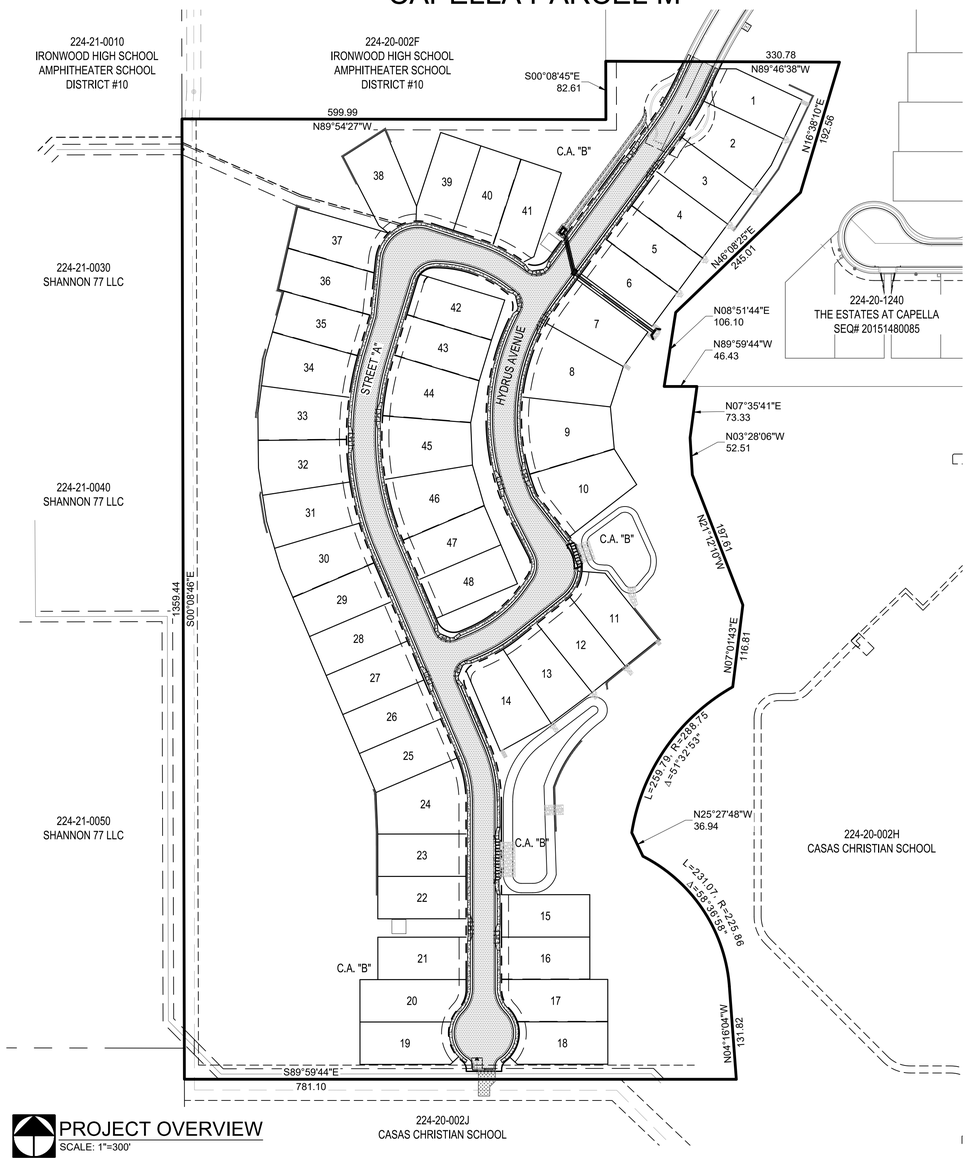
GENERAL NOTES

1. THE GROSS AREA OF THIS DEVELOPMENT IS 26.09 ACRES.
2. TOTAL GRADED AREA IS 13.90± ACRES.
3. TOTAL UNDISTURBED AREA = 10.07± ACRES.
4. COMMON AREAS / OPEN SPACE SHALL BE OWNED AND MAINTAINED BY THE H.O.A.
5. EXISTING ZONING IS CAPELLA PAD - LDR.
6. SETBACKS REQUIRED/PROVIDED: FRONT = 15' SIDE ENTRY GARAGES AND NON GARAGE AREAS OF HOME; 20' FOR FRONT FACING HOMES; SIDE = 5'.
7. BUFFERYARDS: PER OVZCR 27.6.C AND AS PER CAPELLA PAD.
8. ASSURANCES FOR LANDSCAPING AND RE-VEGETATION BONDS MUST BE POSTED PRIOR TO ISSUANCE OF GRADING PERMITS.
9. PROPERTY OWNER SHALL MAINTAIN BUFFERYARD PLANTINGS TO ENSURE UNOBSTRUCTED VISIBILITY TO MOTORISTS. ALL SHRUBS, ACCENTS, AND GROUNDCOVERS SHALL NOT EXCEED THIRTY (30) INCHES IN HEIGHT WITHIN SITE VISIBILITY TRIANGLES. TREES WITHIN SITE VISIBILITY TRIANGLES WILL BE MAINTAINED TO ENSURE THAT BRANCHES / FOLIAGE ARE NOT BELOW A HEIGHT OF SIX (6') FEET.
10. IN THE EVENT OF ABANDONMENT OF THE SITE AFTER GRADING / DISTURBANCE OF NATURAL AREAS, DISTURBED AREAS SHALL BE RE-VEGETATED WITH A NON-IRRIGATED HYDRO SEED MIX FROM OVZCR ADDENDUM D: APPROVED REVEGETATION SEED MIX.
11. ALL PLANT MATERIAL SHALL MEET THE MINIMUM STANDARDS CONTAINED IN THE CURRENT EDITIONS OF THE ARIZONA NURSERY ASSOCIATION'S GROWERS COMMITTEE RECOMMENDED TREE SPECIFICATIONS AND THE AMERICAN ASSOCIATION OF NURSERYMEN AS TO SIZE, CONDITION AND APPEARANCE.
12. PROPERTY OWNER IS RESPONSIBLE FOR MAINTAINING THE TEMPORARY IRRIGATION SYSTEM AS LONG AS NECESSARY IN ORDER TO TRANSITION PLANTS OVER TO NATURAL SOURCES. ANY PLANT MATERIALS THAT DIE IN TRANSITION, FOR ANY REASONS, SHALL BE REPLACED IN ACCORDANCE WITH SECTION 27.6.E.4., MAINTENANCE.
13. LANDSCAPE SHALL CONFORM TO ORO VALLEY LANDSCAPE CODE.
14. MITIGATION OF SURVEYED PLANTS IN THE NATIVE PLANT PRESERVATION PLAN WILL BE INCORPORATED INTO THE LANDSCAPE DESIGN.
15. ALL PLANTS TO BE IRRIGATED WITH AN UNDERGROUND AUTOMATIC DRIP IRRIGATION SYSTEM.
