

PRINTED ON: 3/21/2022

**KAJIMA ASSOCIATES INC.**

ARCHITECTURE • ENGINEERING • INTERIORS  
3490 PIEDMONT ROAD, SUITE 900 ATLANTA, GEORGIA 30305 (404) 812-8600  
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**KAJIMA ASSOCIATES, INC.**  
3490 PIEDMONT RD. NE, SUITE 900, ATLANTA, GA 30305  
**KIMLEY-HORN AND ASSOCIATES, INC.**  
7740 N. 16th STREET, SUITE 300, PHOENIX, AZ 85020  
**Kimley»Horn**

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7740 N. 16th STREET, SUITE 300, PHOENIX, AZ 85020  
PHONE: 602-944-5500 FAX: 602-944-7423  
WWW.KIMLEY-HORN.COM



**JX NIPPON MINING AND METAL**  
10430 E. GERMANN RD, MESA,  
ARIZONA 85212  
**PROJECT EARL**

DATE # REMARKS

REVISIONS:

**PRELIMINARY GRADING  
AND DRAINAGE PLAN**

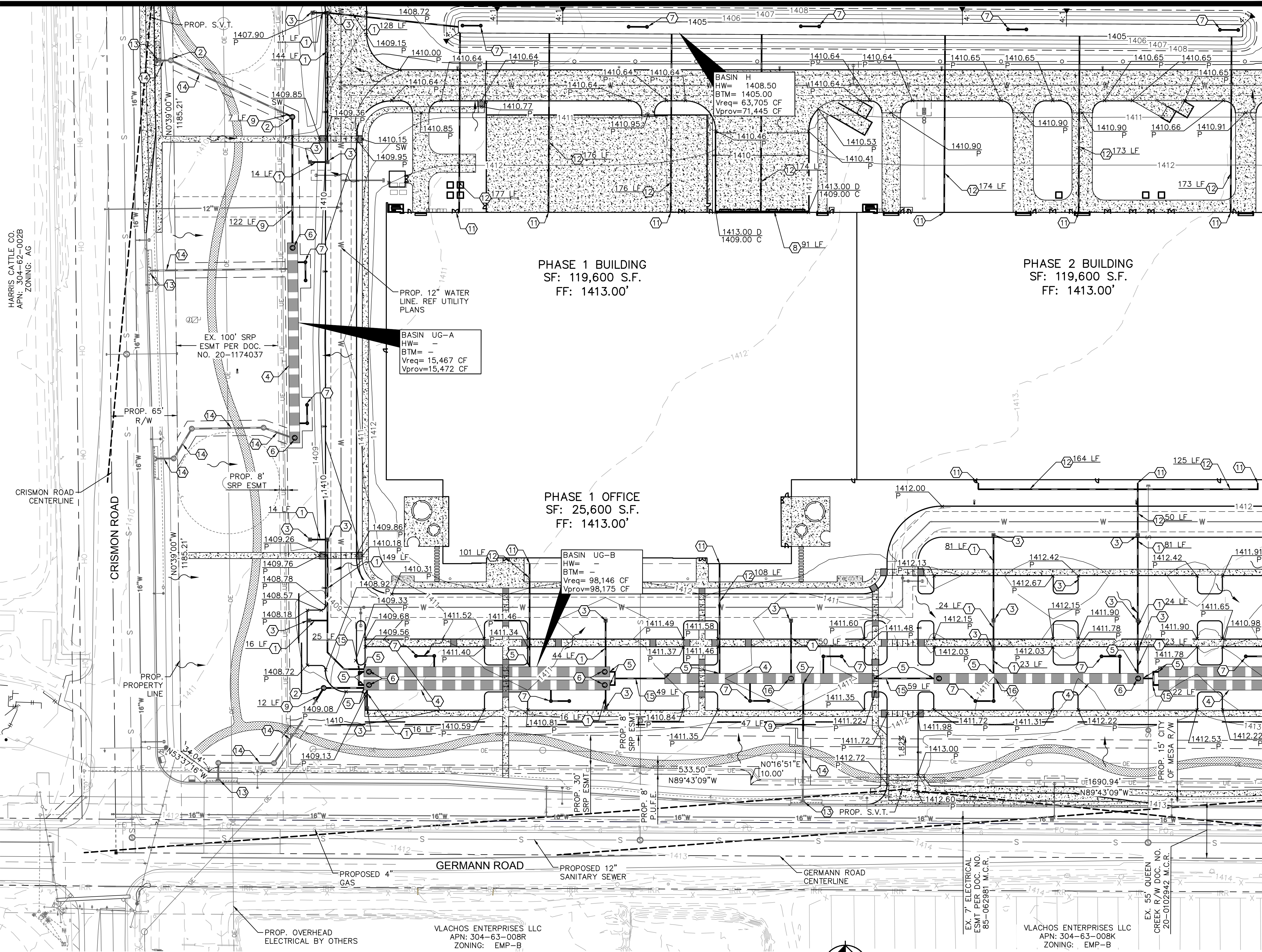
SHEET TITLE:

PROJECT NO.: 291550002  
PROJECT MANAGER: \_\_\_\_\_  
PROJECT DESIGNER: \_\_\_\_\_  
DRAWN BY: MKC  
CHECKED BY: JCB  
SCALE: 1"=50'

SHEET:

PRE-GD 1  
1 OF 5

MATCH LINE - SEE SHEET 3



**LEGEND**

---	EXISTING IMPROVEMENTS
---	PROPOSED IMPROVEMENTS
---	EXISTING EASEMENT
---	STREET CENTERLINE
---	EXISTING FIRELINE
---	EXISTING WATER MAIN/SERVICE
---	EXISTING SANITARY SEWER LINE
---	EXISTING GAS
---	EXISTING ELECTRIC
---	PROPOSED SANITARY SEWER LINE
---	PROPOSED FIRELINE
---	PROPOSED WATER SERVICE/SERVICE
---	EXISTING FENCE
---	EXISTING IRRIGATION LINE
---	PROPOSED FENCE
---	PROPOSED OVERHEAD ELECTRICAL BY OTHERS
---	EXISTING STORM DRAIN
---	PROPOSED STORM DRAIN
---	PROPOSED HIGH POINT
---	PROPOSED LOW POINT
---	PROPOSED CONTOUR
---	EXISTING CONTOURS
---	PROPOSED PAVEMENT ELEVATION
---	EXISTING PAVEMENT ELEVATION
---	MATCH EXISTING ELEVATION
---	GUTTER/GRATE ELEVATION
---	FINISH GRADE ELEVATION
---	PAVEMENT ELEVATION
---	TOP OF CURB ELEVATION
---	SIDEWALK ELEVATION
---	FINISHED FLOOR ELEVATION
---	GUTTER ELEVATION
---	FLOW ARROW

**NOTES**

1. ADD 0.5' TO PAVEMENT (P) ELEVATIONS FOR TOP OF CURB ELEVATIONS FOR VERTICAL CURBS.
2. ALL SPOT ELEVATIONS ARE FINISHED GRADE PAVEMENT (P), GUTTER/GRATE (G), TOP OF CURB (TC), OR SIDEWALK (SW) ELEVATIONS UNLESS OTHERWISE NOTED.
3. CONTRACTOR SHALL USE SPOT ELEVATIONS, PROPOSED CONTOURS, AND SLOPES TO ESTABLISH GRADES.
4. SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% AND LONGITUDINAL SLOPE SHALL NOT EXCEED 5%.
5. REFER TO LANDSCAPE PLANS FOR SLOPE TREATMENT.
6. ALL FILL SLOPES SHALL BE COMPACTED TO 95% RELATIVE DENSITY.
7. REFER TO BUILDING ARCHITECTURE AND STRUCTURAL PLANS FOR EXACT BUILDING FOUNDATION THICKNESS CHANGES.

**FLOOD ZONE**

ACCORDING TO THE FLOOD INSURANCE RATE MAP #04013C2790L, DATED OCTOBER 16, 2013, THIS PROPERTY IS LOCATED IN FLOOD ZONE "X". AREAS OF 0.2% ANNUAL CHANCE FLOOD; AREAS OF 1% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT OR WITH DRAINAGE AREAS LESS THAN 1 SQUARE MILE; AND AREAS PROTECTED BY LEVEES FROM 1% ANNUAL CHANCE FLOOD.

