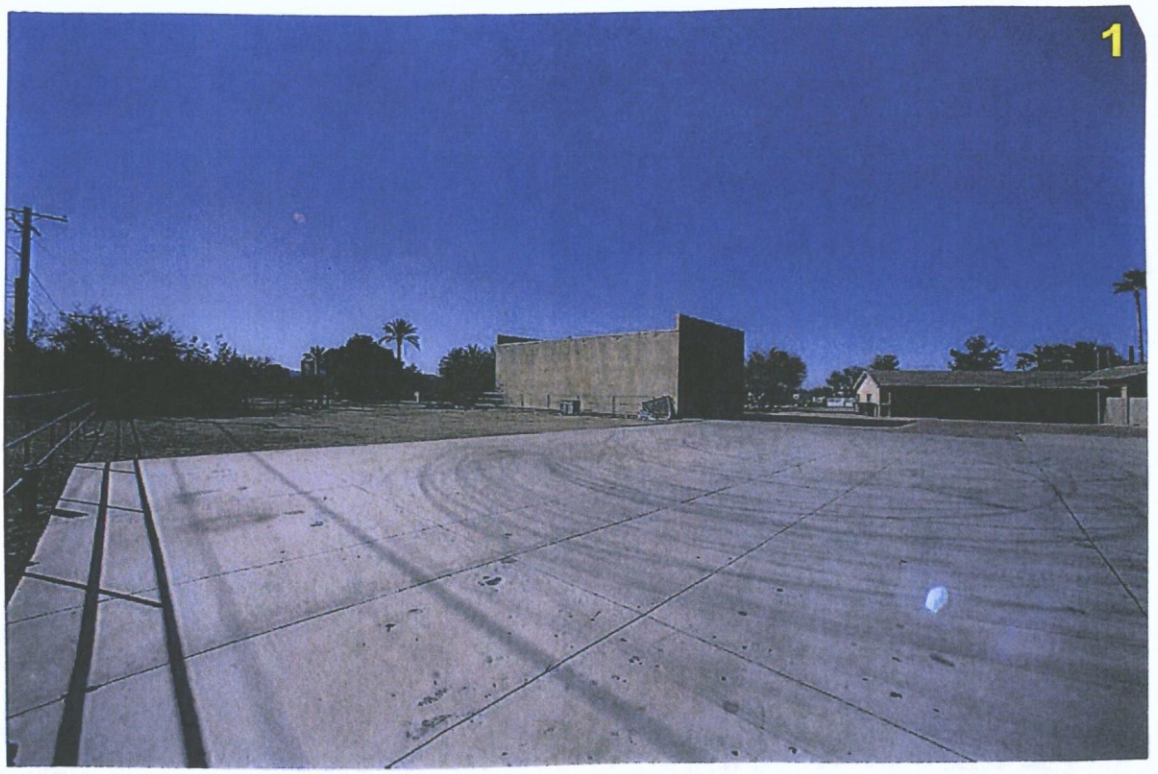

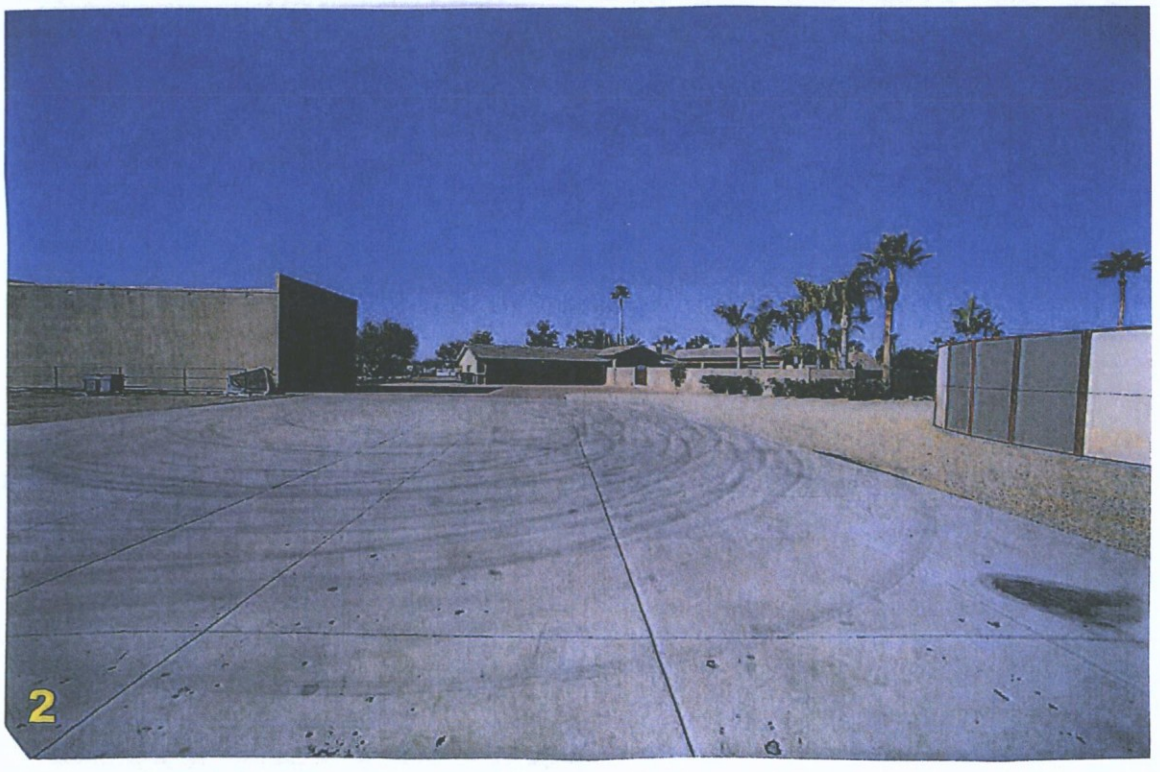

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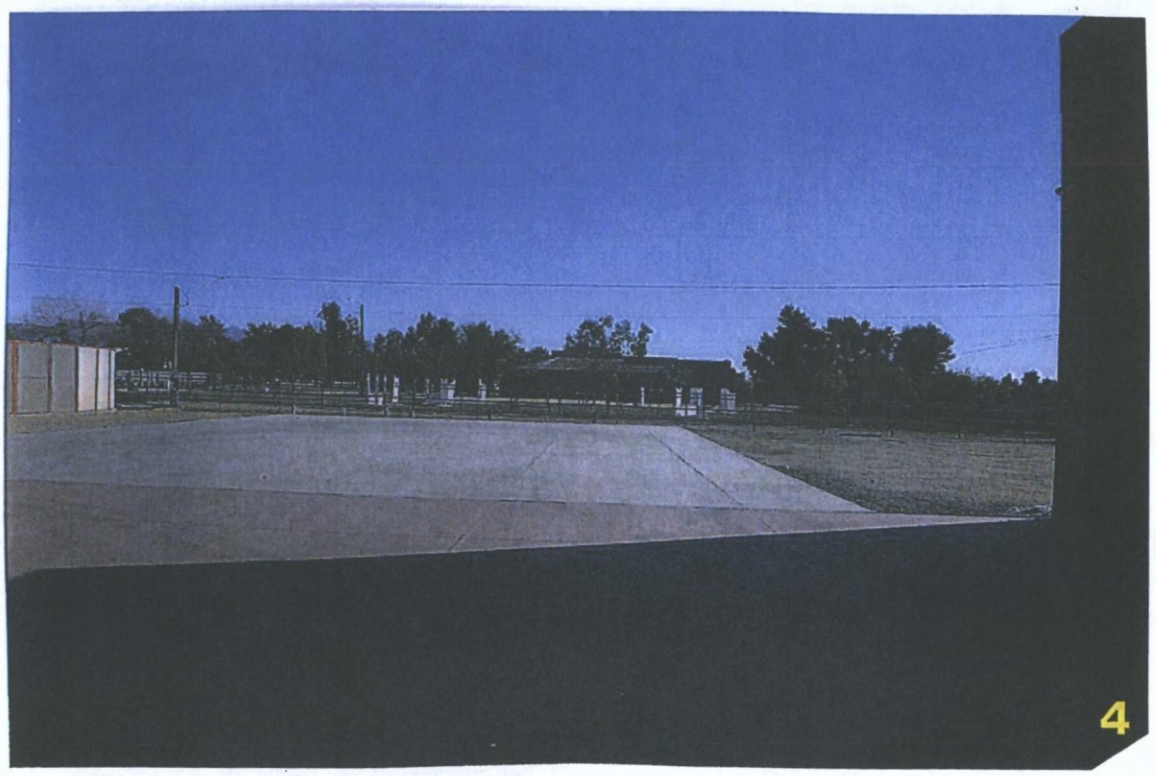

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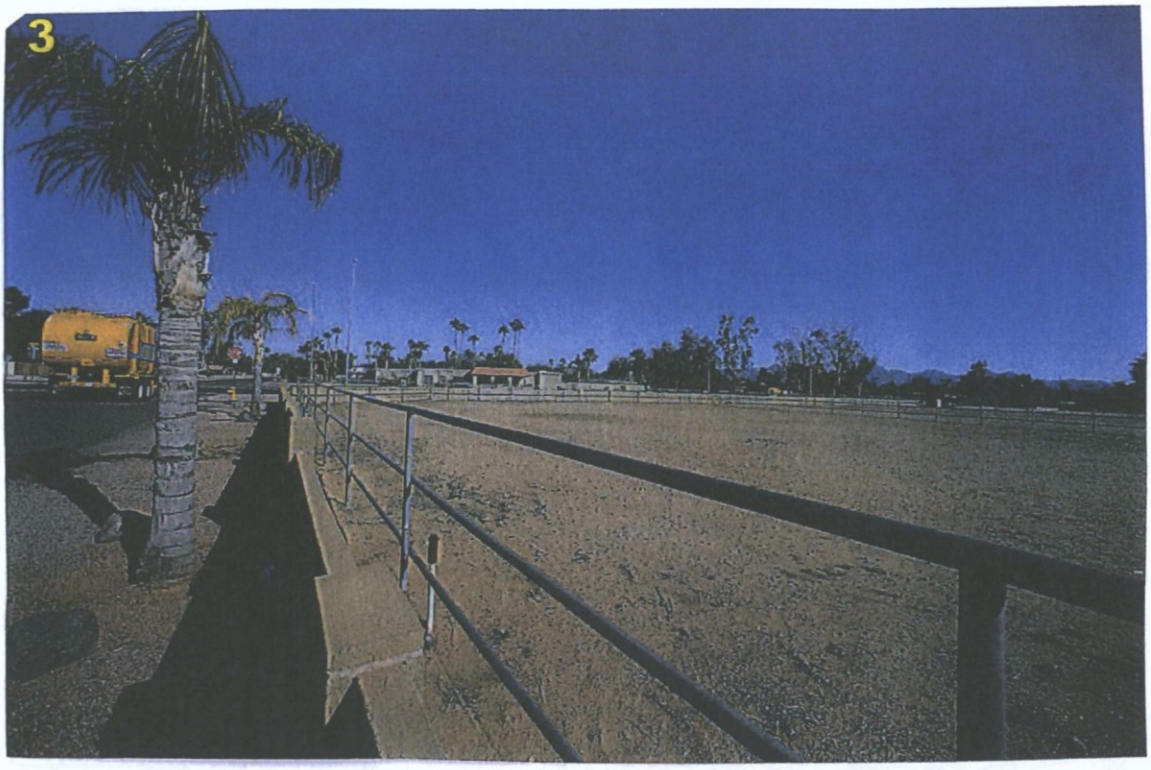