16. HYDROSEED ALL AREAS DISTURBED BY GRADING OPERATIONS AROUND LOTS AND ALONG ROADS. DECOMPOSED GRANITE SHALL BE PLACED AT ENTRIES.
17. LANDSCAPE AREAS THAT ARE SUSCEPTIBLE TO DAMAGE BY PEDESTRIAN OR AUTO TRAFFIC SHALL BE PROTECTED BY CURBS, TREE GUARDS OR OTHER DEVICES.
18. LANDSCAPE SHALL BE DESIGNED TO MINIMIZE SEDIMENT, SAND AND GRAVEL BEING CARRIED INTO THE STREETS BY STORM WATER OR OTHER RUNOFF.
19. LANDSCAPE DESIGN ENABLES ADEQUATE PLANT SPACING TO ENSURE SURVIVABILITY AT PLANT MATURITY.
20. ALL LANDSCAPED AREAS ARE TO BE FINISHED WITH A NATURAL TOPPING OF AT LEAST TWO (2) INCHES IN DEPTH.
21. TREES AND LARGE SHRUBS SHALL BE ADEQUATELY SUPPORTED WHEN PLANTED.
22. ANY SPADED OR BOXED TREE TRANSPLANTED ON SITE THAT DIES DUE TO NEGLECT OR LACK OF MAINTENANCE SHALL BE REPLACED WITH THE SAME SIZE AND SPECIES OF THE ORIGINAL SALVAGED TREE, AS REQUIRED BY THE SALVAGE PLAN.
23. THE LIMITS OF GRADING SHALL BE STAKED IN THE FIELD, IN ACCORDANCE WITH SECTION 27.6.B.7.c.ii. DISTURBANCE OUTSIDE THE APPROVED GRADING LIMITS SHALL NOT BE PERMITTED.
24. THE DEVELOPER SHALL REPLACE REMOVED OR DAMAGED PLANT MATERIALS WITH LIKE SIZE AND SPECIES, AND SHALL MAINTAIN AND GUARANTEE THE REPLACEMENT PLANT MATERIALS FOR A PERIOD OF THREE (3) YEARS.
25. NO SALVAGE OF PLANTS REGULATED BY THE ENDANGERED SPECIES ACT AND/OR THE ARIZONA NATIVE PLANT LAW MAY OCCUR WITHOUT THE ISSUANCE OF THE APPROPRIATE PERMIT BY THE STATE DEPARTMENT OF AGRICULTURE.
26. DEEP ROOTED VEGETATION AND TREES SHALL NOT BE PLANTED CLOSER THAN 7.5 FEET FROM A PUBLIC WATER LINE. EXCEPTIONS FOR ALTERNATIVE DESIGN SOLUTIONS SUCH AS ROOT BARRIERS SHALL BE CONSIDERED ON A CASE BY CASE BASIS.
27. LANDSCAPE MATERIALS SHALL NOT OBSTRUCT SIGHT DISTANCES OR VEHICLE TURNING MOVEMENTS.
28. CURB-WAY CONSISTING OF INORGANIC GROUNDCOVER OR PLANTS NOT TO EXCEED TYPE 2 WATER USE SHALL BE PROVIDED BETWEEN CURB AND ALL SIDEWALKS.
29. EIGHTY (80) PERCENT OF THE AREAS WITHIN RECREATION AND COMMON AREAS MUST BE GRADED TO A MINIMUM DEPTH OF FOUR (4) INCHES TO ENABLE COLLECTION OF RAINWATER DEPOSITED IN THE IMMEDIATE AREA.