**GRADING CONSTRUCTION NOTES**

1. PROPOSED 12" HDPE STORM DRAIN PIPE.
2. PROPOSED 5" DIA MANHOLE PER MAG STD DET 520 WITH SOLID LID.
3. PROPOSED CATCH BASIN TYPE 'G' PER MAG STD DET 537 SINGLE GRATE.
4. PROPOSED 10' DIA CMP RETENTION TANK.
5. PROPOSED STORM DRAIN CONNECTION TO UNDERGROUND RETENTION TANK.
6. PROPOSED UNDERGROUND RETENTION ACCESS RISER.
7. PROPOSED MAXWELL PLUS DUAL-CHAMBERED DRYWELL.
8. PROPOSED R-4990-DX 14" WIDE UNBOLTED NEENAH R-4990-DX SERIES TRENCH DRAIN (TYPE 'A' GRATE) WITH BLACK POWDER COATED FINISH.
9. PROPOSED 15" RCP STORM DRAIN PIPE
10. PROPOSED HEADWALL WITH SAFETY RAIL TYPE 'U' PER MAG STD DET 501 AND 145. TRASH RACK PER MAG STD 502.
11. PROPOSED BUILDING ROOF DRAIN CONNECTION WITH TWO-WAY CLEANOUT
12. PROPOSED 12" SCHEDULE 40 PVC STORM DRAIN PIPE.
13. PROPOSED CURB INLET CATCH BASIN TYPE 'D' PER MAG STD DET 533-1.
14. PROPOSED 15" RCP STORM DRAIN (INSTALLED BY OTHERS) TO REMAIN.
15. PROPOSED EQUALIZER STORM DRAIN PIPE.
16. PROPOSED OPEN GRATE INLET STRUCTURE.





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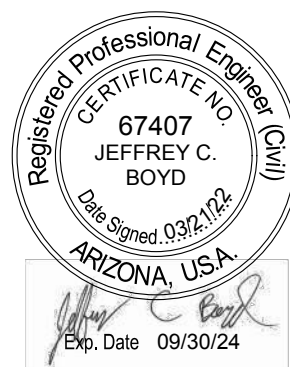
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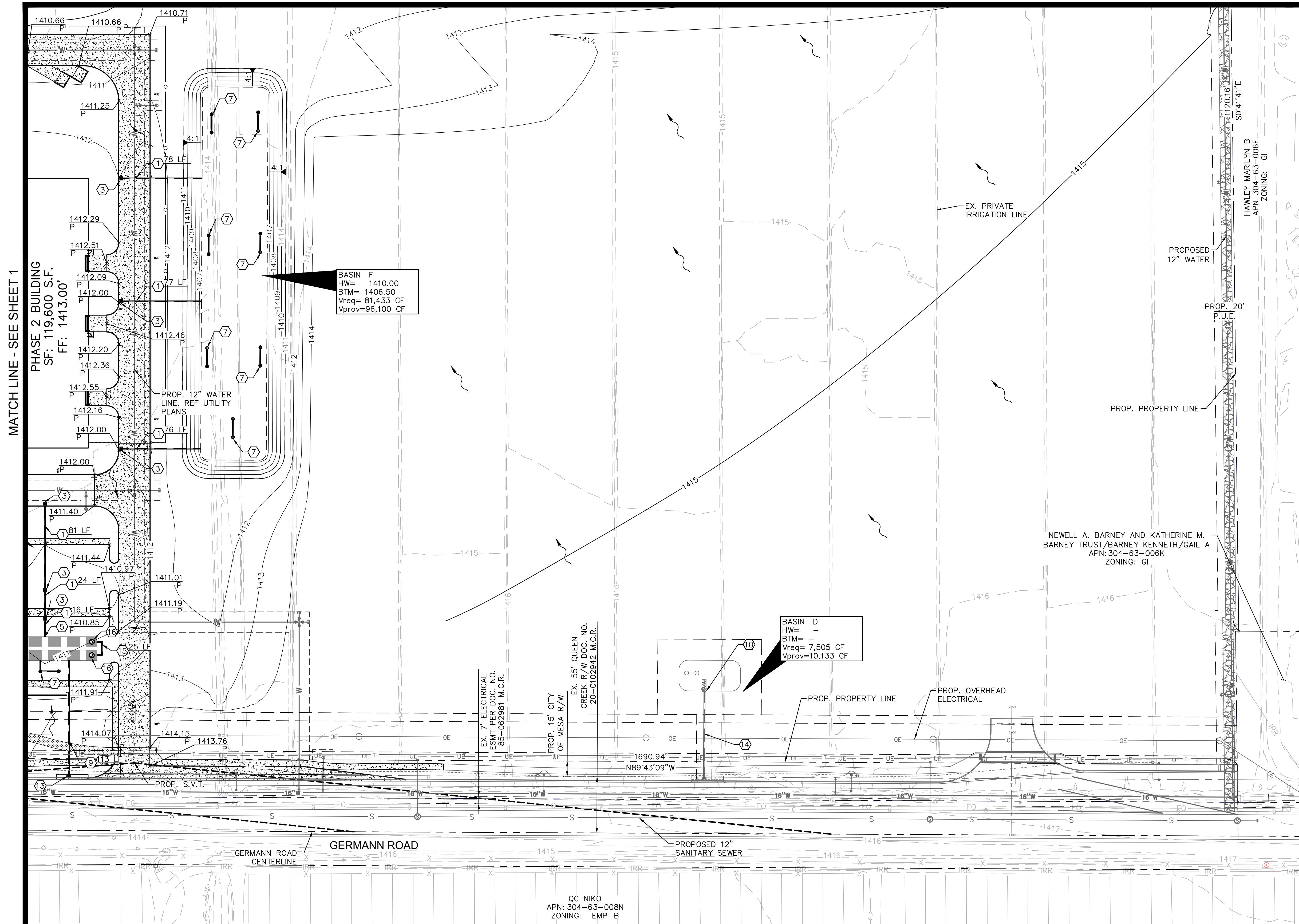
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PROJECT DESIGNER: \_\_\_\_\_  
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SCALE: 1"=50'

