

**RETENTION CALCULATIONS**

$$V_{REQ} = \frac{(C)(P)(A)}{12}$$

C = 0.9  
P = 2.16"  
A = 156,910 S.F.

$$V_{REQ} = 25,419 \text{ C.F.}$$

**VOLUME PROVIDED BY ORIGINAL PLANS IN 4 BASINS**

BASIN A = 7,803 C.F.  
BASIN B = 2,964 C.F.  
BASIN C = 8,040 C.F.  
BASIN D = 11,688 C.F.

$$\text{TOTAL} = 30,495 \text{ C.F.}$$

**DRAINAGE STATEMENT**

THIS SITE WAS ORIGINALLY DEVELOPED IN 2004 AS A SPEC WAREHOUSE PROJECT. THE GRADING PLAN WAS PREPARED BY ATHERTON ENGINEERING, INC. (JOB NO. 00-52). THE ORIGINAL GRADING PLAN ANTICIPATED AN EXPANSION OF THE WAREHOUSE BUILDING AND THE ORIGINAL RETENTION CALCULATIONS TOOK THE ADDITIONAL HARDSCAPE AREA INTO ACCOUNT. THE SITE ALSO WAS DESIGNED TO RETAIN THE ADJACENT HALF STREET RUNOFF FROM THE THREE SURROUNDING ROADWAYS. THE ORIGINAL RETENTION CALCULATIONS USED A PRECIPITATION VALUE OF 3.0" FOR THE 100-YEAR, 2-HOUR EVENT. BASED ON CURRENT WEATHER DATA FROM NOAA, THE 100-YEAR, 2-HOUR PRECIPITATION VALUE HAS BEEN REDUCED TO 2.16". BASED ON THE GROSS AREA OF THE SITE AND USING A "C" FACTOR OF 0.90, THE REQUIRED RETENTION VOLUME WAS CALCULATED AS 25,419 C.F. PER ATHERTON ENGINEERING'S PLAN, THE STORMWATER WAS ROUTED TO FOUR (4) SURFACE BASINS. THESE BASINS HAD A VOLUME CAPACITY OF 30,495 C.F. THEREFORE, NO ADDITIONAL RETENTION FACILITIES ARE REQUIRED, OR MODIFICATIONS TO THE BASINS ARE NECESSARY. THE PROPOSED ADDITIONS DO NOT ALTER ANY OF THE EXISTING SURFACE BASINS.

**LEGEND**

NOTE: ALL SYMBOLS AND ABBREVIATIONS MAY NOT APPEAR ON EACH SHEET.

- |  |                                     |  |                    |
|--|-------------------------------------|--|--------------------|
|  | EXISTING STORM DRAIN                |  | LIGHT POLE         |
|  | NEW STORM DRAIN                     |  | PROPOSED ELEVATION |
|  | CENTERLINE                          |  | POWER POLE         |
|  | PROPERTY LINE                       |  | SET BRASS CAP      |
|  | EXISTING LINE                       |  | SET MONUMENT       |
|  | EXISTING MANHOLES, VAULTS AND BOXES |  | SET REBAR          |
|  | EXISTING ELEVATION                  |  | SIGN               |
|  | BACKFLOW PREVENTER                  |  | TAPPING SLEEVE     |
|  | CATCH BASIN                         |  | WATER VALVE        |
|  | CLEANOUT                            |  | WATER METER        |
|  | FIRE HYDRANT                        |  | DRYWELL            |
|  | FLOW ARROW                          |  | NEW CONCRETE       |
|  | ROOF DRAIN ARROW                    |  | NEW RIP-RAP        |
|  | FLOWLINE ARROW                      |  | EXISTING CONCRETE  |
|  | FOUND BRASS CAP                     |  | EXISTING BRICK     |
|  | FOUND MONUMENT                      |  |                    |
|  | FOUND REBAR                         |  |                    |

**ABBREVIATIONS**

- |      |                       |     |                     |
|------|-----------------------|-----|---------------------|
| BC   | BACK OF CURB          | P   | PAVEMENT            |
| BW   | BACK OF WALK          | PC  | POINT OF CURVE      |
| CATV | CABLE TV              | PT  | POINT OF TANGENCY   |
| C    | CONCRETE              | RD  | ROOF DRAIN          |
| CC   | CATCH BASIN           | ROW | RIGHT OF WAY        |
| CCO  | CANOPY CLEARANCE      | SCO | SEWER CLEANOUT      |
| CL   | CENTERLINE            | SD  | STORM DRAIN         |
| CO   | CURB OPENING          | SL  | STREET LIGHT        |
| DWV  | DRAIN, WASTE AND VENT | SS  | SANITARY SEWER      |
| E    | ELECTRIC              | SW  | SIDEWALK            |
| ESMT | EASEMENT              | T   | TELEPHONE           |
| FC   | FACE OF CURB          | TC  | TOP OF CURB         |
| FG   | FINISH GRADE          | TF  | TOP OF FOOTING      |
| FH   | FIRE HYDRANT          | TW  | TOP OF WALL         |
| FL   | FLOW LINE             | TS  | TRAFFIC SIGNAL      |
| FM   | FORCE MAIN            | UGE | UNDERGROUND ELEC    |
| FO   | FIBER OPTICS          | VG  | VALLEY GUTTER       |
| FW   | FACE OF WALK          | W   | WATER               |
| G    | GUTTER                | WLE | WATER LINE EASEMENT |
| GB   | GRADE BREAK           |     |                     |
| GR   | GRATE                 |     |                     |
| INV  | INVERT                |     |                     |
| IRR  | IRRIG. CONTROL VALVE  |     |                     |
| ML   | MONUMENT LINE         |     |                     |
| NG   | NATURAL GRADE         |     |                     |
| OHE  | OVERHEAD ELECTRIC     |     |                     |