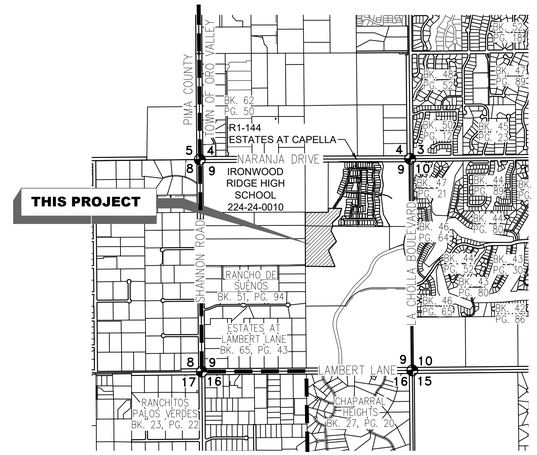
APPROVAL

PLANNING & ZONING ADMINISTRATOR DATE

FINAL LANDSCAPE PLAN
CAPELLA PARCEL M



PROJECT OVERVIEW
SCALE: 1"=300'



3" = 1 MILE

LOCATION MAP

A PORTION OF SECTION 9
TOWNSHIP 12 SOUTH, RANGE 13 EAST
GILA & SALT RIVER MERIDIAN, PIMA COUNTY, ARIZONA
TOWN OF ORO VALLEY, PIMA COUNTY, ARIZONA