STOP


CACTUS
STOP


CARIDAS
STOP

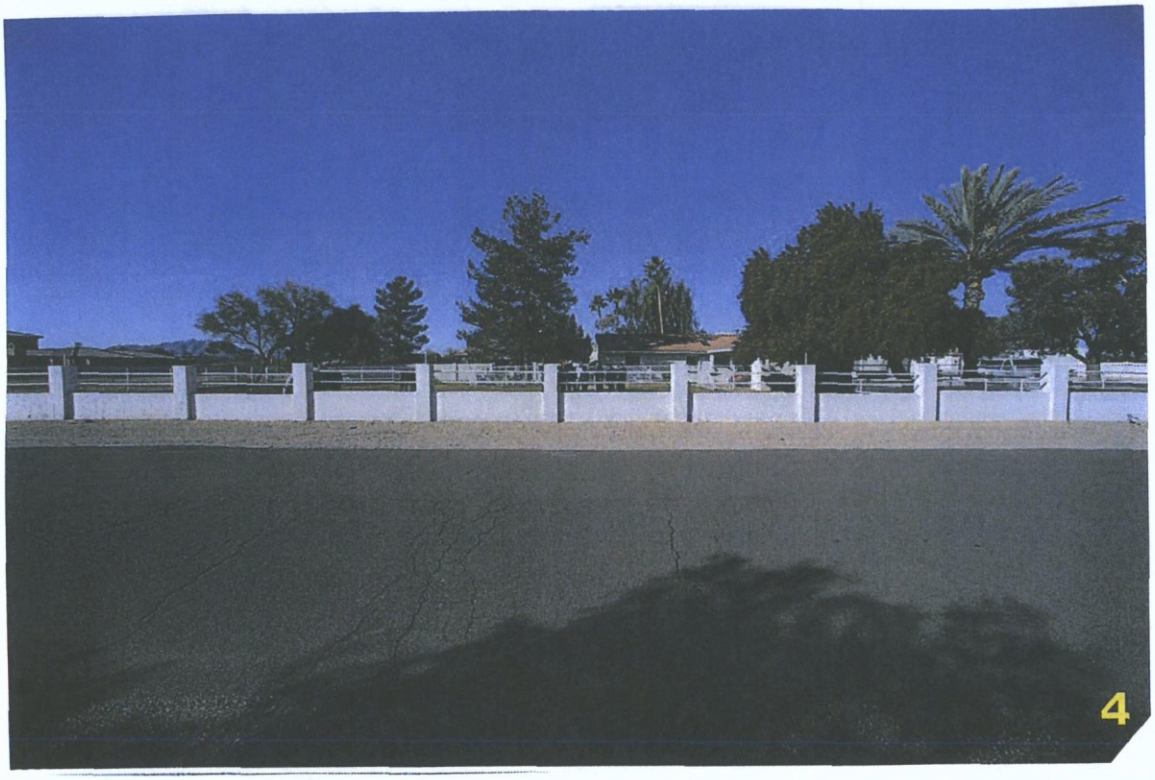

N. 68th Pl.

4-UP-2013
3/14/13

A

4-UP-2013
3/14/13

A



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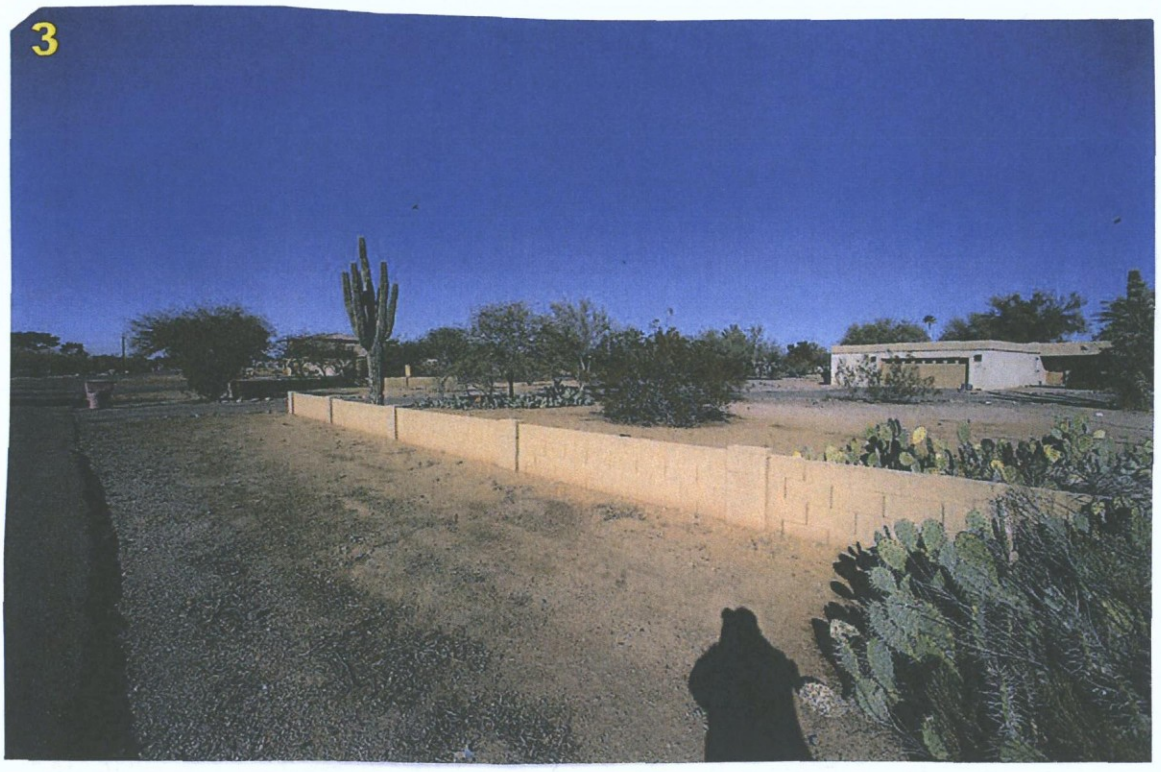

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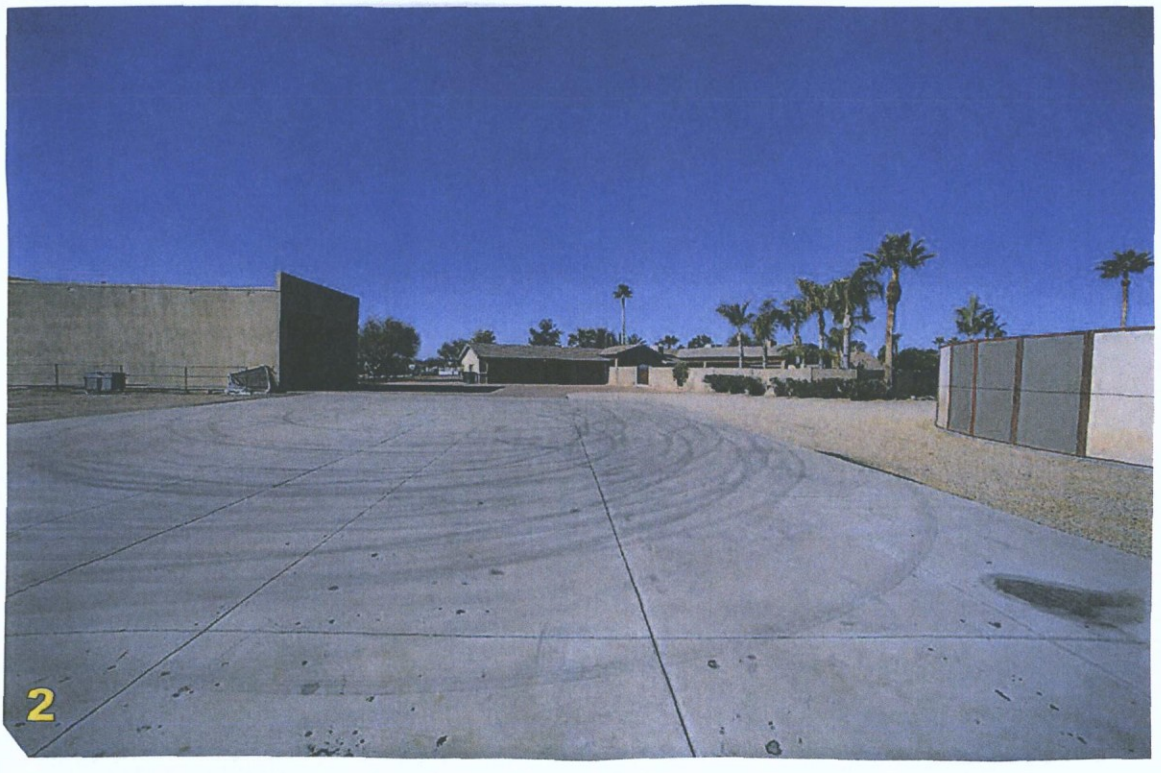

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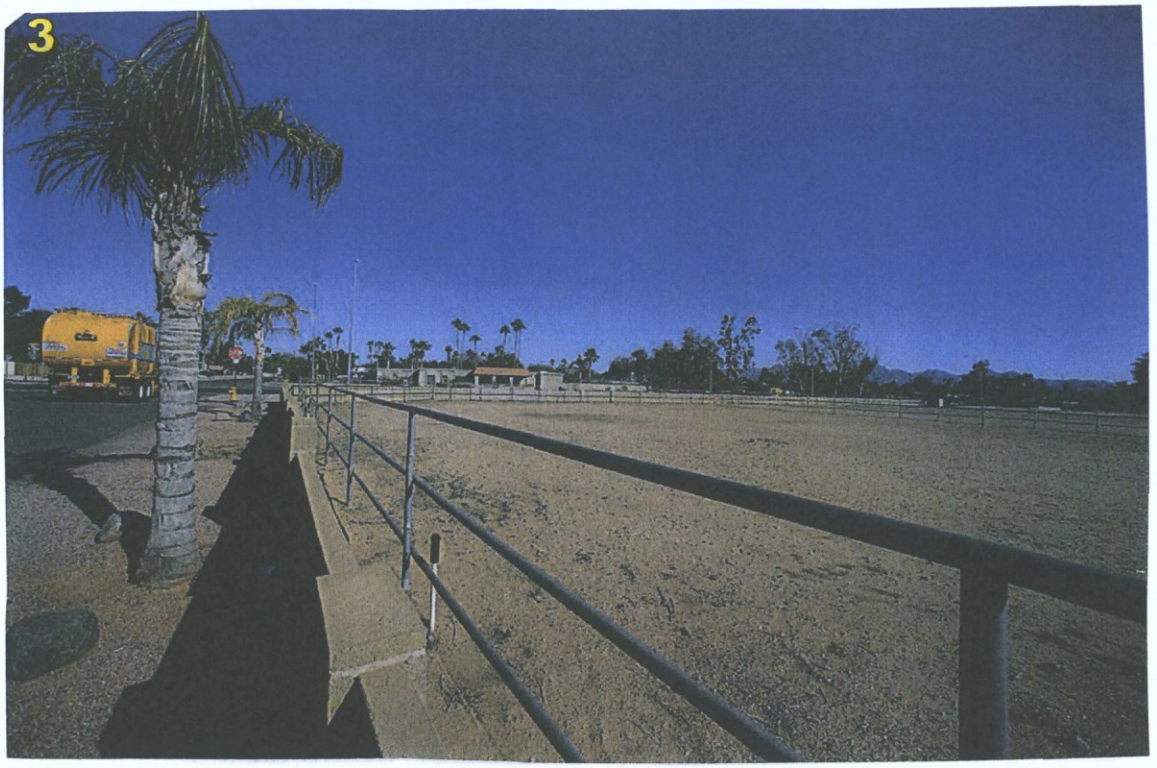

context plan

scale: 1" = 100'-0"