**OWNER/DEVELOPER**

ROBERT BROWN ARCHITECTS  
88 S. SAN MARCOS PLACE  
CHANDLER, AZ 85225  
TELEPHONE: 480-377-2222  
ATTN: KELLY FURGUSON

**PARCEL AREA**

124,855 SF  
2.87 ACRES

**CIVIL ENGINEER**

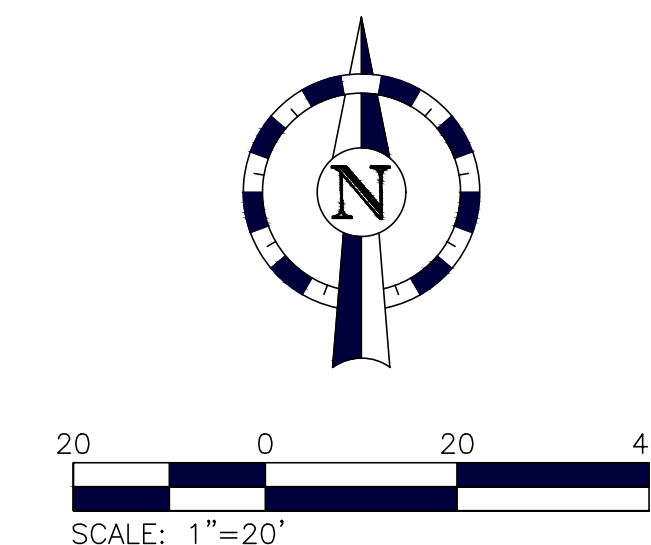
ZELL COMPANY, L.L.C.  
3400 N DYSART ROAD, #130  
AVONDALE, ARIZONA 85392  
TELEPHONE: 623-547-2500  
ATTN: KEN ZELL, P.E.  
E-MAIL: kzell@zell-co.com