LEGEND

- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED 100-YEAR FLOODPLAIN LINE
- PROPOSED EROSION HAZARD SETBACK LINE
- SECTION LINE
- PROJECT BOUNDARY
- PROPOSED RIGHT-OF-WAY
- PROPOSED LOT LINE
- EASEMENT LINE AS NOTED
- SIGHT VISIBILITY TRIANGLE (SVT)
- EXISTING PAVEMENT
- PROPOSED CULVERT
- EXISTING PUBLIC SEWER LINE & MANHOLE
- EXISTING PUBLIC WATERLINE & VALVE
- NEW PUBLIC SEWER LINE & MANHOLE
- PROPOSED PUBLIC WATER LINE & VALVE
- PROPOSED WATER METER
- PROPOSED FIRE HYDRANT
- PROPOSED TEP EQUIPMENT
- PROPOSED STORM DRAIN W/CATCH BASIN
- PROPOSED ROCK RIPRAP
- PROPOSED ASPHALT PAVEMENT
- PROPOSED STABILIZED TREATMENT
- TOP OF SLOPE (SLOPES ≤ 3:1 UNLESS NOTED)
- BOTTOM OF SLOPE
- PROPOSED CONCRETE VERTICAL CURB
- PROPOSED CONCRETE WEDGE CURB
- PROPOSED CONCRETE SIDEWALK
- GRADING LIMITS
- ALL WEATHER DRIVABLE SURFACE
- PROPOSED BANK PROTECTION
- WATERSHED BOUNDARY
- SECTION CORNER OR 1/4 SECTION CORNER
- HYDROSEED

LANDSCAPE ARCHITECT

THE WLB GROUP, INC.
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DEVELOPER

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PAULA.HINAM@MDCH.COM

SHEET INDEX

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811 BLUE STAKE, INC.
Call 811 or click Arizona811.com

REGISTERED LANDSCAPE ARCHITECT
CERTIFICATE NO.
25621
GARY L.
GRIZZLE
Date Signed 4-30-20
ARIZONA U.S.A.

The WLB Group Inc.
Engineering Planning Surveying
Landscape Architecture Urban Design
Offices located in Tucson, Phoenix,
and Flagstaff, Arizona,
Las Vegas, Neveda
4444 East Broadway
Tucson, Arizona (520) 881-7480

CAPELLA PARCEL M
LOTS 1 THRU 48
COMMON AREAS 'A' AND 'B'
A PORTION OF SECTION 9 , T12S, R13E, G&SRM TOWN OF ORO VALLEY, PIMA COUNTY, ARIZONA
Project

FINAL LANDSCAPE PLAN
COVER SHEET
Sheet Title

No.	Date	Item

Revisions

Scale	AS SHOWN
Job No.	110028-D-002
Date	JANUARY 2020
Designed By	PNR
Checked By	GLG

Sheet 1 of 13

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BUFFERYARD NOTES

BUFFERYARDS ARE BASED ON REQUIREMENTS OF OVZCR BUFFERYARD TABLE 27-7 AND THE CAPELLA PAD APPROVED BY TOWN COUNCIL ON MAY 16, 2018

BUFFERYARD			PLANTS REQUIRED/100'			PLANTS PROVIDED/100'			GROUNDCOVER TREATMENT
	TYPE	WIDTH	TREES	SHRUBS	ACCENTS	TREES	SHRUBS	ACCENTS	
#1 NORTH SCHOOL	'B'	15'	5	8	15	5*	8*	15*	DG/HYDROSEED
#2 WEST R1-144	NO BUFFERYARD REQUIRED								
#3 EAST MDR/ CHURCH	NO BUFFERYARD REQUIRED								
#4 SOUTH LDR	NO BUFFERYARD REQUIRED								

