

**GRADING & DRAINAGE KEY-NOTES**

1. INSTALL DECORATIVE PAVERS DRIVEWAY. THICKNESS, PATTERN, TEXTURE AND COLOR PER LANDSCAPE PLANS.
2. INSTALL DECORATIVE PAVERS WALKWAY. THICKNESS, PATTERN, TEXTURE AND COLOR PER LANDSCAPE PLANS AND DETAILS.
3. MATCH EXISTING GRADE.
4. DEMOLITION OF EXISTING WALLS & SITE IMPROVEMENTS PER ARCHITECTURAL PLANS.
5. REFER TO LANDSCAPE PLANS FOR NATIVE TREES AND PLANTS REMOVAL/RELOCATION AND INSTALLATION OF NEW TREES AND LANDSCAPING.
6. NEW SPA PER ARCHITECTURAL AND LANDSCAPE PLANS AND DETAILS.
7. NEW RETAINING WALL PER ARCHITECTURAL AND STRUCTURAL PLANS AND DETAILS. WATERPROOF WALL 1.5" MIN. ABOVE FINISH GRADE. (BITUTHENE 3000 HC MEMBRANE W/ GRADE PROTECTION O3 OR APPROVED EQUAL).
8. PROTECT IN PLACE.
9. INSTALL ANGULAR RIP-RAP D50=6", 1" THICK PLACED ON NONWOVEN GEOTEXTILE FABRIC (MIRAFI N-SERIES OR APPROVED EQUAL). SEE GRADATION TABLE ON SHT. C-3.
10. REFER TO STRUCTURAL PLANS AND DETAILS FOR EXTENDED STEM WALL CONSTRUCTION. WATERPROOF BUILDING WALLS 1.5" MIN. ABOVE FINISH GRADE. (BITUTHENE 3000 HC MEMBRANE W/ GRADE PROTECTION O3 OR APPROVED EQUAL).
11. INSTALL SCUPPER IN WALL OPENING FOR EXTREME OUTFALL WITH INVERT SET AT 74.70
12. NEW STAIRS PER ARCHITECTURAL PLANS AND DETAILS.
13. NEW WATER FEATURE PER ARCHITECTURAL AND LANDSCAPE PLANS AND DETAILS.
14. INSTALL 6" PVC SCH. 40 STORM DRAIN PIPE THROUGH WALL TO DAYLIGHT WITH VERTICAL RISER WITH 12" X 12" ADS 12990CP GRATE WITH WATERTIGHT CONNECTIONS, INCLUDING ALL ADAPTERS & FITTINGS PER MANUFACTURER'S SPECIFICATIONS, DETAILS AND INSTALLATION INSTRUCTIONS, OR APPROVED EQUAL. SEE DET. 3, SHT. C-3.
15. CLEAR AND GRUB EXISTING SITE AREA. REMOVE ALL VEGETATION, EXISTING UTILITIES AND CONSTRUCTION DEBRIS. CUT AND FILL EXISTING TERRAIN AS NECESSARY TO ACHIEVE THE DESIGNED SUBGRADE ELEVATIONS.
16. VERIFY AND COORDINATE WITH STRUCTURAL AND GEOTECHNICAL ENGINEER, THE ENGINEERED FILL UNDER SLAB AND FOOTINGS.
17. NEW POOL PER ARCHITECTURAL AND LANDSCAPE PLANS AND DETAILS.
18. NEW 2:1 SLOPE. STABILIZATION AND TREATMENT PER GEOTECHNICAL REPORT.
19. REFER TO DETAILS PROVIDED BY THE ARCHITECT AND PLUMBING ENGINEER FOR DRAINAGE OF BALCONIES.
20. CONSTRUCT RETENTION BASIN AS SHOWN. CONTRACTOR TO SCARIFY BOTTOM OF BASIN 2' DEEP TO MAXIMUM 80% COMPACTION, AND PER GEOTECHNICAL REPORT RECOMMENDATIONS.
21. NEW SCREEN WALL PER ARCHITECTURAL AND LANDSCAPE PLANS AND DETAILS