**DISTURBED AREA**

156,910 S.F. SF  
3.60 ACRES

**APN**

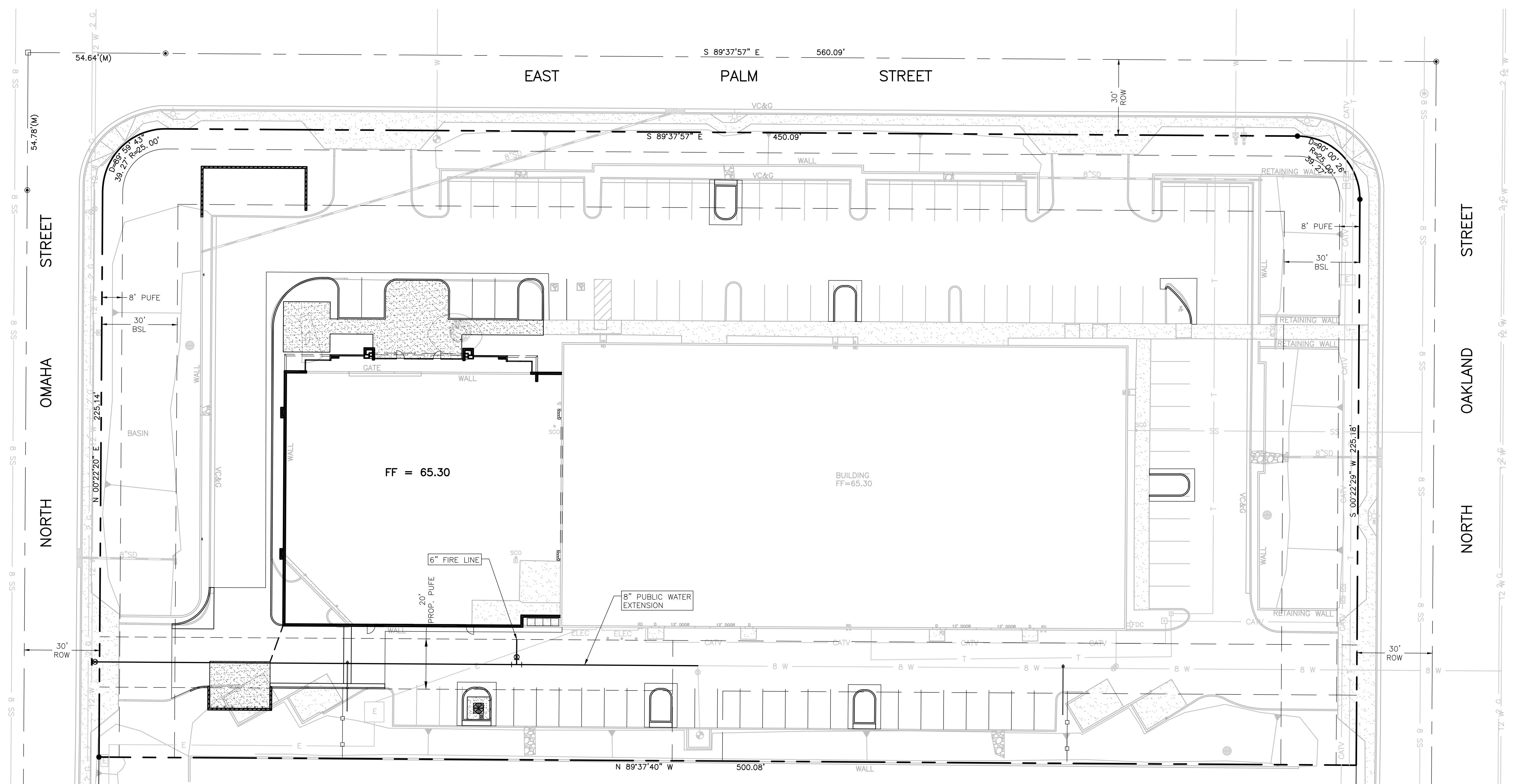
141-25-150



PROJECT: BULLETPROOF DIESEL		LOCATION: MESA, ARIZONA
DRAWN BY: JD	DESIGNED BY: KZ	REVIEWED BY: KZ
DATE: 12/6/21	TITLE: CONCEPTUAL GRADING & DRAINAGE PLAN	
SCALE: 1"=20'		SHEET 1 OF 2
JOB NO.: 21-060		SITE ADDRESS: 4245 E. PALM STREET
<p>3400 N. Dysart Road  Suite 130 Avondale, Arizona 85392  Phone: 623-547-2500  Fax: 623-547-2501</p>		
REV	DATE	DESCRIPTION

Plot Date/Time: 12/6/2021 9:13 AM  
Layout Name: CGD  
Full File Path: T:\viral\_users\cand01-drafting\21-060\_Bulletproof\_Diesel\21-060.dwg

Plot Date/Time: 12/6/2021 9:13 AM Layout Name: CGU  
 Full File Path: T:\arad\users\ccad01-drafting\21-060 Bulletproof Diesel\21-060.dwg



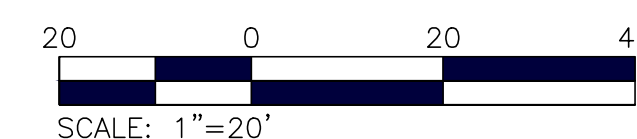
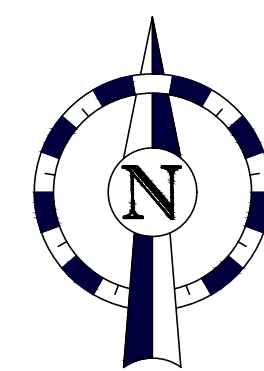
**LEGEND**

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	EXISTING STORM DRAIN		LIGHT POLE
	NEW STORM DRAIN		PROPOSED ELEVATION
	CENTERLINE		POWER POLE
	PROPERTY LINE		SET BRASS CAP
	EXISTING LINE		SET MONUMENT
	EXISTING MANHOLES, VAULTS AND BOXES		SET REBAR
	EXISTING ELEVATION		SIGN
	BACKFLOW PREVENTER		TAPPING SLEEVE
	CATCH BASIN		WATER VALVE
	CLEANOUT		WATER METER
	FIRE HYDRANT		DRYWELL
	FLOW ARROW		NEW CONCRETE
	ROOF DRAIN ARROW		NEW RIP-RAP
	FLOWLINE ARROW		EXISTING CONCRETE
	FOUND BRASS CAP		EXISTING BRICK
	FOUND MONUMENT		
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PROJECT		BULLETPROOF DIESEL	
LOCATION		MESA, ARIZONA	
DRAWN BY	DESIGNED BY	REVIEWED BY	DATE
J.D.	K.Z.	K.Z.	12/6/21
TITLE		CONCEPTUAL UTILITY PLAN	
SHEET		2 OF 2	
SITE ADDRESS		4245 E. PALM STREET	
SCALE:		1"=20'	
JOB NO.:		21-060	
DESCRIPTION		REV. DATE	
BY		DATE	
3400 N. Dycart Road Suite 130 Mesa, Arizona 85202 Phone: 602-547-2501 Fax: 602-547-2501			
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