*EXISTING PLANTS PARTIALLY MEET REQUIREMENT

NATIVE PLANT SUMMARY

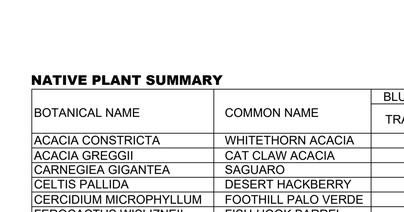
BOTANICAL NAME	COMMON NAME	BLUE RIBBON TRANSPLANT	RED RIBBON REMOVE	WHITE RIBBON PRESERVE IN PLACE	TOTAL PER PLANT
ACACIA CONSTRICTA	WHITETHORN ACACIA	15	95	0	110
ACACIA GREGGII	CAT CLAW ACACIA	4	14	0	18
CARNEGIEA GIGANTEA	SAGUARO	204	2	2	208
CELTIS PALLIDA	DESERT HACKBERRY	1	0	0	1
CERCIDIUM MICROPHYLLUM	FOOTHILL PALO VERDE	23	246	0	269
FEROCACTUS WISLIZNEII	FISH-HOOK BARREL	84	40	0	124
OLNEYA TESOTA	IRONWOOD	29	15	0	44
PROSOPIS VELUTINA	VELVET MESQUITE	2	35	1	38
ZIZYPHUS OBTUSIFOLIA	GREYTHORN	3	4	0	7
TOTAL		365	451	3	819

SIGNIFICANT VEGETATION MITIGATION

MITIGATION OF SIGNIFICANT VEGETATION SHALL BE IN A ACCORDANCE WITH SECTION 27.6.B.4.j.
AMOUNT OF SIGNIFICANT VEGETATION = 13,508 ± SQ. FT.
AMOUNT OF SIGNIFICANT VEGETATION DISTURBED = 13,178 ± SQ. FT.
AMOUNT OF SIGNIFICANT VEGETATION UNDISTURBED = 330 ± SQ. FT. (PRESERVED IN PLACE)
PERCENTAGE OF SIGNIFICANT VEGETATION DISTURBED = 98%

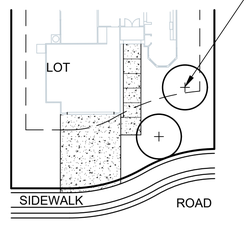
SIGNIFICANT VEGETATION REMOVED

(4) TREES	MITIGATION RATIO 2:1	REPLACEMENT TREES 8	UNDERSTORY VEGETATION REQUIRED (5 PER TREE)
(1) CERCIDIUM MICROPHYLLUM	[(1) 36", (1) 48"]	(4) 36" BOX TREES (50%)	40 UNDERSTORY PLANTS
(1) OLNEYA TESOTA	[(1) 36", (1) 48"]	(4) 48" BOX TREES (50%)	
(2) PROSOPIS VELUTINA	[(2) 36", (2) 48"]		