N

0 50 100 200

F

NAJAFI RANCH

575 BOYNTON CANYON ROAD

PRELIMINARY NOT FOR CONSTRUCTION

Expires 12.31.2017

Douglas Fredrikson Architects

727 east bethany home road, d-123

phoenix, arizona 85014

602.277.1625

13100

site plan

issue date

10. 25 . 2015

revisions

a 100

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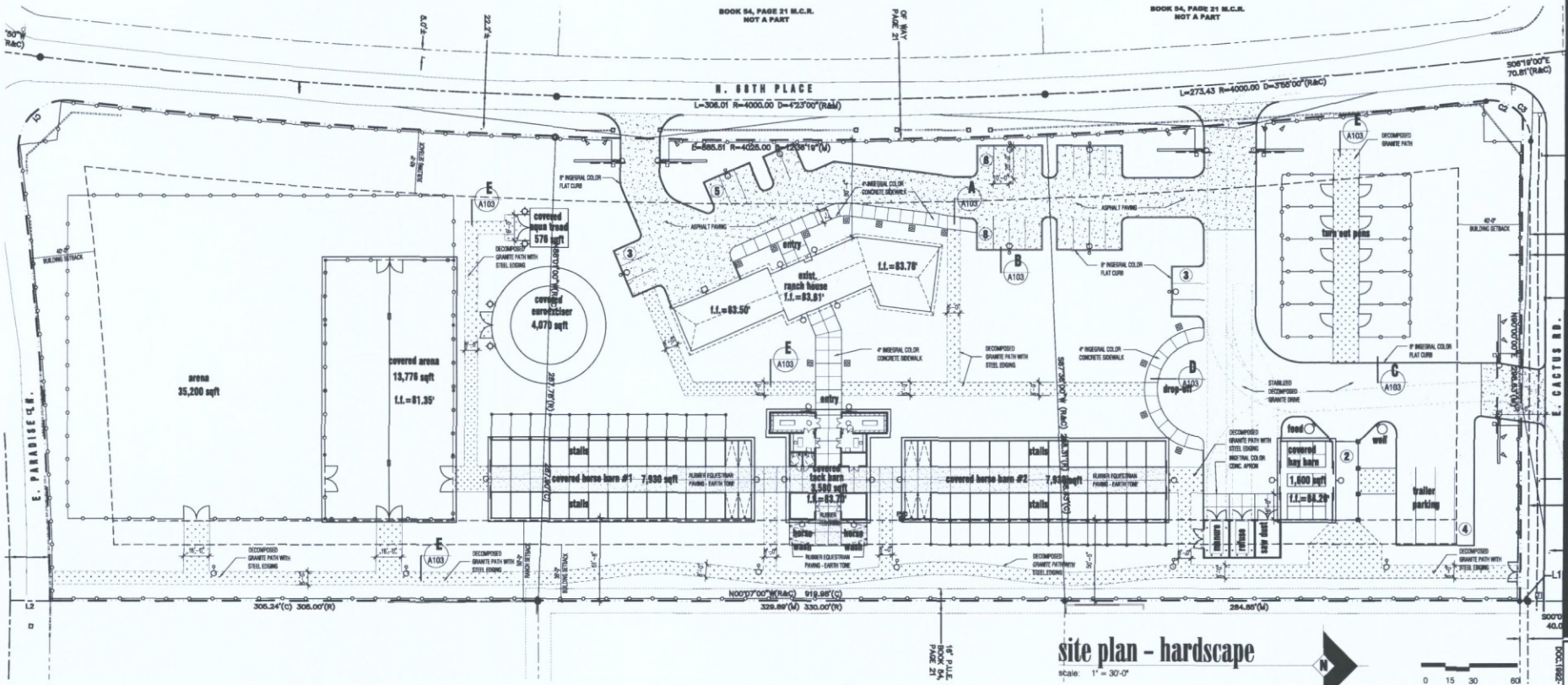
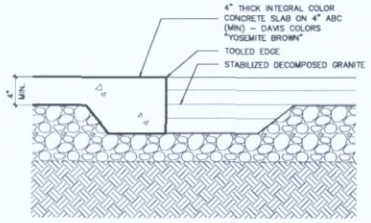
11/12/15



site plan - hardscape

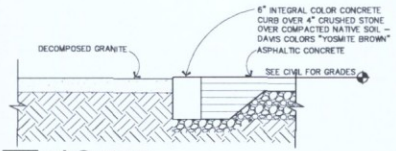
scale: 1" = 30'-0"

0 15 30 60

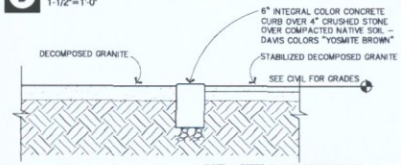


A concrete paving-edge
1-1/2"=1'-0"

NOTE: REFER TO CIVIL DRAWINGS FOR ADDITIONAL INFO. AND SPECIFICATIONS ON PAVING

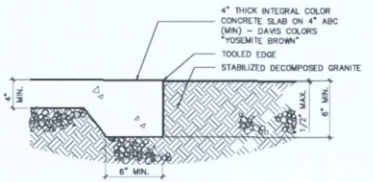


B curb @ pavement
1-1/2"=1'-0"



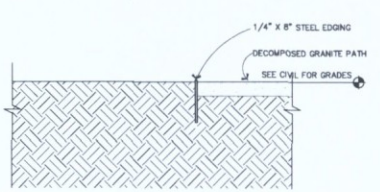
C curb @ decomposed granite
1-1/2"=1'-0"

NOTE: REFER TO CIVIL DRAWINGS FOR ADDITIONAL INFO. AND SPECIFICATIONS ON PAVING



D concrete paving-edge
1-1/2"=1'-0"

NOTE: REFER TO CIVIL DRAWINGS FOR ADDITIONAL INFO. AND SPECIFICATIONS ON PAVING



E steel edging @ decomposed granite path
1-1/2"=1'-0"

NOTE: REFER TO CIVIL DRAWINGS FOR ADDITIONAL INFO. AND SPECIFICATIONS ON PAVING

F

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102

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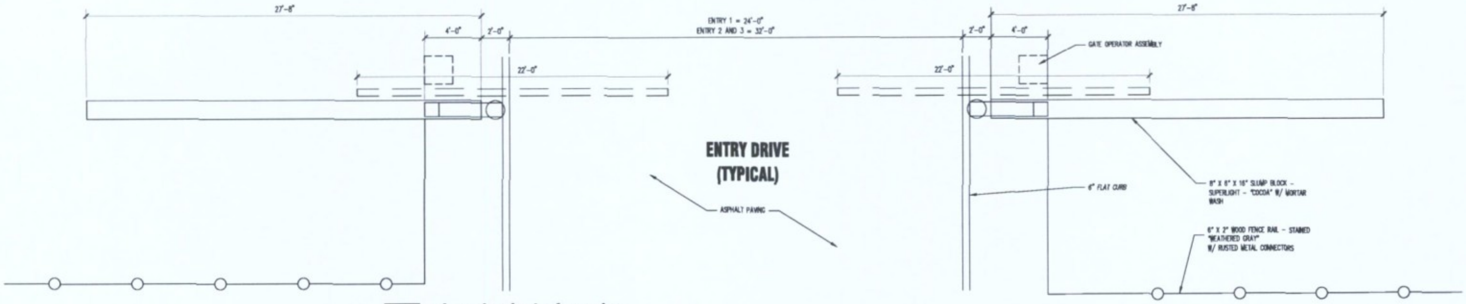
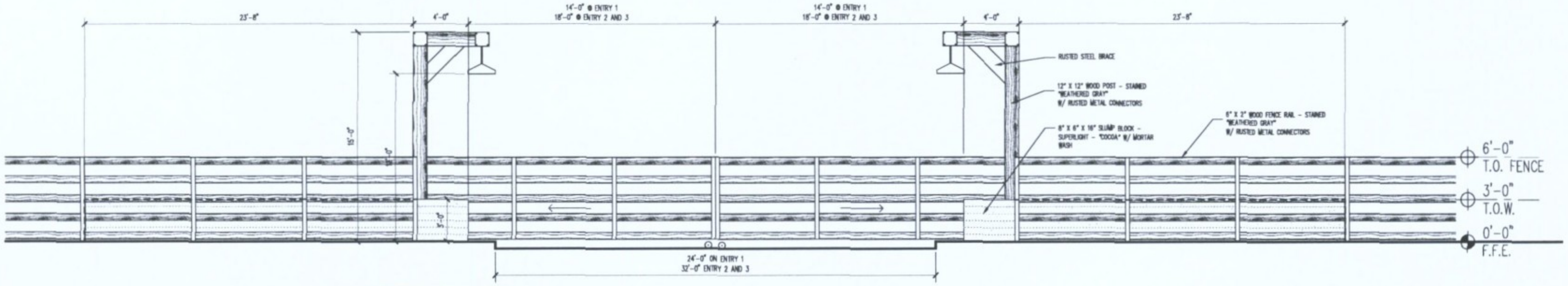
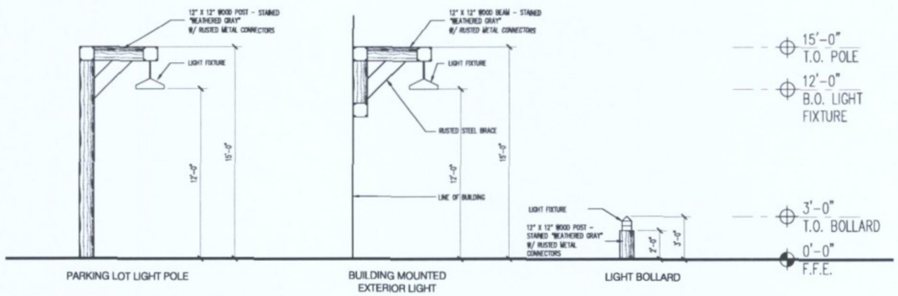
11/12/15



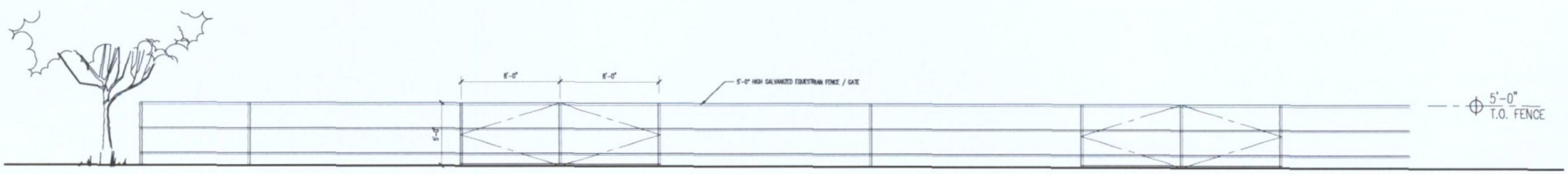
1 entry and perimeter fence plan
1/4" = 1'-0"