**PRIVATE SANITARY SEWER KEY-NOTES**

1. INSTALL NEW ON-SITE SANITARY SEWER SEPTIC SYSTEM PER SEPARATE PERMIT IN ACCORDANCE WITH MARICOPA COUNTY ENVIRONMENTAL SERVICES DEPARTMENT AND ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY STANDARDS AND REGULATIONS. REFER TO PLUMBING PLANS AND DETAILS.
2. INSTALL 4" PVC SEWER SERVICE (SDR-35, ASTM D-3034). REFER TO MAG STD DET. 440-3. TRENCH BEDDING & BACKFILL PER MAG STD DET. 200-1.
3. INSTALL SANITARY SEWER CLEANOUT WITH AIRTIGHT CAP PER MAG STD DET. 441. PROTECT WITH FRAME AND COVER PER MAG STD DET. 270 WHEN IN VEHICULAR ACCESS AREA.
4. FOR CONTINUATION SEE PLUMBING PLANS.

**ON-SITE RETENTION FOR THE PRE VS. POST DEVELOPMENT RUNOFF FROM 100-YEAR, 2-HOUR STORM EVENT**

$V = D \times A \times (C_w,pr - C_w,ex) / 12$

DRAINAGE AREA	AREA S.F.	RUNOFF COEFFICIENT C <sub>w</sub>	VOLUME REQUIRED C.F.	RETENTION BASIN ID	CONTOUR ELEVATION			DEPTH FT	VOLUME PROVIDED C.F.					
					CONTOUR AREA S.F.	DEPTH FT	VOLUME PROVIDED C.F.							
A	78,940	0.04	742	A1	HW	74.90	982	0.33	209					
					BOTTOM	74.57	286							
					A2	HW	60.00	218	1.00	121				
						BOTTOM	59.00	25						
					A3	78,940	0.04	742	A3	HW	67.80	77	0.33	15
										BOTTOM	67.47	14		
					A4	78,940	0.04	742	A4	HW	48.00	543	1.50	447
										BOTTOM	46.50	53		
TOTAL			742					792						

EXISTING WEIGHTED RUNOFF COEFFICIENT, C <sub>w,ex</sub>				PROPOSED WEIGHTED RUNOFF COEFFICIENT, C <sub>w,pr</sub>				
SURFACE TYPE	RUNOFF COEFFICIENT C	AREA SF	C*AREA	SURFACE TYPE	RUNOFF COEFFICIENT C	AREA SF	C*AREA	
ROOF	0.95	10,187	9,678	ROOF	0.95	16,142	15,335	
PAVEMENT	0.95	13,958	13,260	CONCRETE PAVEMENT	0.95	8,886	8,442	
LANDSCAPE	0.35	54,795	19,178	CONCRETE PAVERS	0.95	3,798	3,608	
TOTAL		78,940	42,116	LANDSCAPE	0.35	50,114	17,540	
C <sub>w</sub> = C * AREA / TOTAL AREA			0.53	TOTAL			78,940	44,925
C <sub>w</sub> = C * AREA / TOTAL AREA			0.57	TOTAL			78,940	44,925