SHEET:

PRE-GD 2  
2 OF 5



MATCH LINE - SEE SHEET 4



**LEGEND**

---	EXISTING IMPROVEMENTS
---	PROPOSED IMPROVEMENTS
---	EXISTING EASEMENT
---	STREET CENTERLINE
F	EXISTING FIRELINE
W	EXISTING WATER MAIN/SERVICE
S	EXISTING SANITARY SEWER LINE
G	EXISTING GAS
E	EXISTING ELECTRIC
S	PROPOSED SANITARY SEWER LINE
F	PROPOSED FIRELINE
W	PROPOSED WATER SERVICE/SERVICE
X	EXISTING FENCE
IRR	EXISTING IRRIGATION LINE
O	PROPOSED FENCE
OE	PROPOSED OVERHEAD ELECTRICAL BY OTHERS
---	EXISTING STORM DRAIN
---	PROPOSED STORM DRAIN
HP	PROPOSED HIGH POINT
LP	PROPOSED LOW POINT
12	PROPOSED CONTOUR
-2-	EXISTING CONTOURS
85.00 P	PROPOSED PAVEMENT ELEVATION
(85.00) P	EXISTING PAVEMENT ELEVATION
M/E	MATCH EXISTING ELEVATION
G	GUTTER/GRATE ELEVATION
FG	FINISH GRADE ELEVATION
P	PAVEMENT ELEVATION
TC	TOP OF CURB ELEVATION
SW	SIDEWALK ELEVATION
FF	FINISHED FLOOR ELEVATION
G	GUTTER ELEVATION
---	FLOW ARROW