2 entry and perimeter fence elevation
1/4" = 1'-0"



3 exterior lighting fixtures
1/4" = 1'-0"



4 horse corral / arena fence
1/4" = 1'-0"

F

NAJAFI RANCH
5525 BOYNTON CANYON ROAD

Douglas Fredrikson Architects
727 east bethany home road, d-123
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13100

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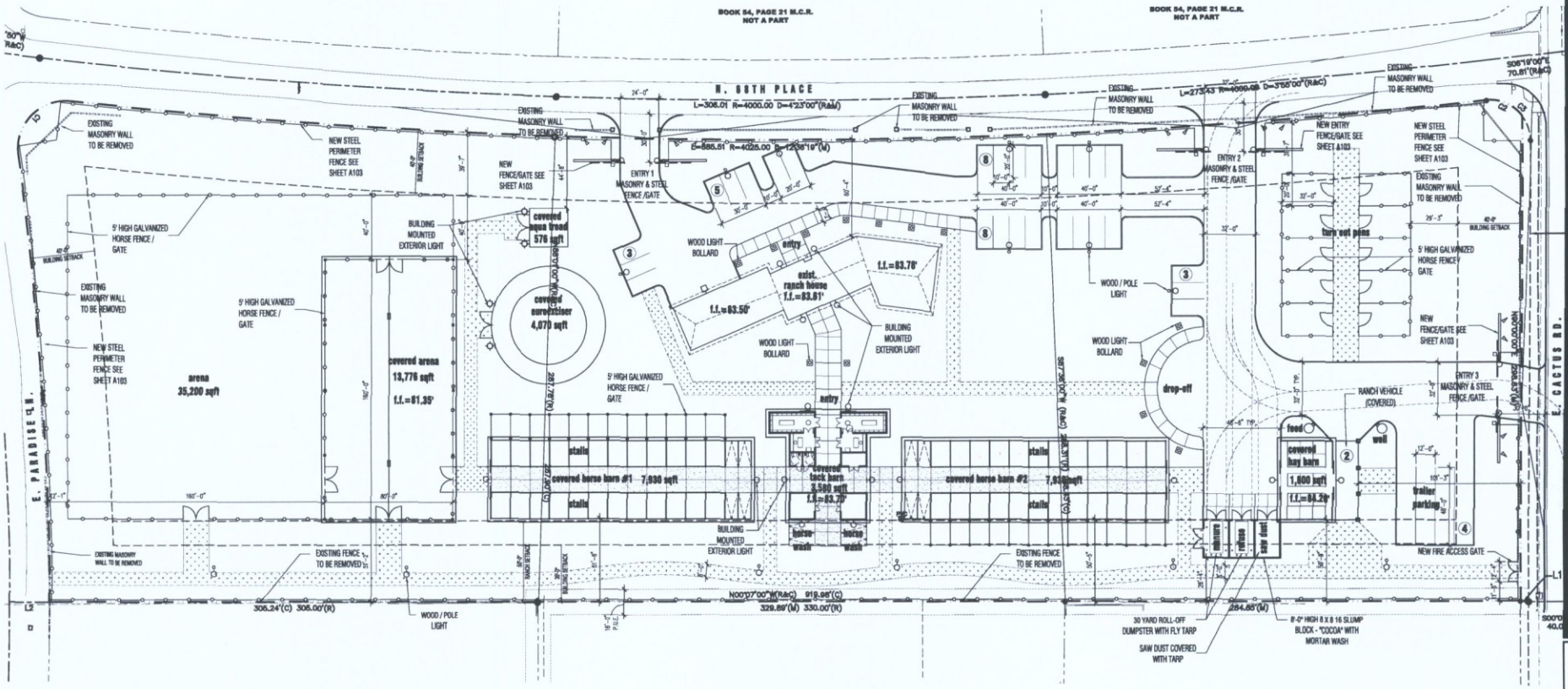
10.25.2015

revisions

a 103

4-UP-2013
11/12/15



Project Data

Assessors Parcel Number:	175-20-05, 175-20-06, 175-20-07
Site Area:	272,479 S.F. (±6.255 acres)
Existing Zoning:	R1-35 Residential
Proposed Zoning:	R1-35 / Conditional Use Permit - Ranch
Proposed Buildings (Roofed)	
• Existing Ranch House	Existing
• New Horse / Tack Barn	19,440 SF
• New Hay Barn	1,600 SF
Proposed Accessory Structures (Roofed)	
• New Covered Arena	13,776 SF
• New Eurocizer	4,070 SF
• New Aqua Tread	576 SF
Proposed Accessory Structures	
• *(1) Manure Storage 8ft Enclosure Wall*	389 SF
• *(1) Sawdust Storage 8ft Enclosure Wall*	389 SF
• *(1) Refuse Storage 8ft Enclosure Wall*	389 SF
Proposed Equestrian Fenced Areas (Not Roofed)	
• Pasture	35,200 SF
• (10) 20 X 32 Turnout Pens	6,400 SF

Parking Required:	
• 1 Parking Space / 2 Stalls	26 Parking Spaces
• Accessible	Not Required per R1-35 Zoning
• Bicycle	Not Required per R1-35 Zoning
Proposed Parking:	
• Parking Spaces Vehicular only (10 x 20)	27 Parking Spaces
• Parking Spaces Truck / Trailer (12 x 48)	4 Parking Spaces
• Ranch Vehicle Parking (Covered)	2 Parking Spaces

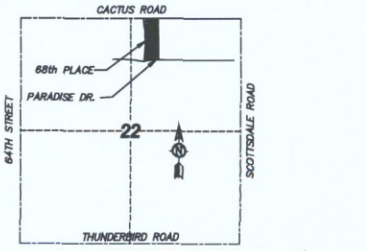
General Notes

- At time of final plans the owner shall submit verification that the existing walls located within the right of way have been removed
- An additional hydrant will be required to protect the property
- The horse barn will require a separate fire line service for the sprinkler system
- An FDC will be required near N. 68th St.
- Fire access system (knox box / switch) will be required for gates
- Renovations/additions to existing residence exceeding 25% value of existing home will require installation of fire sprinkler system
- The covered arena must comply as an open equestrian arena for riding only to be exempted from fire sprinklers
- The existing on-site well shall comply with ADWR and MCESD
- Additional water development fees will be due based on the area of the north lot
- Pole mounted lights are not to exceed 16'-0" in height

site plan

scale: 1" = 30'-0"

0 15 30 60



vicinity map

scale: n.t.s.

F

NAJAFI RANCH

526 BOYNTON CANYON ROAD

REGISTERED ARCHITECT CERTIFICATE NO. 39179 DOUGLAS FREDRIKSON ARIZONA, USA Expires 10.31.2017

Douglas Fredrikson Architects
727 east bethany home road, d-123
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13100

site plan

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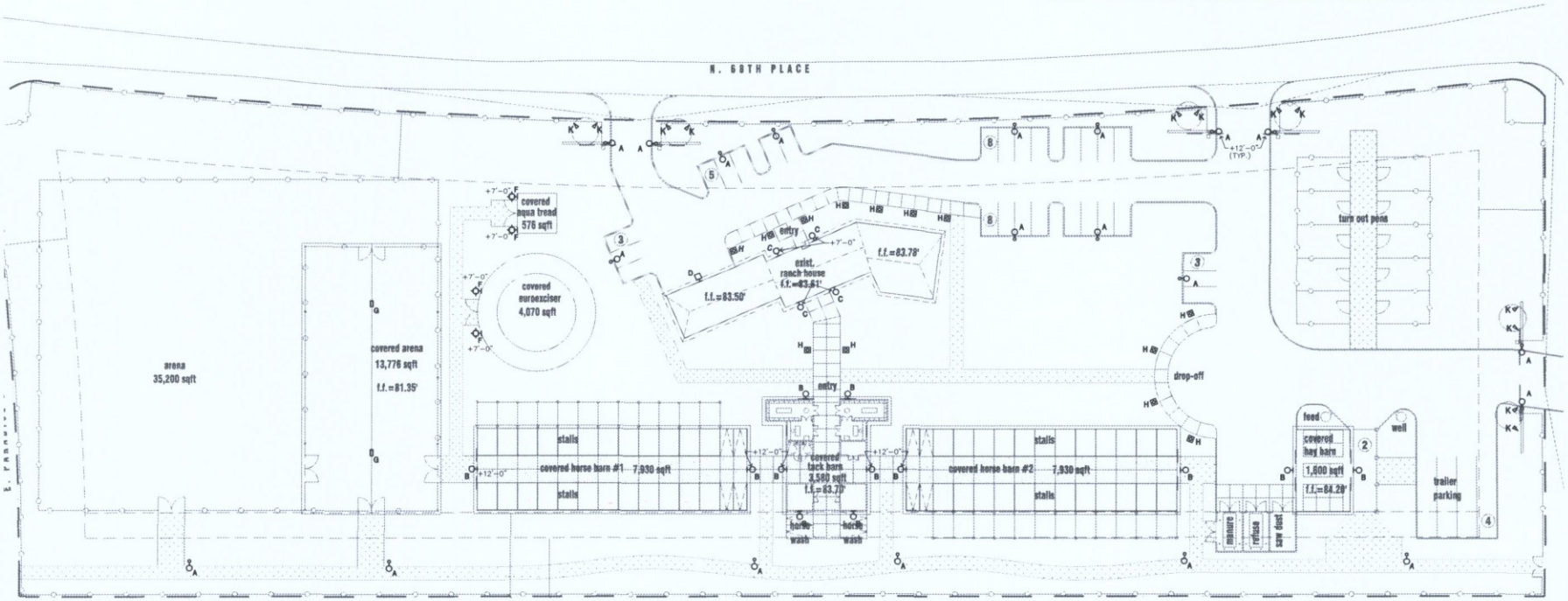
11/12/15

LIGHT FIXTURE SCHEDULE

MARK	DESCRIPTION	MFR.	CATALOG #	VOLT.	LAMPS #	LAMPS TYPE	REMARKS
A	PENDANT MTD LED	BARN LIGHT	SW6B17650 ST36	120	1	GU24 BI-PIN 18W	12'-0" FIXTURE HEIGHT ABOVE FINISHED GRADE
B	PENDANT MTD LED	BARN LIGHT	SWB13650 ST24	120	1	GU24 BI-PIN 18W	12'-0" FIXTURE HEIGHT ABOVE FINISHED GRADE
C	LED WALL SCONCE	BARN LIGHT	WWHAB-PC 600	120	-	-	MOUNT AT 6'-6"
D	LED AREA LIGHT	BARN LIGHT	WWHA10-PC 600	120	-	-	MOUNT AT EDGE
F	LED WALL SCONCE	BARN LIGHT	WWHA10-PC 600	120	-	-	-
G	LENSED LED SECURITY LIGHT	COLUMBIA	LXEW430HCP WEUDWH	120	-	LED	-
H	LED WALL SCONCE	BARN LIGHT	WHAB-PC-100	120	-	-	-
K	LED LANDSCAPE LIGHT	BK	DS LED E22 MFL A9 BLW 12 A 360SL	120	-	-	AIM AWAY FROM PROPERTY LINE

* NOTE:
FLUORESCENT FIXTURES SHALL CONTAIN A BALLAST DISCONNECTING MEANS IN ACCORDANCE WITH N.E.C. ARTICLE 410.130(G).



site lighting plan

scale: 1" = 30'-0"