NOTE: WATER HARVESTING SHALL BE NO CLOSER THAN 10' FROM THE STRUCTURE FOUNDATION

1 TYPICAL FRONT YARD WATER HARVESTING
SCALE: NTS

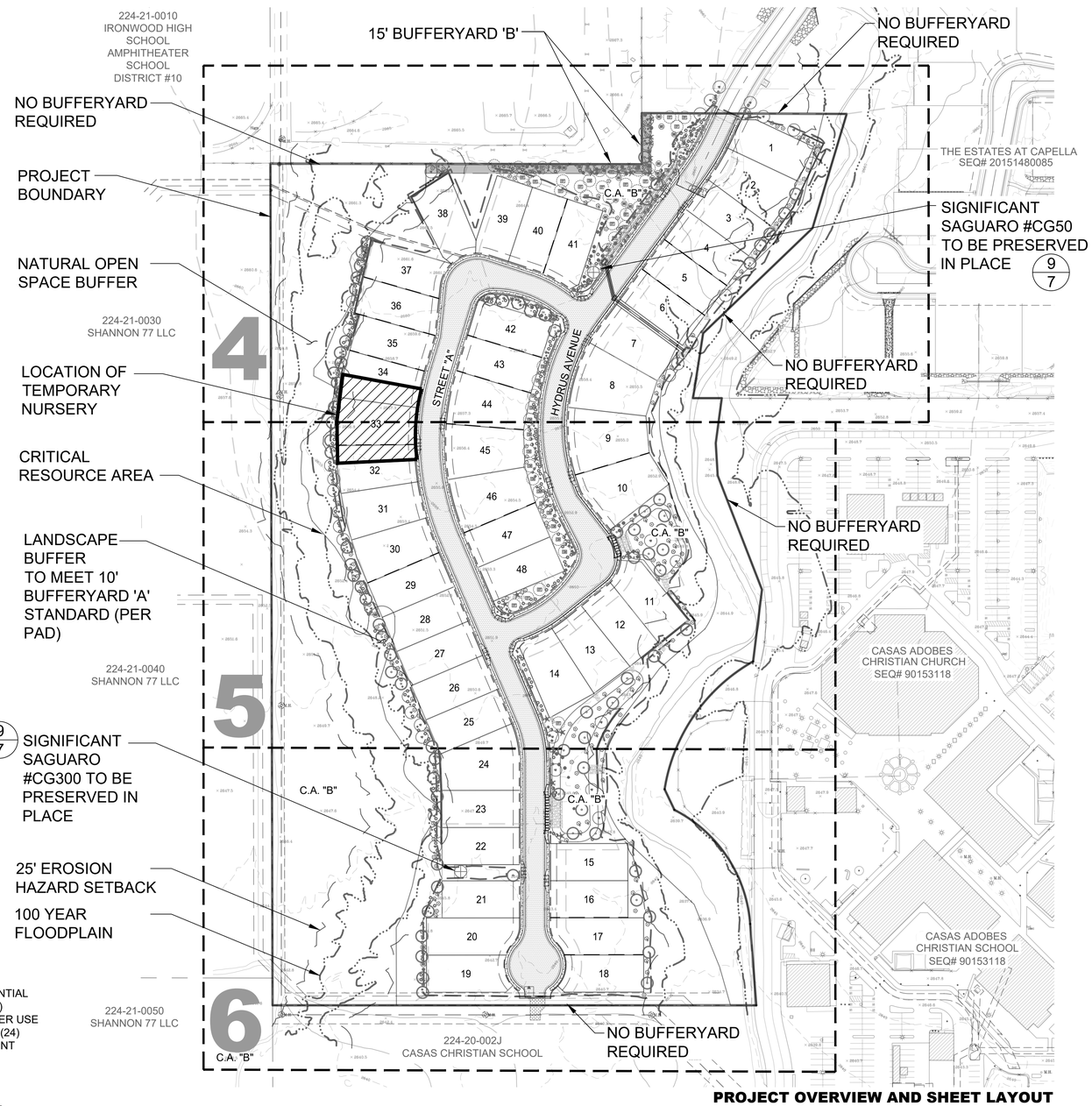


THE FRONT YARD OF EACH RESIDENTIAL LOT WILL BE PLANTED WITH TWO (2) NURSERY TREES, TYPE 1 OR 2 WATER USE AND A MINIMUM OF TWENTY-FOUR (24) INCH BOX SIZE, PLACED IN THE FRONT YARD. LOCATION OF TREES TO BE DETERMINED BY HOME OWNER OR DEVELOPER.

NOTE: DETAIL SHOWN FOR GRAPHIC PURPOSES ONLY. HOUSE AND LOT SHOWN FOR CONTEXT AND DOES NOT DEPICT TRUE FIELD CONDITIONS.