DATE: 10/09/17  
 JOB: 1905950  
 VERSION: 4.4  
 PLOT DATE: 10/09/17

DESIGNED BY: NP  
 DRAWN BY: DW  
 CHECKED BY: JL

1. RETENTION/GRADING REVISIONS  
 10/09/17

**GRADING & DRAINAGE PLAN**  
**IMPROVEMENT PLAN**

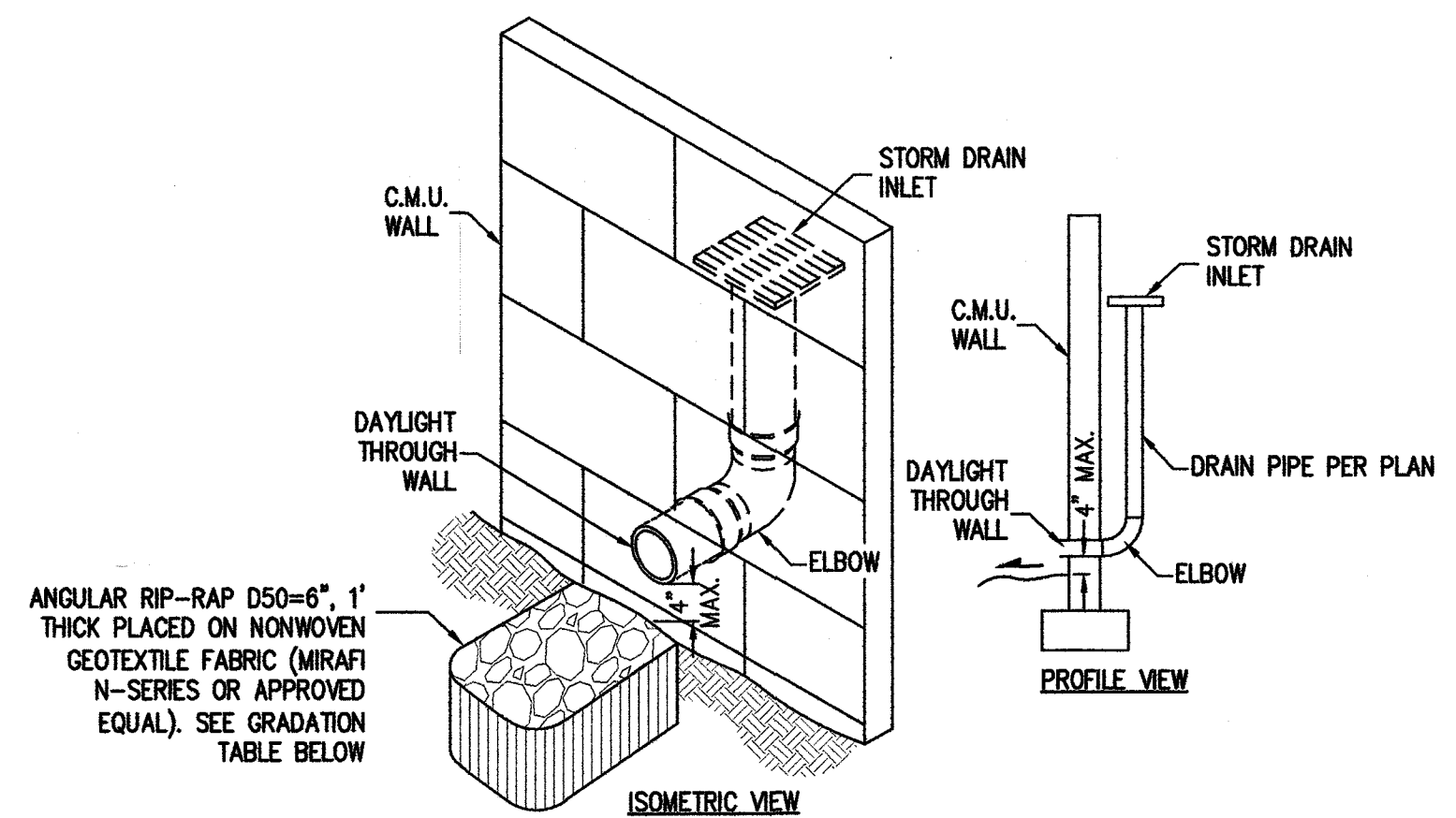
**SUMAR RESIDENCE**  
**4039 E LAMAR RD**  
**PARADISE VALLEY, AZ 85253**

P. 607, 889, 0844, 1, 672, 445, 9492  