0 15 30 60

Job No. 15231
David Watson, P.E.
davew@mwwgroup.com
v 480.731.5990 f 480.731.5993
2905 W Alameda Drive Suite 102 Tempe, AZ 85282
mw engineering, llc
Electrical Consulting Engineering Group

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NAJAFI RANCH

525 BOYNTON CANYON ROAD

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13100

electrical site lighting plan

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10. 25. 2015

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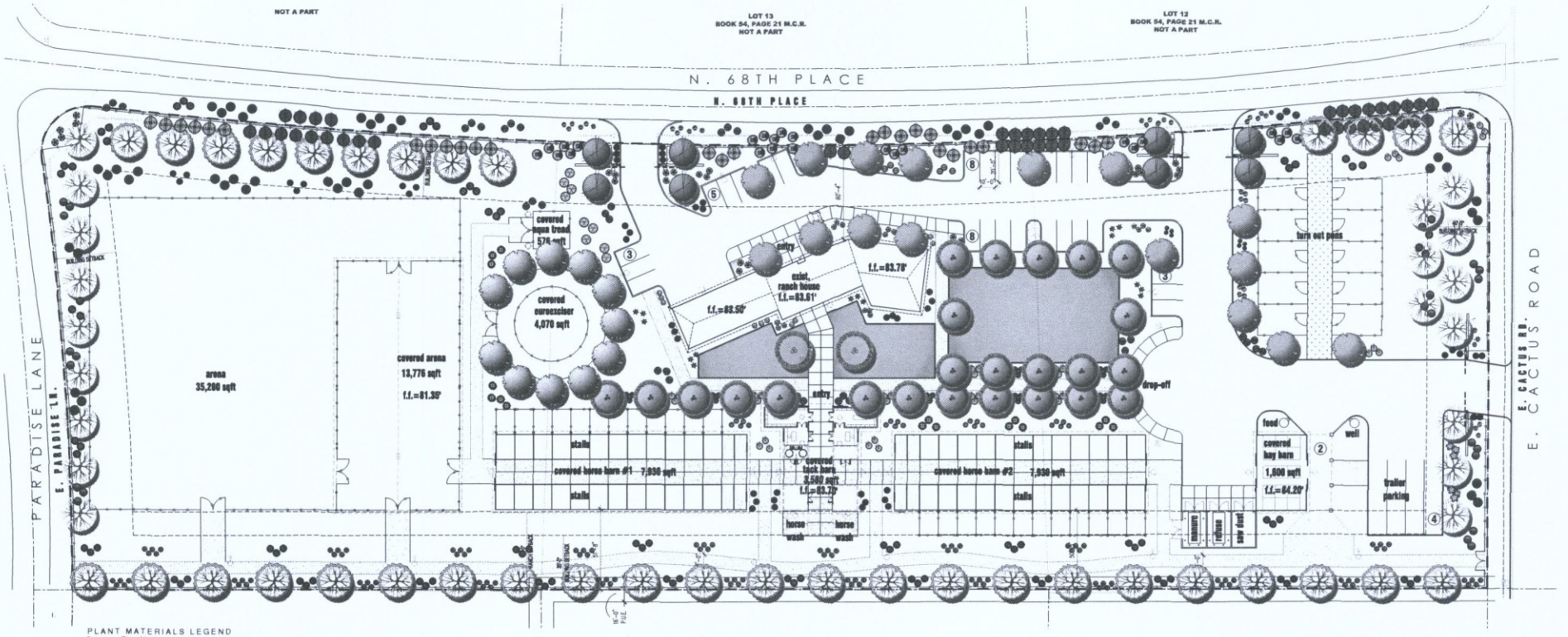
11/12/15



PLANT MATERIALS LEGEND

Sym.	Plant Name	Size	Qty
Trees			
	Fraxinus velutina 'Rio Grande' Fan-Tex Ash	15 Gallon	18
	Olea europaea 'Swan Hill' Swan Hill Olive	24" Box	19
	Platanus wrightii Arizona Sycamore	24" Box	2
	Pistacia x 'Red Push' Red Push Pistache	24" Box	24
	Pyrus calleryana Bradford Pear	24" Box	8
	Quercus virginiana 'Cathedral Oak' Cathedral Oak	24" Box	11
	Ulmus parvifolia 'True Green' Blue Grreen Elm	24" Box	17
Shrubs			
	Callistemon viminalis 'Little John' Bottlebrush	5 gal.	41
	Convolvulus cneorum Bush Morning Glory	5 gal.	42
	Cordia parvifolia Little Leaf Cordia	5 gal.	27
	Dalea capitata Golden Dalea	5 gal.	-
	Dodonaea viscosa 'Purpurea' Purple Hop Bush	5 gal.	45
	Eremophila hygrophana 'Blue Bells' Blue Bells Eremophila	5 gal.	21
	Eremophila maculata 'Valentine' Valentine Shrub	5 gal.	9
	Larrea tridentata Creosote	5 gal.	-
	Leucophyllum langmaniae 'Lynn's Legacy' Lynn's Legacy Sage	5 gal.	16
	Leucophyllum laevigatum Chihuahuan Sage	5 gal.	57
	Leucophyllum zygophyllum Blue Ranger	5 gal.	9
	Ruellia brittoniana Ruellia	5 gal.	20
	Russelia equisetiformis Coral Fountain	5 gal.	110
	Salvia coccinea Scarlet Sage	5 gal.	-
	Senna wislizenii Desert Senna	5 gal.	-
	Tecoma stans Yellow Bells	5 gal.	24
Groundcovers			
	Eremophila glabra 'Mingenew Gold' Mingenew Gold Eremophila	5 gal.	49
	Glandularia goodingii Goodding Verbena	5 gal.	4
	Lantana 'New Gold' New Gold Lantana	5 gal.	8
	Lantana montevidensis Purple Trailing Lantana	5 gal.	38
Accents/Cacti			
	Aloe barbadensis Medicinal Aloe	5 gal.	14
	Aloe x 'Blue Elf' Blue Elf Aloe	5 gal.	11
	Agave desmettiana Tropical Agave	5 gal.	15
	Dasylirion longissimum Mexican Grass Tree	5 gal.	8
	Hesperaloe parviflora-perpa Brakelights Red Yucca	5 gal.	40
	Muhlenbergia capillaris 'Regal Mist' Regal Mist TM	5 gal.	20
	Muhlenbergia lindheimeri 'Autumn Glow' Autumn Glow TM	5 gal.	35
	Pedilanthus macrocarpus Lady's Slipper	5 gal.	9

MASS PLANTING

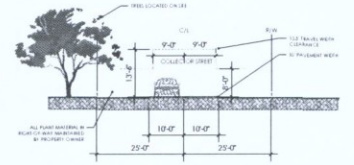
TURF- 11,000 S.F.

INERTS

Sym.	Description
	DECOMPOSED GRANITE, 1/2" EXPRESS GOLD

NOTES:

1. ALL PLANTS SHALL BE WATERED WITH AN AUTOMATIC DRIP IRRIGATION SYSTEM.
2. ALL LANDSCAPE AREAS EXCLUDING TURF TO BE COVERED WITH CRUSHED ROCK.
3. LANDSCAPE ARCHITECT TO APPROVE FINAL GRADING. PLANTING SHALL NOT OCCUR UNTIL FINAL GRADING IS APPROVED.
4. ALL SHRUBS TO BE PLANTED 3'-0" MIN. AWAY FROM EXISTING OR FUTURE WALLS.
5. ALL TREES TO BE PLANTED 5'-0" AWAY FROM EXISTING OR FUTURE WALLS.
6. ALL TREES SHALL BE PLANTED MIN. 5'-0" AWAY FROM WALLS, CURBS AND WALLS. SHRUBS TO BE 2'-0" MIN. THE SAME.
7. THE MAXIMUM HEIGHT OF ANY SHRUBS, PLANTS, BOULDERS AND WALLS WITHIN A SVT SHALL NOT EXCEED 18 INCHES. ANY TREES PLACED WITHIN THE SVT SHALL HAVE A CANOPY THAT IS KEPT AT 8' ABOVE THE CURB HEIGHT AND A MAX. MATURE TRUNK DIA. OF 8".
8. TREES, SAGUAROS OR IN-LINE WALLS SHOULD BE PLACES AT LEAST 7 FEET BACK FROM ANY UNDERGROUND PUBLIC WATER LINE, SEWER LINE OR POWER CONDUIT LINE.



1 *Residential Roadway Clearance Detail*
Scale: 1/16" = 1'-0"

0' 30' 60' 90'