**GRADING CONSTRUCTION NOTES**

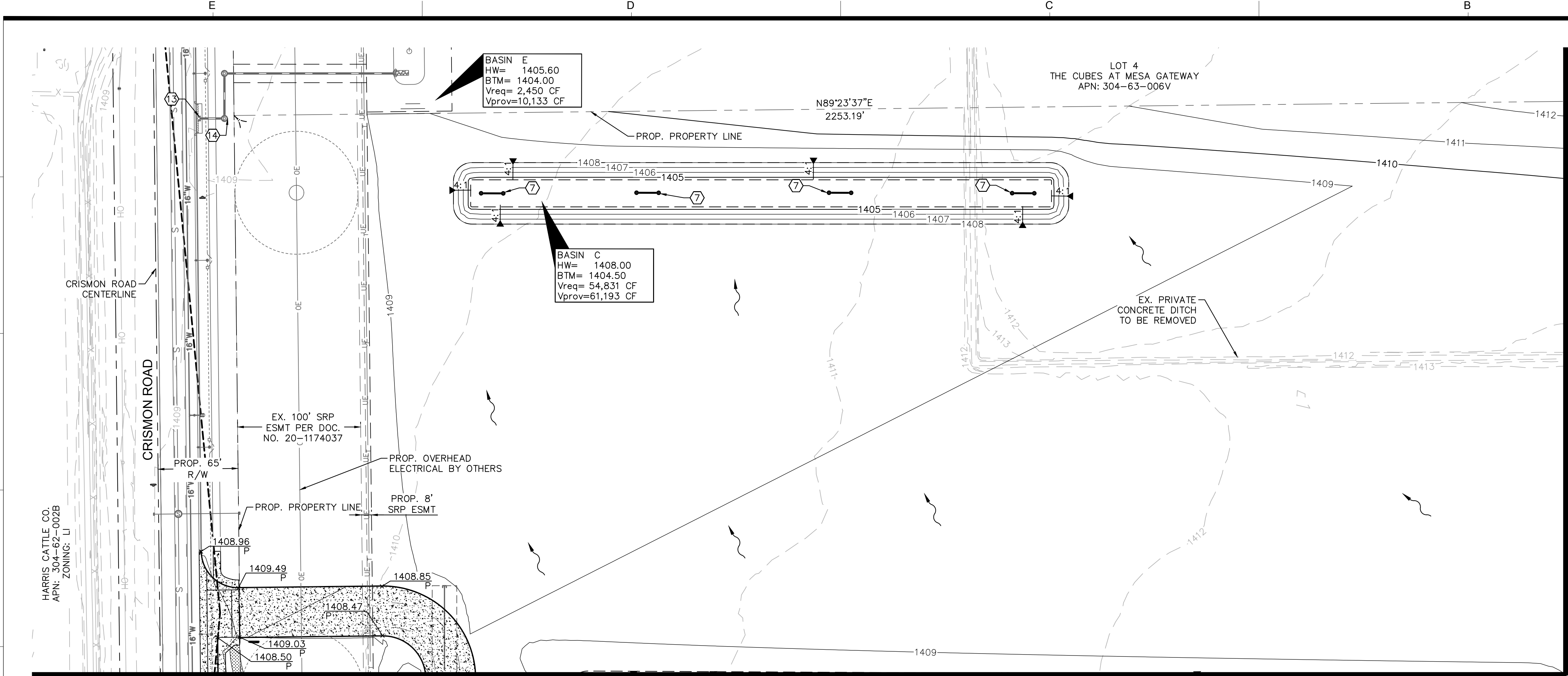
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FLOOD ZONE

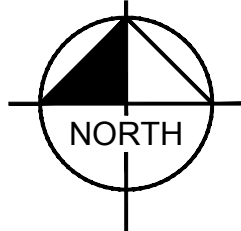
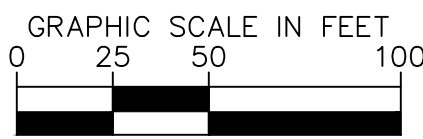
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LEGEND

- EXISTING IMPROVEMENTS
- PROPOSED IMPROVEMENTS
- EXISTING EASEMENT
- STREET CENTERLINE
- EXISTING FIRELINE
- EXISTING WATER MAIN/SERVICE
- EXISTING SANITARY SEWER LINE
- EXISTING GAS
- EXISTING ELECTRIC
- PROPOSED SANITARY SEWER LINE
- PROPOSED FIRELINE
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- EXISTING FENCE
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- PROPOSED FENCE
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- EXISTING STORM DRAIN
- PROPOSED STORM DRAIN
- PROPOSED HIGH POINT
- PROPOSED LOW POINT
- PROPOSED CONTOUR
- EXISTING CONTOURS
- PROPOSED PAVEMENT ELEVATION
- EXISTING PAVEMENT ELEVATION
- MATCH EXISTING ELEVATION
- GUTTER/GRATE ELEVATION
- FINISH GRADE ELEVATION
- PAVEMENT ELEVATION
- TOP OF CURB ELEVATION
- SIDEWALK ELEVATION
- FINISHED FLOOR ELEVATION
- GUTTER ELEVATION
- FLOW ARROW