 8808 N CENTRAL AVE., SUITE 208  
 PHOENIX, AZ 85020  
 phoenix@dgng.com

41005  
 NICKOLA  
 PRODANOV  
 AZ 85001  
 AZ 85001

CALL TWO WORKING DAYS BEFORE YOU DIG  
 (602) 263 1100  
 BLUE STAKE CENTER

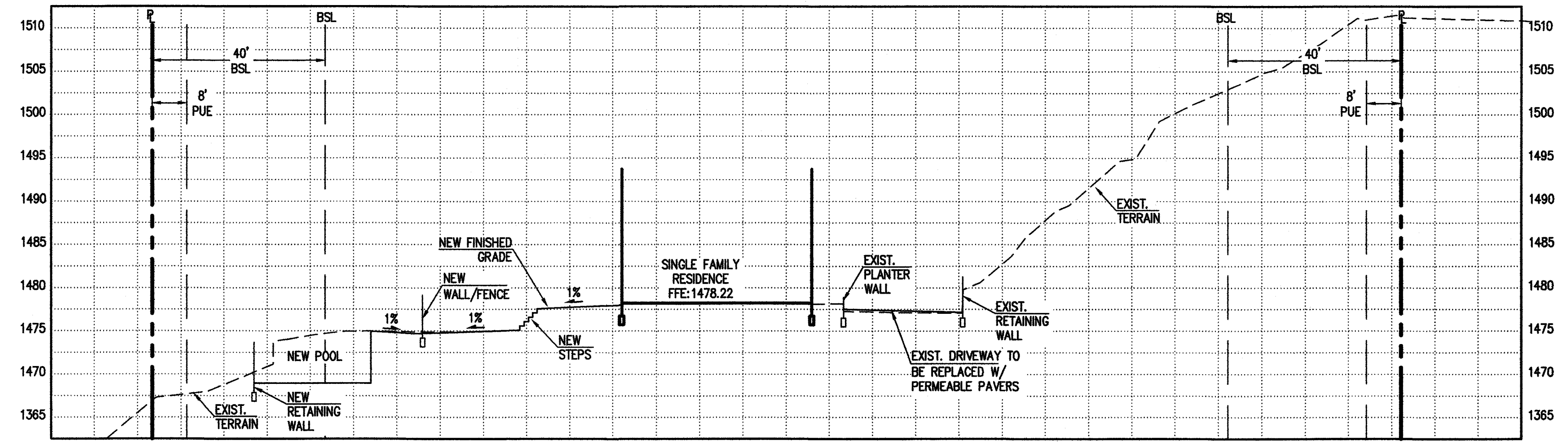
2 OF 3



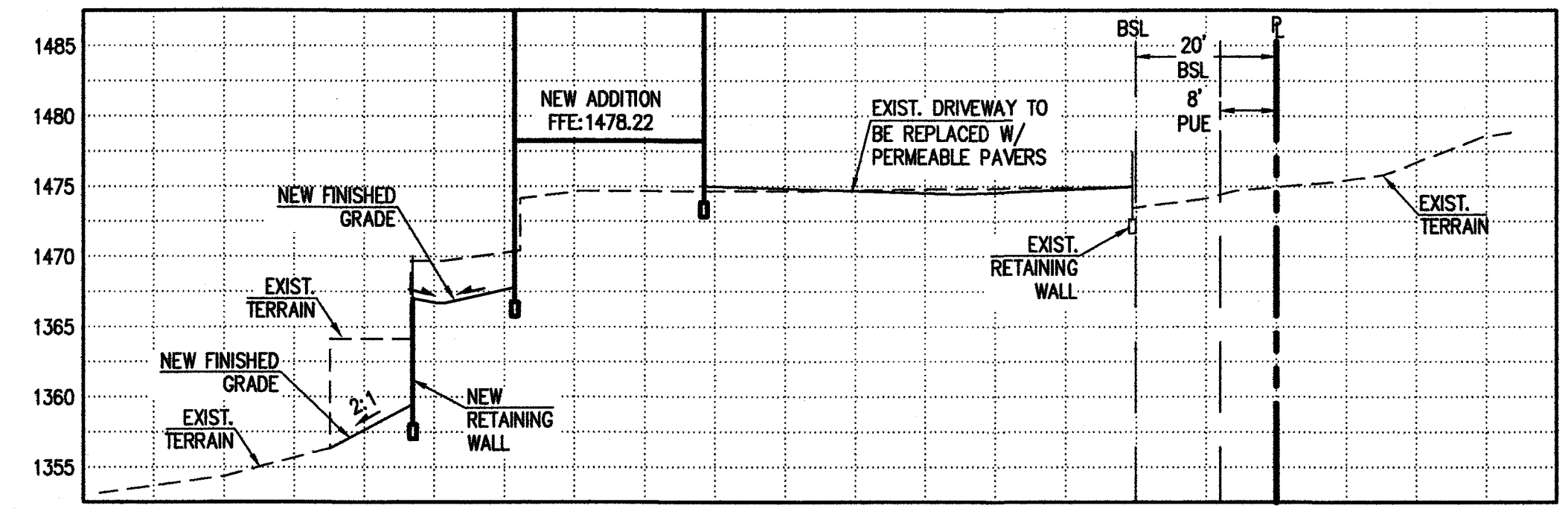
**STORM DRAIN OUTLET AT WALL DETAIL**  
N.T.S.