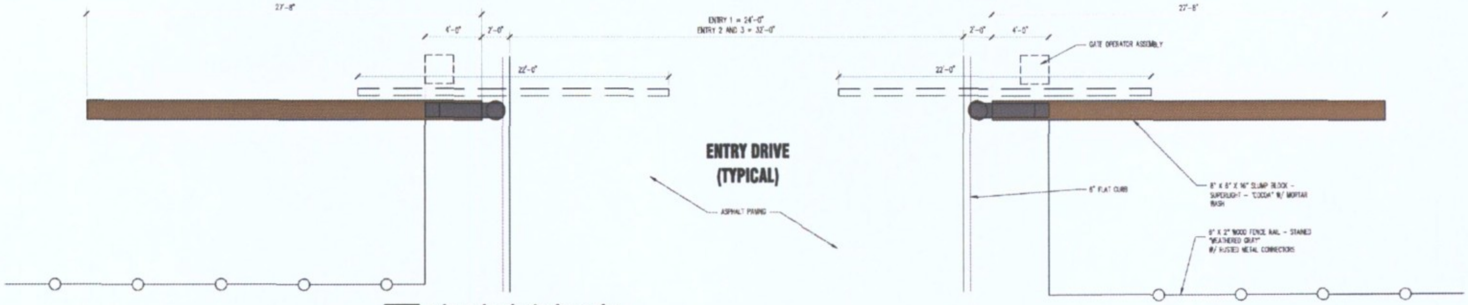
Najafi Ranch

Scottsdale, Arizona

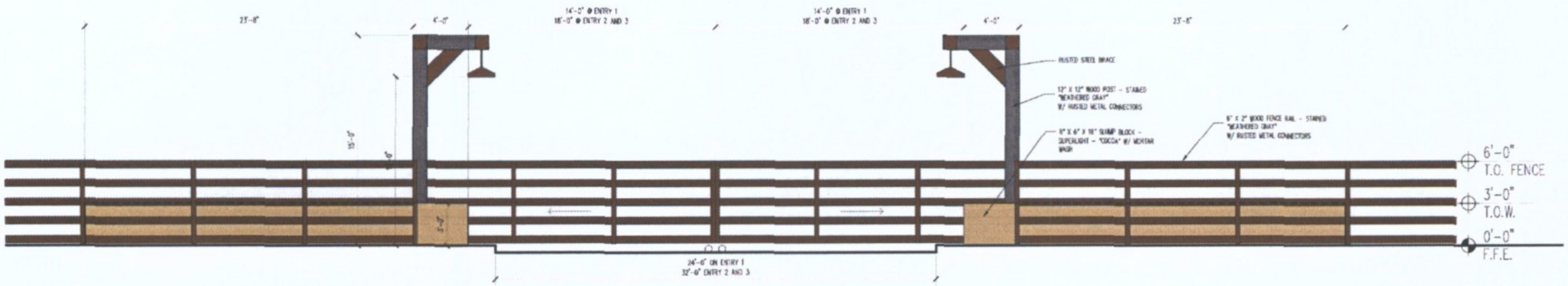
November 11, 2013

GREEY | PICKETT
landscape architecture | community design

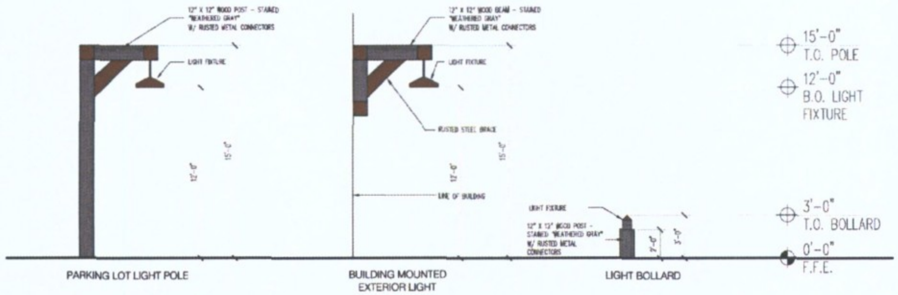
4-UP-2013
11/12/15



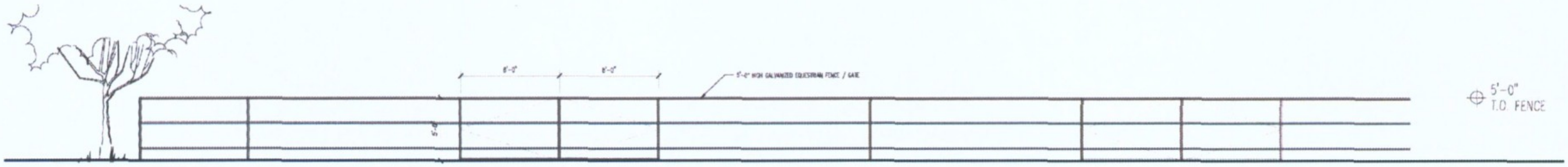
1 entry and perimeter fence plan
1/4" = 1'-0"



2 entry and perimeter fence elevation
1/4" = 1'-0"



3 exterior lighting fixtures
1/4" = 1'-0"



4 horse corral / arena fence
1/4" = 1'-0"

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602.277.1625

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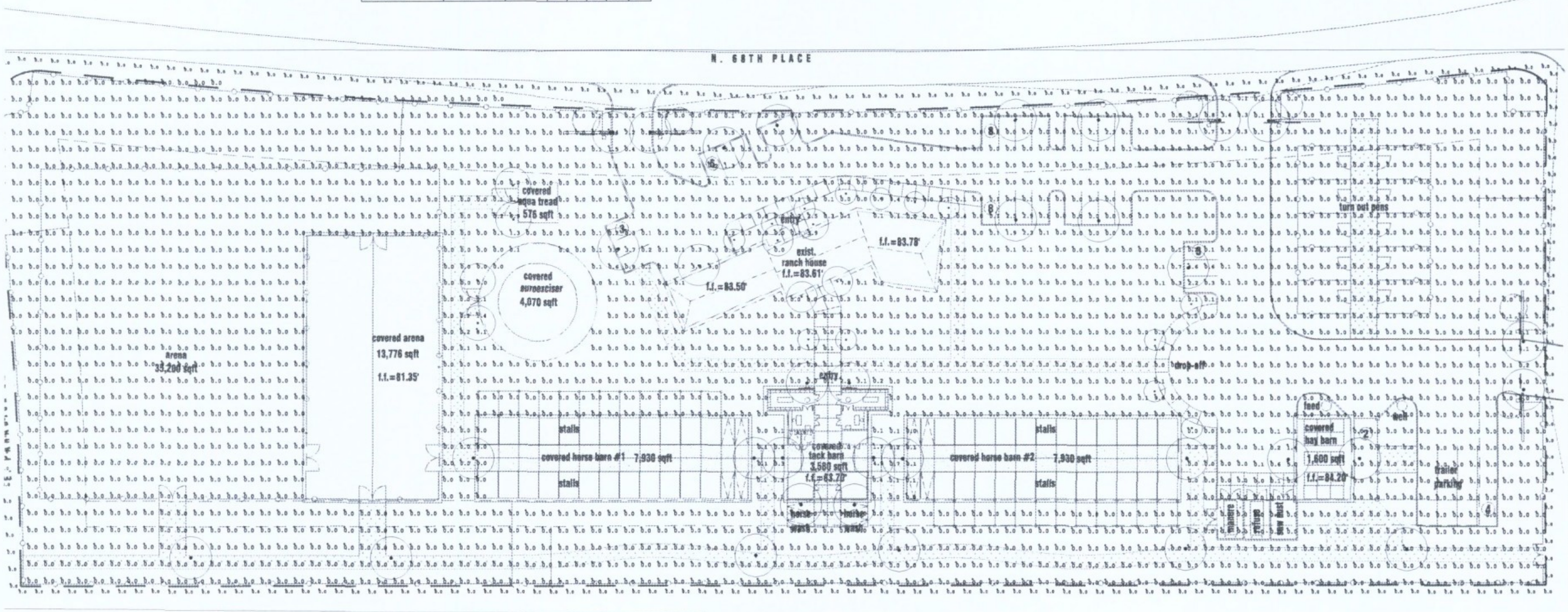
11/12/15

Luminaire Schedule							
Label	[TEST]	Symbol	Description	MTG HEIGHT	MOUNTING	Lum. Watts	Qty
A	11773-G	●	BARN LT - S-WHB17-650-ST36-650-LED-LMH3-1250	12' MTG HT.	SINGLE	21	20
B	11773-G	●	BARN LT - S-WHB17-650-ST24-650-LED-LMH3-1250	12' MTG HT.	SINGLE	21	12
C	11779-G	●	BARN LT - W-WHA8-PC-600-LED-LMH3-850LU	6.8' MTG HT.	SINGLE	20	4
D	11779-G	●	BARN LT - W-WHA10-PC-600-LED-LMH3-1250	12' MTG HT.	SINGLE	21	1
F	11775-G	●	BARN LTG - W-WHA10-PC-600-LED-LMH3-1250	12' MTG HT.	SINGLE	21	4
H	11773-G	●	BARN LT - X-WHA8-PC-600-LED-LMH3-850LU	2.5' MTG HT.	SINGLE	10	13
K	ITL63766	●	D6-LED-e23-MFL-13; AR-LED-TR-e23-MFL-13-C; AR	6 INCH MTG HT.	SINGLE	8.5	12

Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
PERIMETER 6' ABOVE GRADE	Illuminance	Fc	0.00	0.1	0.0	N.A.	N.A.
SITE - POSTCURFEW	Illuminance	Fc	0.07	9.6	0.0	N.A.	N.A.



photometrics post curfew

scale: 1" = 30'-0"

N

0 15 30 60

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727 east bethany home road, d-123
phoenix, arizona 85014
602.277.1625

13100

photometrics - post curfew

issue date

10. 25. 2015

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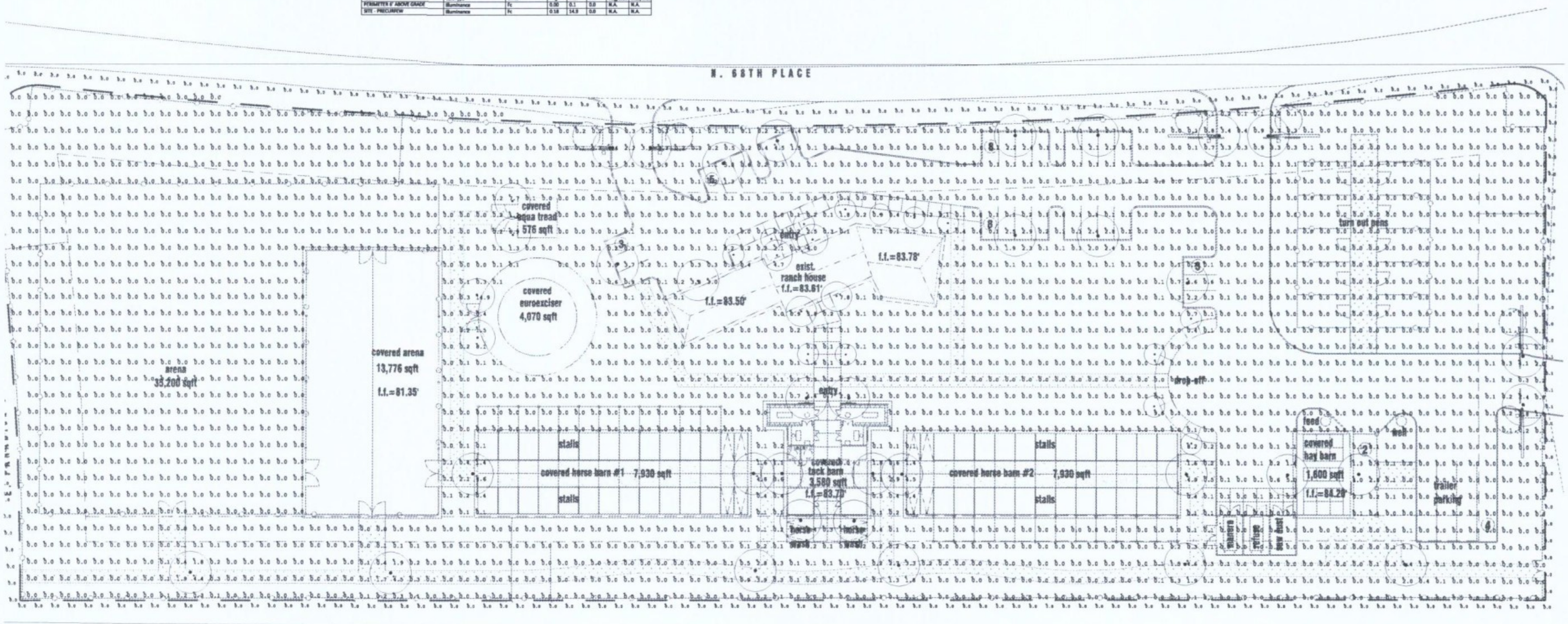
4-UP-2013

11/12/15

Luminaire Schedule							
Label	[TEST]	Symbol	Description	MTG HEIGHT	MOUNTING	Lum. Watts	Qty
A	11775-G	●	BARN LT - S-WHB17-650-ST36-650-LED-LMH2-1250	12' MTG HT.	SINGLE	21	20
B	11775-G	●	BARN LT - S-WHB17-650-ST24-650-LED-LMH2-1250	12' MTG HT.	SINGLE	21	12
C	11775-G	●	BARN LT - W-WHA8-PC-600-LED-LMH2-850LU	6.6' MTG HT.	SINGLE	10	4
D	11775-G	●	BARN LT - W-WHA10-PC-600-LED-LMH2-1250	12' MTG HT.	SINGLE	21	1
F	11775-G	●	BARN LTG - W-WHA10-PC-600-LED-LMH2-1250	12' MTG HT.	SINGLE	21	4
H	11775-G	●	BARN LT - X-WHA8-PC-600-LED-LMH2-850LU	2.5' MTG HT.	SINGLE	10	13
K	ITL63766	●	DS-LED-e23-MFL-13; AB-LED-TR-e23-MFL-13-C; AR	6 INCH MTG HT.	SINGLE	8.5	12

Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
PERIMETER 6' ABOVE GRADE	Illuminance	Fc	0.00	0.1	0.0	N.A.	N.A.
SITE - PRECURFEW	Illuminance	Fc	0.18	14.9	0.0	N.A.	N.A.



photometrics pre curfew

scale: 1" = 30'-0"

N

0 15 30 60

Job No. 15231
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NAJAFI RANCH

525 BOYNTON CANYON ROAD

DAVID G. WATSON
Expires 3/31/18

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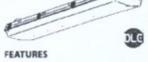
TYPE G

Columbia LIGHTING

LXEW

Enclosed and Gasketed High Bay / LED



PROJECT INFORMATION	
NAJAFI RANCH	G
Project Name	Type
LXEW4 40HCPWEDBWH	
Catalog No.	Date

FEATURES

- High efficacy LED in choice of lumen packages and colors
- Long life, 60,000 hour LEDs at L80 (projected over 100,000 hours) for reduced life cycle maintenance costs
- Available in narrow or wide distribution
- IP65, IP66, and IP67 rated
- 1500 PSI High Pressure Hose down rating
- Fiberglass housing with F1 weatherability rating, standard
- Gasket is non-porous to ensure seal
- Impact modified acrylic lenses
- Lens selections includes clear, frosted, or clear polycarbonate
- Lens firmly secured with tamper resistance ready latches
- Lens is tethered and gear tray hinges for ease of maintenance
- Stainless steel latching and mounting straps optional
- Removable gear tray electrical access
- V-Hook mounting brackets included standard
- Elevated ambient rating with HT optional
- Thermal table below provides details elevated ambient offerings
- Available with exclusive wiHUBB technology preinstalled
- DesignLights Consortium® (DLC) qualified
- Five Year Warranty

CONSTRUCTION

Fiberglass reinforced housing and tough injection molded lens. Hinged driver tray for easy maintenance. Industrial fixture design allows for easy cleaning reduces dirt and water accumulation. 12 captive polyacetal (POM) latches and four fixed installation points secures the fixture during transit and allows for fast installation.