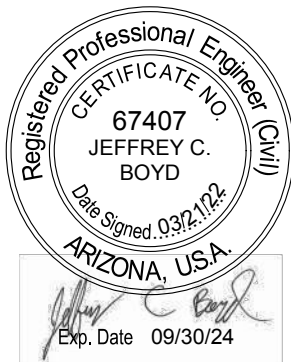
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SHEET TITLE:

PROJECT NO.: 291550002

PROJECT MANAGER:

PROJECT DESIGNER:

DRAWN BY: MKC

CHECKED BY: JCB

SCALE: 1"=50'

**PRELIMINARY GRADING  
AND DRAINAGE PLAN**

SHEET:

PRE-GD 3

3 OF 5



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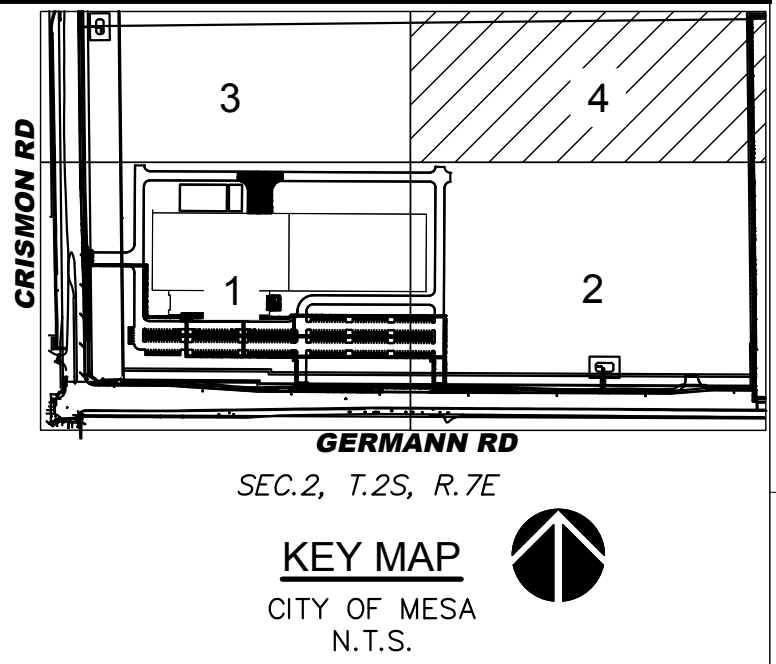
MATCH LINE - SEE SHEET 3

MATCH LINE - SEE SHEET 2

LEGEND

- |              |  |
|--------------|--|
| ---          | EXISTING IMPROVEMENTS                  |
| ---          | PROPOSED IMPROVEMENTS                  |
| ---          | EXISTING EASEMENT                      |
| ---          | STREET CENTERLINE                      |
| F            | EXISTING FIRELINE                      |
| W            | EXISTING WATER MAIN/SERVICE            |
| S            | EXISTING SANITARY SEWER LINE           |
| G            | EXISTING GAS                           |
| E            | EXISTING ELECTRIC                      |
| S            | PROPOSED SANITARY SEWER LINE           |
| F            | PROPOSED FIRELINE                      |
| W            | PROPOSED WATER SERVICE/SERVICE         |
| X            | EXISTING FENCE                         |
| IRR          | EXISTING IRRIGATION LINE               |
| O            | PROPOSED FENCE                         |
| OE           | PROPOSED OVERHEAD ELECTRICAL BY OTHERS |
| ---          | EXISTING STORM DRAIN                   |
| ---          | PROPOSED STORM DRAIN                   |
| HP           | PROPOSED HIGH POINT                    |
| LP           | PROPOSED LOW POINT                     |
| 12           | PROPOSED CONTOUR                       |
| 2            | EXISTING CONTOURS                      |
| 85.00<br>P   | PROPOSED PAVEMENT ELEVATION            |
| (85.00)<br>P | EXISTING PAVEMENT ELEVATION            |
| M/E          | MATCH EXISTING ELEVATION               |
| G            | GUTTER/GRATE ELEVATION                 |
| FG           | FINISH GRADE ELEVATION                 |
| P            | PAVEMENT ELEVATION                     |
| TC           | TOP OF CURB ELEVATION                  |
| SW           | SIDEWALK ELEVATION                     |
| FF           | FINISHED FLOOR ELEVATION               |
| G            | GUTTER ELEVATION                       |
| ~>           | FLOW ARROW                             |