PERCENT PASSING	SIZE	Dep CLASS	INCHES
100 TO 90	2.0 D <sub>50</sub>	8	12
85 TO 70	1.5 D <sub>50</sub>	6	8
50 TO 30	1.0 D <sub>50</sub>	4	6
15 TO 5	0.67 D <sub>50</sub>	3	4
5 TO 0	0.33 D <sub>50</sub>	1	2

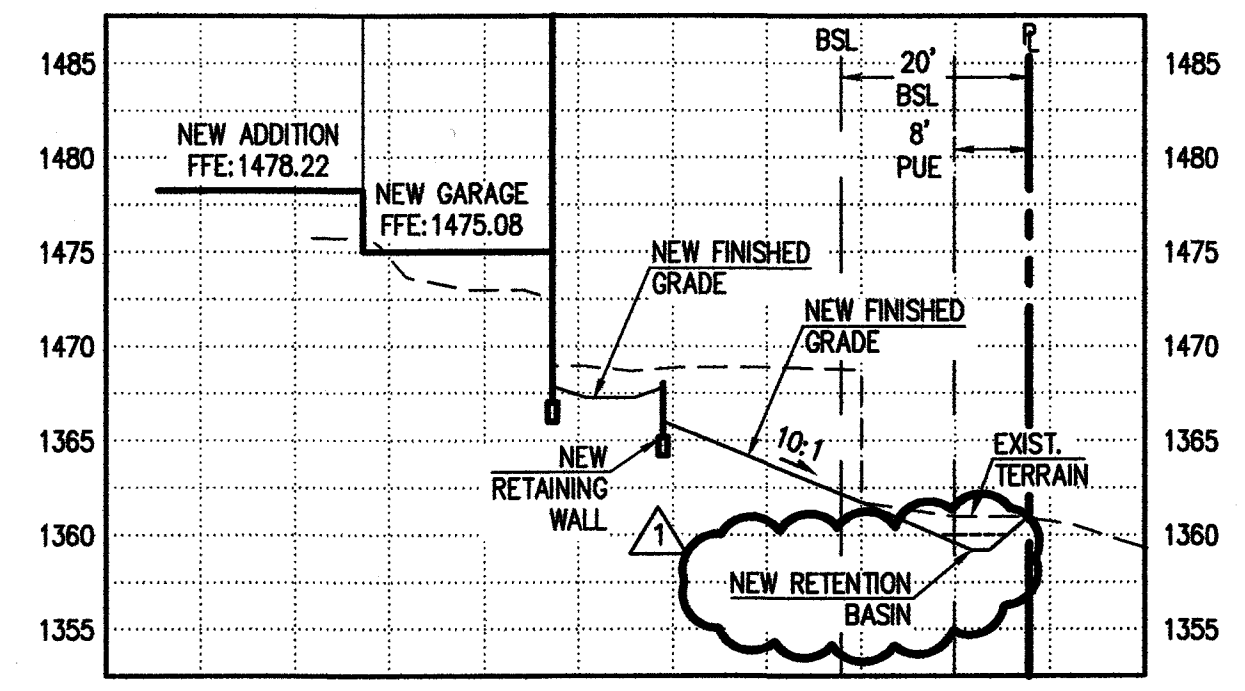
**RIP-RAP GRADATION TABLE**  
N.T.S.