REFLECTOR

Specular reflector provides precise control and excellent efficiency for narrow distribution. Wide distribution uses high gloss white gear tray; select the PAF option for added efficiency.

ELECTRICAL

Long-life LEDs are rated for 60,000 hours at L80 lumen maintenance. Driver options include fixed output for on/off function, step dimming (high/low/off) or continuous 0-10V dimming. QR code label affixed to housing for easy traceability.

FINISH

Housing has chemical resistant finish. Internal steel surfaces are painted with high gloss baked white enamel, applied over iron phosphate pre-treatment for maximum adhesion and rust resistance. Stainless steel parts have fine brushed mill finish.

MOUNTING

Fixture is intended to be surface or suspending mounted. Surface mounting requires use of the proper accessories listed below. To suspend the fixture use aircraft cable or chain (See Accessories). V-Hook mounting brackets included standard.

CERTIFICATION

All luminaires are built to UL 1598 and 2108 wet location standards and have IP65/IP66/IP67 hose down ratings, and bear appropriate CSA labels. Housing and lens are made with 5VA (F1) fire rated materials. All XEW fixtures are NSF rated for Splash Zones. See table on page 2 for elevated ambient ratings. DesignLights Consortium® (DLC) qualified. Please refer to the DLC website for specific product qualifications at www.designlights.org.

NEMA 4X

ORDERING INFORMATION

EXAMPLE: LXEW4-40VL-W-EDU

LXEW 4 - - - U -

MODEL · SIZE · COLOR TEMP · LENS · DISTRIBUTION · VOLTAGE · OPTIONS · DRIVER · ACCESSORIES (ORDER SEPARATELY) · LUMEN OUTPUT

OPTIONS: GLR Fast Blow Fuse; SSL Stainless Steel Tamper Resistant Heavy Latches; TP Tamper Proof Latches; ELL14 Emergency Battery

Page 1/3 Rev. 09/23/15

EXTREME ENVIRONMENT / LXEW

www.columbialighting.com

HUBBELL Lighting

TYPE K

BK SSL

DELTA STAR™

PROJECT:	Najafi Ranch
TYPE:	K
CATALOG NUMBER:	SDSLEDe22MFLA7BZW12A360SL
SOURCE:	LED
NOTES:	

CATALOG NUMBER LOGIC

Example - DS - LED - e22 - SP - A7 - BZW - 12 - 11 - A - 360SL

Material: Blank - Aluminum; B - Brass; S - Stainless Steel

Series: DS - Delta Star™

Source: LED

LED Type

Optics*: NSP - Narrow Spot (Red Indicator); SP - Spot (Green Indicator); MFL - Medium Flood (Yellow Indicator); WFL - Wide Flood (Blue Indicator)

Adjust-e-Lume® Output Intensity**

Finish

Lens Type: 12 - Soft Focus Lens; 13 - Rectilinear Lens

Shielding: 11 - Honeycomb Baffle

Cap Style

Option

DRIVER DATA

Input Volts	InRush Current	Dimmable	Operation Ambient Temperature
12VAC/DC 50/60Hz	< 1A (nondimmed)	Magnetic Low Voltage Dimmer	-10°F-130°F

LM79 DATA

BK No.	CCT (Typ.)	Input Watts (Typ.)	CRI (Typ.)
e36	2700K	8.1	80
e22	3100K	8.1	80
e23	4100K	8.1	75
e27	Amber (590nm)	7.8	-

L70 DATA

Minimum Rated Life (hrs.) 70% of initial lumens
50,000
50,000
50,000
50,000

*OPTICAL DATA

Beam Type	Angle	Visual Indicator
Narrow Spot	14°	Red Dot
Spot	18°	Green Dot
Medium Flood	25°	Yellow Dot
Wide Flood	38°	Blue Dot

B-K LIGHTING · Madera, CA · USA · www.bklighting.com

SUBMITTAL DATE 1-8-14 · DRAWING NUMBER SUB000930

TYPES A & B

SP0054 REV A

BARNLIGHT

PORCELAIN WAREHOUSE SHADE COLLECTION: Bomber

WHB11 · WHB13 · WHB15 · WHB17

ORDER SPECIFICS

TYPES C, D, F & H

SP0014 REV A

BARNLIGHT

WAREHOUSE SHADE SCONCE COLLECTION: Austin

WHA8-PC · WHA10-PC

ORDER SPECIFICS

F

NAJAFI RANCH

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31172 DAVID G. WATSON · Expires 3/31/18

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light fixture cut-sheets

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4-UP-2013
11/12/15

ELECTRICAL SYSTEM SPECIFICATIONS - DIVISION 16000

(SOME SECTIONS MAY NOT APPLY)

1. GENERAL CONDITIONS

The General Provisions of the Contract, including the Conditions of the Contract (General, Supplementary and other Conditions) and Division 1 – General Requirements as *appropriate*, apply to the work specified in this Section.

2. SCOPE OF WORK

The work included under this section consists of furnishing all materials, equipment, and labor and the performing of all functions, except as otherwise specified herein or shown on the drawings to be performed by others, for the installation and placing into operation of a complete electrical system as specified and shown on the drawings.

3. GENERAL DESCRIPTION

3.1 The work in general shall consist of, but is not necessarily limited to the following.

3.1.1 Furnishing and installing all fixtures with lamps as indicated on the drawings and as specified herein unless noted.

3.1.2 Furnishing and installing all electrical work, panels, service, conduit, wiring, etc., for all outlets and equipment.

3.1.3 Furnishing and installing all telephone outlets, conduits with pull strings and telephone mounting boards including conduit from telephone mounting board to the building entrance as indicated on the plan.

3.1.4 Furnishing and installing a complete Fire Alarm system as indicated on plans.

3.1.5 Include $ hundred dollars) allowance for power and telephone company utility service charges. Difference between actual cost and allowance to be credited or billed to the Owner.

3.1.6 Furnishing and installing all motor starters and control components, not specifically specified to be furnished in accordance with other sections of the specifications.

3.1.7 Furnishing and installing all power and wiring except that which is pre–wired in factory assembled equipment.

3.1.8 Installing all LINE VOLTAGE mechanical control wiring and associated controls which are furnished by the *Mechanical Contractor* (low voltage control wiring and controls shall be furnished and installed by the Mechanical Contractor).

3.1.9 Painting work as described under other sections of these specifications. Clean and prepare all surfaces ready for painting.

3.1.10 Provide temporary construction power as outlined below. This service shall be maintained throughout the entire job as the work progresses. Provide outlets at convenient points and in sufficient numbers so that no extension cord over 50 feet in length is required to reach any work point. Maintain general lighting in corridors, stairs, basement and other areas not receiving sufficient daylight required for safety. Remove temporary work as rapidly as required for or allowed by installation of permanent work.

3.1.11 Certain items of work by other trades will be necessary for the completion of work under this division. Cooperate with other trades and arrange for these items to be performed in orderly course.

3.1.12 This Contractor shall review the mechanical control *requirements* as specified and shown on the drawings and shall furnish and install all necessary conduit, wiring, boxes, protective devices, switches, etc., for the completion and proper operation of the system.

3.1.13 Review all drawings and all specifications for each section of work. Unless specifically noted otherwise, herein or elsewhere, furnish and install items of any electrical nature required for completion of work for other trades, whether or not same is shown or noted in this or other sections.

4. *REGULATIONS AND CODES*

The Contractor must comply with all state, municipal and federal safety laws, construction codes, ordinances and regulations relating to building and public health and safety. In addition, comply with rules and regulations of the State Fire Protection Code. Fire protection material must bear the Fire Underwriters Laboratories label.

5. GENERAL REQUIREMENTS

5.1 The Contractor shall examine the premises and satisfy himself of existing conditions under which he will be obligated to operate in performing his part of the work or that will in any manner affect the work under the contract. The Contractor shall cooperate with other trades so that the installations of all equipment may be properly coordinated.

5.2 All equipment furnished shall fit the space available, with connection, etc., in the required locations and with adequate space for operating and servicing. The drawings are generally diagrammatic and indicate the manner and method of the installation, while the specifications and fixture list *denote the type and quality of* material and workmanship to be used. Where a conflict exists between the drawings and the specifications, the Contractor shall promptly notify the Architect/Engineer whose decision shall be final. No allowance will be made subsequently in this connection in behalf of the Contractor after award of the contract.

6. EQUIPMENT AND MATERIAL

6.1 All materials furnished under this contract shall be new (except as noted), free from defects of any character, shall conform with the standards of the Underwriters Laboratories, Inc. (U.L.) (or other nationally recognized Laboratory), in every case where such a standard has been established and shall be so labeled. It is the intention of these specifications to indicate a standard of quality for all materials incorporated in this work, and where materials are not specified herein and are required to complete the electrical installation, these materials shall be of first quality for use intended. Manufacturers of similar quality products will be considered unless the specifications or drawings indicate otherwise.

6.2 Materials shall be suitable for intended use and *location.* Unless otherwise shown use NEMA–1 for interior areas and NEMA–3R for exterior areas.

6.3 The Architect/Engineer decision as to equal in grade and quality shall rule and be final for all electrical materials incorporated in this work. Where two or more similar type items are furnished, all shall be of the same manufacturer (e.g., all disconnect switches shall be of the same manufacturer) unless otherwise noted herein or shown on the drawings. All material and installation methods used shall be in accordance with the latest and approved electrical and mechanical engineering practices.

7. SERVICE ENTRANCE EQUIPMENT

7.1 Service entrance equipment shall be in accordance with the requirements of the municipal governing body and serving utility. Shop drawings shall be submitted to the serving utility for written approval before ordering equipment.