BASIN G  
HW= 1410.00  
BTM= 1407.00  
Vreq= 66,669 CF  
Vprov=71,396 CF



GRADING CONSTRUCTION NOTES

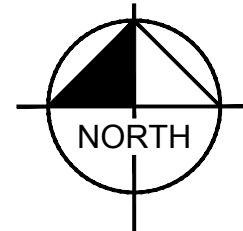
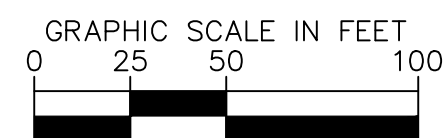
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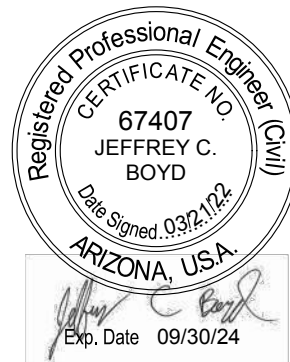
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7740 N. 16th Street, Suite 300, Phoenix, AZ 85020  
MECHANICAL (PLUMBING) / FIRE PROTECTION / ELECTRICAL ENGINEER:  
CIVIL ENGINEER & LANDSCAPE ARCHITECT:

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ARIZONA 85212

**PROJECT EARL**

DATE # REMARKS

REVISIONS:

SHEET TITLE:

**PRELIMINARY GRADING  
AND DRAINAGE PLAN**

PROJECT NO.: 291550002

PROJECT MANAGER:

PROJECT DESIGNER:

DRAWN BY: MKC

CHECKED BY: JCB

SCALE: 1"=50'

SHEET:

PRE-GD 4

4 OF 5



RETENTION CALCULATIONS

Overall Retention Summary - Project Earl - 100-Yr 2-Hr Storm Event							
Drainage Area	Land Use	Area [A]		Runoff Coefficient	Precipitation Depth [P]	Required Storage (V <sub>REQ</sub> = CPA/12)	
		sf	ac		in	cf	ac-ft
3--4*	Offsite Road Improvement	39,908	0.92	0.90	2.20	7,505	0.17
3--3*	Offsite Road Improvement	37,379	0.86	0.90	2.20	6,803	0.16
3--2*	Offsite Road Improvement	40,965	0.94	0.90	2.20	7,443	0.17
3--1*	Offsite Road Improvement	45,670	1.05	0.90	2.20	8,347	0.19
1--14*	Offsite Road Improvement	41,042	0.94	0.90	2.20	7,280	0.17
1--13*	Offsite Road Improvement	28,326	0.65	0.90	2.20	4,551	0.10
1--12*	Offsite Road Improvement	21,947	0.50	0.90	2.20	3,636	0.08
1--11*	Offsite Road Improvement	13,193	0.30	0.90	2.20	2,450	0.06
45	Landscape Area	30,025	0.69	0.60	2.20	3,303	0.08
50	Landscape Area	52,160	1.20	0.60	2.20	5,738	0.13
55	Landscape Area	55,089	1.26	0.80	2.20	8,080	0.19
60	Landscape Area	67,328	1.55	0.60	2.20	7,406	0.17
65	Pavement/Building Area	14,251	0.33	0.85	2.20	2,221	0.05
70	Pavement/Building Area	104,206	2.39	0.90	2.20	17,194	0.39
75	Pavement/Building Area	79,571	1.83	0.90	2.20	13,129	0.30
80	Pavement/Building Area	89,352	2.05	0.90	2.20	14,743	0.34
85	Pavement/Building Area	61,421	1.41	0.90	2.20	10,135	0.23
90	Pavement/Building Area	60,863	1.40	0.90	2.20	10,042	0.23
95	Pavement/Building Area	61,208	1.41	0.90	2.20	10,099	0.23
100	Undeveloped Desert	715,971	16.44	0.60	2.20	78,757	1.81
105	Undeveloped Desert	606,352	13.92	0.60	2.20	66,699	1.53
110	Pavement/Undeveloped Desert	246,812	5.67	0.75	2.20	33,937	0.78
115	Undeveloped Desert	498,464	11.44	0.60	2.20	54,831	1.26
120	Landscape Area	29,381	0.67	0.60	2.20	3,232	0.07
125	Pavement/Building Area	24,333	0.56	0.60	2.20	2,677	0.06
Total	Industrial	3,011,503	69.13	0.74	2.20	390,236	8.96