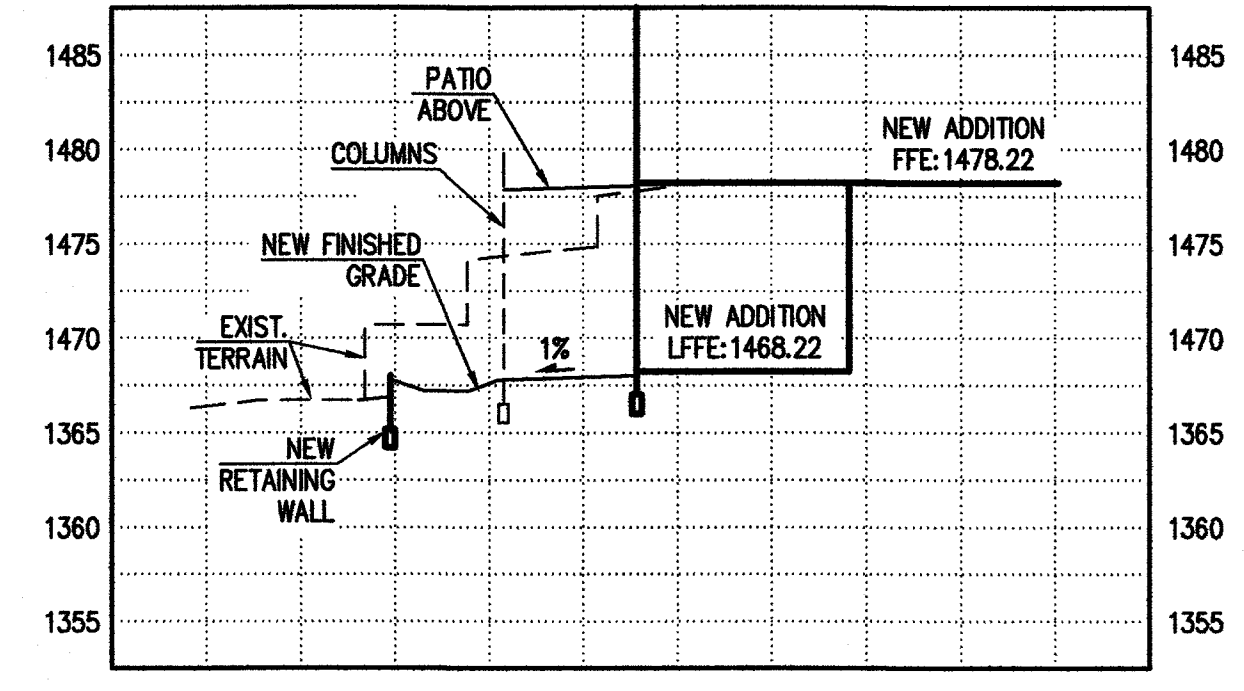
**CROSS SECTION 1-1**  
SCALE HORIZ. 1" = 20'  
VERT. 1" = 10'