7.2 Label equipment and each individual overcurrent device per Section 16000.22.

7.3 *Approved manufacturers are:* Sun Valley, Square D, Cutler–Hammer, Siemens/ITE, General Electric

8. PANELBOARDS

8.1 Each panel shall be provided with door lock and two keys, all keyed alike. Each panel shall be provided with typewritten sheet installed on door identifying the use of each branch circuit. Panels shall have bussing as indicated on the drawings.

8.2 Label equipment per Section 16000.22

8.3 Approved manufacturers are: Square D, Cutler–Hammer, Siemens/ITE, General Electric

9. STARTERS

9.1 All motor starters shall be furnished under this section of the specifications unless an integral part of equipment or noted as furnished with equipment specified under other sections of these specifications.

*9.2 Separately mounted motor starters shall be across–*the–line combination magnetic with 120V coils, fused disconnect contactors, additional auxiliary contact for interlocking of controls. Provide pushbutton or selector switch in cover. Switchboard mounted starters shall be magnetic with 120V coils and additional auxiliary contacts as required for interlocking of controls. Starters shall have an integral control circuit transformer or separate 120V control with control circuit disconnect switch in cover.

9.3 Manual starters shall be horsepower, voltage and phase rated with overload protection and green "on" pilot light. Surface mounted unless noted otherwise.

9.4 All starters shall have overload protection in all phase lines. Furnish and install the proper size overload heater elements determined from full load nameplate readings on motors and compensation for ambient temperature in all starters whether they be furnished under this Section or other Sections.

9.5 Label per Section 16000.22

9.6 Approved manufacturers are: Square D

10. TRANSFORMERS

10.1 Transformers shall be dry type, with voltage ratings as indicated on plans. Transformers shall be rated for for full load operation at a maximum 150 degree centigrade rise above a 40 degree centigrade ambient or as otherwise noted on drawings. Provide at least (4) 2 1/2 percent taps, two above normal and two below normal and have a sound rating not to exceed NEMA standards. Special "K" factor ratings as noted.

10.2 Submit complete transformer data with shop drawings for approval. *The data shall include efficiencies, core and* copper losses, impedance, regulation and sound level.

10.3 Installation of transformers shall be on vibration isolators and all wiring connections with flexible conduit.

10.4 Label per Section 16000.22

10.5 Approved manufacturers are: ACME, Square D, Jefferson, Cutler–Hammer, Westinghouse, General Electric, or same manufacturer as distribution equipment.

11. CONDUIT

11.1 Metallic conduits shall be hot dipped galvanized equal to LTV Steel.

11.2 Electric metallic tubing (EMT) is permitted for exposed work above 6'–0" A.F.F. or concealed work only. EMT is NOT permitted in the following: (1) in or under concrete, (2) in earth, (3) in grouted walls, (4) exterior of building, (5) with dissimilar metals, (6) where it will be subject to severe physical damage (either during or after installation), (7) in any *hazardous (classified location) except as permitted by* 502.10, 503.10 and 504.20, (8) without an equipment grounding conductor. Size and provide equipment grounding conductor per Article 250 and increase conduit size if required.

11.3 Rigid PVC conduit is permitted only underground or as noted on drawings. Provide rigid steel elbows and risers (NO MINIMUM SIZE). Size and provide equipment grounding conductor per Article 250 and increase conduit size if required.

11.4 Rigid galvanized or sheradized steel shall be used for all exposed conduit below 6'–0" A.F.F. or as noted on drawings. Where used in or under concrete or in earth, shall be code approved PVC coated or half lap wrapped with Polyken #900 tape or equal.

11.5 Install exposed raceways parallel and perpendicular to nearby surfaces or structural members and follow the surface contours as much as practical.

11.6 Run exposed, parallel, or banked raceways together. Make bends in parallel or banked runs from the same center line so that the bends are parallel. Factory elbows may be used in *banked runs only where they can be installed parallel.* This requires that there be a change in the plane of the run such as from wall to ceiling and that the raceways be of the same size. In other cases provide field bends for parallel raceways.

12. WIRE

12.1 Soft drawn annealed copper (unless otherwise noted on plans) having conductivity of not less than 98% of that of pure copper, uniform in cross section, free from flaws, scales, and other imperfections. All wire larger than #10 shall be stranded.

12.2 Insulation: Type THHN/THWN, or XHHW for all branch circuit and feeder wiring.

12.3 Sizes: No wire smaller than #12 unless otherwise noted on drawings.

12.4 Feeder conductors #2 awg and larger may be copper or AA–8000 series alluminum alloy. Alluminum conductors shall be equal or larger ampacity to copper. Conduit fill shall not exceed 40% factor as described in 2005 NEC, annex C, table C1 (copper) or C1A (alluminum).

13. MISCELLANEOUS MATERIALS:

13.1 Safety switches: Heavy duty, fused rejection type, minimum 200,000 A.I.C. rated. "NF" indicates not fused.

13.1.1 Label per Section 16000.22

13.1.2 Approved manufacturers are: Square D, Cutler–Hammer, Westinghouse, General Electric or same manufacturers as distribution equipment.

13.2 Fuses: "Bussmann" or "Gould Shawmut" mfg. No substitutions unless by prior written approval from Engineer, or as noted on drawings.

13.3 Conduit strap: Heavy gauge steel snap–on type.

13.4 Electrical metallic tubing fittings: Equal to T&B compression type. Connectors shall have insulated bushings.

13.5 Rigid conduit locknuts and bushings: Equal to T&B.

13.6 Flexible conduit and fittings: Equal to California Conduit and Cable Company, Inc.

13.7 Liquid tight conduit and fittings for all exterior and equipment connections.

13.8 Outlet boxes, plaster rings, pull, and junction boxes, etc: Equal to RACO. Zinc coated or Cadmium plated sheet steel for indoor locations, cast aluminum for outdoor locations.

13.8.1 For all light fixtures: Octagon or 4" square boxes.

13.8.2 For switches and receptacles: 4" or 4–11/16" square boxes.

13.8.3 Junction and pull boxes: 4" square minimum size. Provide with screwfastened covers located in accessible locations.

13.9 Condulets: Equal to Crouse–Hinds.

13.10 Wire and Cable: Equal to General Cable and/or Simplex.

13.11 Devices: "Hubbell", "Leviton", or approved equal. Receptacles: Duplex–20 amp #5362, isolated ground – 20 amp #IG–5362, GFCI– 20 amp #GF–5362. Switches: 20 amp #1221 single pole, 1222 double pole, 1223 three way, 1224 four way. Colors to be specified by Architect/Owner/Tenant.

13.12 Device plates: "Hubbell", "Leviton", or equal Ivory nylon in interior areas or as noted on drawings. Zinc die cast flip lid mounted horizontally for exterior or weatherproof locations.

13.13 Lighting fixtures: Equal to as shown on fixture schedule or described on drawings, complete with lamps in original cartons and all canopies, stems, hangers and accessories including all structural members required for proper mounting. All fluorescent fixture ballasts shall be energy saving type. Submit shop drawings to Architect/Engineer for approval by the same. Must be C.E.C. approved in Calif.

13.14 Lamps: G.E. or equal and shall be for the maximum rated wattage of fixture unless otherwise shown on drawings.

14. SLEEVES, INSERTS, OPENINGS

14.1 Contractor shall layout and install his work in advance of pouring concrete floors or walls. Provide all sleeves and/or openings through floors or walls required for electrical conduits or ducts.

14.2 Sleeves shall be of rigid conduit or galvanized sheet steel rigidly supported and suitably packed to prevent entrance of wet concrete.

15. EXCAVATION/CUTTING/FITTING/REPAIRING/FINISHING

15.1 The Contractor shall include in his bid all excavation, compaction, fill, backfill, cutting, fitting, repairing and finishing of all work necessary for the installation of all equipment under this specification but no cutting of the work of other Contractors shall be done without the consent of the General Contractor.

15.2 Earthwork shall be done in accordance with latest industry standards.

16. CLEANUP OF PREMISES

Contractor shall at all times keep the premises clear of waste materials and debris caused by his employees and operation. Equipment not required in the work shall be removed prior to the termination of the contract.

17. TESTS AND INSPECTIONS

17.1 Contractor shall test wiring and devices as sections are completed and shall correct all defects immediately at his own expense, including any damage to walls, ceilings, floor or other portions of the building which may result from replacing defective equipment.

17.2 Furnish all meters, cable, connections and apparatus necessary for making tests.

17.3 Test system for shorts and grounds. Faulty wiring shall be removed and replaced. Any device, apparatus or fixture installed showing substandard performance shall be removed and replaced as directed by the Architect/Engineer.

17.4 Megger all systems neutrals to insure the neutral is not grounded within the system.

17.5 All equipment rated at 1,000 amps or more , or 480 volts shall be tested for insulation breakdown prior to its being energized. Such equipment shall withstand for a period of one minute without breakdown, the application of a 60HZ alternating potential of 1,000V plus twice the rated voltage of the device.

17.6 After the electrical wiring system installation is completed and at such time as the Architect/Engineer or his authorized representative may direct, the Contractor shall conduct an operating test for approval. Equipment shall be demonstrated to operate in accordance with requirements of specifications. Test shall be performed in presence of Architect/Engineer or his representative.

18. SHOP DRAWINGS

18.1 All data shall be submitted at one time, bound and indexed in an orderly manner. Prior to starting the work, submit to the Architect/Engineer for approval, six (6) sets of shop drawings of service (S.E.S.), panels, distribution sections, light fixtures, motor control centers, fire alarm system, dimmers, sound system, emergency generator, devices, transformers, labels as required by 16000.22, and all other equipment to be fabricated.

18.2 Procure shop drawings, wiring diagrams, etc., from other trades involved where such drawings may facilitate and expedite the work. Air conditioning and mechanical equipment shall be wired complete as per manufacturer's wiring diagrams furnished by the air conditioning and mechanical contractors.

19. DRAWINGS OF RECORD (AS–BUILT)

As–built drawings shall be submitted in accordance with and if required by Division 1 – General Requirements.

20. GUARANTEE

The Contractor shall guarantee all material and equipment to be free from defect of material and workmanship and shall replace or repair without cost to the owner all defective material and workmanship for a period of one year after final acceptance.

21. INSTRUCTIONS

21.1 Contractor shall instruct the Owner in the proper operating and maintenance of the equipment.

21.2 Contractor *shall provide two (2) sets of operating* and maintenance manuals for each piece of equipment provided by this discipline, only when such manuals are available from the manufacturer.

21.2.1 All manuals to be bound in a 3–ring binder and tabulated in an orderly manner.

22. LABELING

22.1 Labels shall be engraved, black on white melamine plastic laminate, 1/16" minimum thickness for signs up to 20 square inches or 8 inches long; 1/8" thick for larger sizes. Engraved legend shall be in white letters on black face with minimum 3/16" high letters. Labels shall be punched and fastened to equipment with aluminum rivets or self tapping stainless steel screws or number 10/32 stainless steel machine screws with nuts, flat and lock washers.

22.2 Label equipment with name, amperage, voltage, phase, and wires (i.e. Panel "A", 400A., 120/208V,30,4W). Submit list of all labels with wording for review as per 16000.18.

22.3 Equipment to be labeled shall include service (S.E.S.) and all overcurrent devices, distribution sections and all overcurrent devices, motor control centers (M.C.C.) and all overcurrent devices, fusible panelboards and all overcurrent devices, panels, starters and transformers. Label other equipment as noted on plans.

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NAJAFI RANCH

525 BOYNTON CANYON ROAD

Professional Engineer
Certificate No. 31172
David G. Watson
Expires 3/31/18

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electrical specifications

issue date

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