\*THE VOLUMES FOR THESE TRIBUTARY AREAS ARE BASED OFF OF THE DRAINAGE NARRATIVE FROM THE OFFSITE IMPROVEMENT PLANS PROVIDED BY OTHERS

DRYWELL SUMMARY

Drywell Summary					
Drainage Area	Retention Basin	Volume	Disposal Rate	Drywells Required	Drain Time
		cf	cfs	ea	hr
UG-A	CMP Tank	15,467	0.10	2	22
UG-B	CMP Tank	98,146	0.10	8	35
Basin-C	CMP Tank	54,831	0.10	5	31
Basin-D*	Surface	7,505	0.10	1	21
Basin-E*	Surface	2,450	0.10	1	7
Basin-F	Surface	81,433	0.10	7	33
Basin-G	Surface	66,699	0.10	6	31
Basin-H	Surface	63,705	0.10	5	36
Total	Surface/CMP Tank	390,236	0.10	35	31

\*THE VOLUME PROVIDED FOR THESE BASINS ARE EXISTING AND TO BE PROVIDED BY OTHERS

UNDERGROUND RETENTION SUMMARY

Underground Retention Summary						
Drainage Area	Retention Basin	Required Volume	Diameter	Required Length	Provided Length	Provided Storage
		cf	ft	lf	lf CMP	cf
UG-A	CMP Tank	15,467	10	197	197	15,472
UG-B	CMP Tank	98,146	10	1250	1250	98,175
Total	CMP Tank	113,613	10	1447	1447	113,647

SURFACE RETENTION SUMMARY

Overall Surface Retention Summary			
Drainage Area	Retention Basin	Required Storage	Provided Storage
		cf	cf
Basin-C	Surface	54,831	61,193
Basin-D*	Surface	7,505	10,133
Basin-E*	Surface	2,450	10,133
Basin-F	Surface	81,433	96,100
Basin-G	Surface	66,699	71,396
Basin-H	Surface	63,705	71,445
Total	Surface	276,623	320,400

\*THE VOLUME PROVIDED FOR THESE BASINS ARE EXISTING AND TO BE PROVIDED BY OTHERS

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KAJIMA ASSOCIATES INC.

ARCHITECTURE • ENGINEERING • INTERIORS

3490 PIEDMONT ROAD, SUITE 900 ATLANTA, GEORGIA 30305 (404) 812-8600  
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ARCHITECT:

STRUCTURAL ENGINEER:

MECHANICAL/PLUMBING/FIRE PROTECTION/ELECTRICAL ENGINEER:

CIVIL ENGINEER & LANDSCAPE ARCHITECT:

KAJIMA ASSOCIATES, INC.

3490 PIEDMONT RD. NE, SUITE 900, ATLANTA, GA 30305

KIMLEY-HORN AND ASSOCIATES, INC.

7740 N. 16th Street, Suite 300, Phoenix, AZ 85020

Kimley»Horn

© 2022 KIMLEY-HORN AND ASSOCIATES, INC.  
7740 N. 16th STREET, SUITE 300, PHOENIX, AZ 85020  
PHONE: 602-944-5500 FAX: 602-944-7423  
WWW.KIMLEY-HORN.COM

SEAL:

Professional Engineer (Civil)

67407

JEFFREY C. BOYD

ARIZONA, U.S.A.

Exp. Date: 09/30/24

JX

JX NIPPON MINNING AND METAL

10430 E. GERMANN RD, MESA, ARIZONA 85212

PROJECT EARL

DATE	#	REMARKS
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REVISIONS:
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PRELIMINARY GRADING AND DRAINAGE PLAN NOTES

PROJECT NO.:	291550002
PROJECT MANAGER:	
PROJECT DESIGNER:	
DRAWN BY:	MKC
CHECKED BY:	JCB
SCALE:	NONE