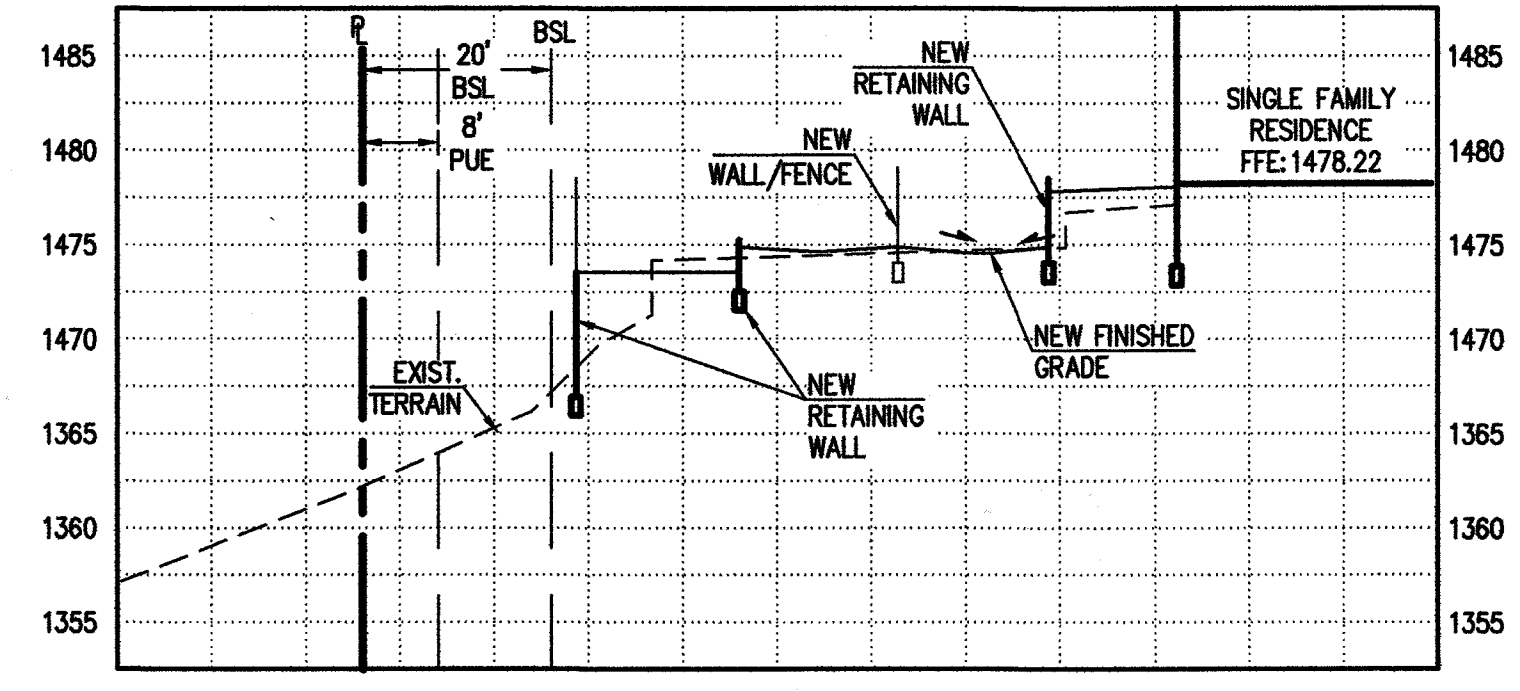
**CROSS SECTION 2-2**  
SCALE HORIZ. 1" = 20'  
VERT. 1" = 10'



**CROSS SECTION 3-3**  
SCALE HORIZ. 1" = 20'  
VERT. 1" = 10'



**CROSS SECTION 4-4**  
SCALE HORIZ. 1" = 20'  
VERT. 1" = 10'



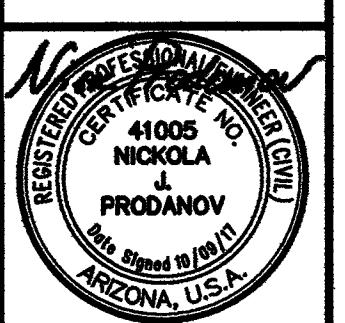
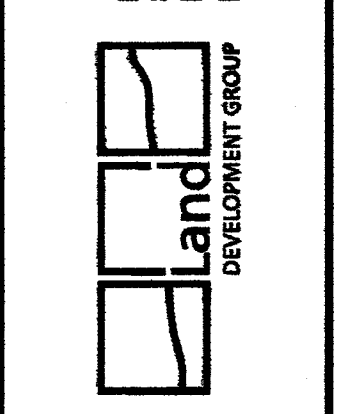
**CROSS SECTION 5-5**  
SCALE HORIZ. 1" = 20'  
VERT. 1" = 10'

DATE: 10/09/17	JOB: 1905050	VERSION: 4.4	PLOT DATE: 10/09/17
SCALE: 1"=20'	DESIGNED BY: NP	DRAWN BY: DW	CHECKED BY: JJ
DATE: 10/09/17	REVISIONS:	1. RETENTION/GRADING REVISIONS	

**GRADING & DRAINAGE PLAN  
DETAILS & CROSS SECTIONS**

**SUMAR RESIDENCE  
4039 E LAMAR RD  
PARADISE VALLEY, AZ 85253**

P. 602. 289.1894 | F. 602. 445.9482  
P. 602. 289.1894 | F. 602. 445.9482  
PHOENIX, AZ 85004  
phoenix@landgroup.com



CALL TWO WORKING DAYS  
BEFORE YOU DIG  
**(602) 263 1100**  
BLUE STAKE CENTER