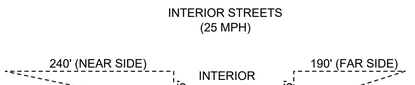
PLANT QUANTITIES ARE NOT INCLUDED IN PLANT LEGEND THIS SHEET

2 TYPICAL FRONT YARD PLANTING
SCALE: NTS



PROJECT OVERVIEW AND SHEET LAYOUT

0' 150' 300' 450'



3 TYPICAL SIGHT VISIBILITY TRIANGLES
SCALE: NTS

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CAPELLA PARCEL M
LOTS 1 THRU 48
COMMON AREAS 'A' AND 'B'
A PORTION OF SECTION 9 , T12S, R13E, G&SRM TOWN OF ORO VALLEY, PIMA COUNTY, ARIZONA
Project

FINAL LANDSCAPE PLAN
OVERALL SITE PLAN
Sheet Title

No.	Date	Item

Revisions

REGISTERED LANDSCAPE ARCHITECT CERTIFICATE NO. 25621 GARY L. GRIZZLE EXPIRES 9-30-20 ARIZONA U.S.A.

Scale	AS SHOWN
Job No.	110028-D-002
Date	JANUARY 2020
Designed By	PNR
Checked By	GLG

Sheet 2 of 13

PLANT MATERIAL / WATER USE SCHEDULE

SYMBOL	PLANT NAME	QUANTITY	SIZE	WATER USE TYPE (NEEDS)	ADWR ANNUAL USE AT MATURITY (GALLONS)	ANNUAL WATER USE QUANTITY TIMES ADWR ANNUAL USE (GALLONS)	MONTHLY WATER USE ADWR ANNUAL USE DIVIDED BY 12 MONTHS
	TREES						
CM	CERCIDIUM MICROPHYLLUM FOOTHILL PALO VERDE	23	TRANSPLANT	1	1,754	40,342	3,362
48	CERCIDIUM MICROPHYLLUM FOOTHILL PALO VERDE	1	48" BOX	1	1,754	1,754	146
36	CERCIDIUM MICROPHYLLUM FOOTHILL PALO VERDE	1	36" BOX	1	1,754	1,754	146
	CERCIDIUM MICROPHYLLUM FOOTHILL PALO VERDE	71	15 GALLON	1	1,754	124,534	10,378
OT	OLNEYA TESOTA IRONWOOD	29	TRANSPLANT	1	2,741	79,489	6,624
48	OLNEYA TESOTA IRONWOOD	1	48" BOX	1	2,741	2,741	228
36	OLNEYA TESOTA IRONWOOD	1	36" BOX	1	2,741	2,741	228
	OLNEYA TESOTA IRONWOOD	6	15 GALLON	1	2,741	16,446	1,371
PV	PROSOPIS VELUTINA VELVET MESQUITE	2	TRANSPLANT	2	5,702	11,404	950
48	PROSOPIS VELUTINA VELVET MESQUITE	2	48" BOX	2	5,702	11,404	950
36	PROSOPIS VELUTINA VELVET MESQUITE	2	36" BOX	2	5,702	11,404	950
	PROSOPIS VELUTINA VELVET MESQUITE	41	15 GALLON	2	5,702	233,782	19,482

SYMBOL	PLANT NAME	QUANTITY	SIZE	WATER USE TYPE (NEEDS)	ADWR ANNUAL USE AT MATURITY (GALLONS)	ANNUAL WATER USE QUANTITY TIMES ADWR ANNUAL USE (GALLONS)	MONTHLY WATER USE ADWR ANNUAL USE DIVIDED BY 12 MONTHS
	SHRUBS						
AC	ACACIA CONSTRICTA WHITETHORN ACACIA	15	TRANSPLANT	1	1,754	26,310	2,193
	ACACIA CONSTRICTA WHITETHORN ACACIA	87	5 GALLON	1	1,754	152,598	12,717
AG	ACACIA GREGGII CAT CLAW ACACIA	4	TRANSPLANT	1	1,754	7,016	585
	ACACIA GREGGII CAT CLAW ACACIA	95	5 GALLON	1	1,754	166,630	13,886
	ASCLEPIAS SUBULATA DESERT MILKWEED	9	5 GALLON	2	57	513	43
	CALLIANDRA ERIOPHYLLA PINK FAIRY DUSTER	27	5 GALLON	1	70	1,890	158
	CELTIS PALLIDA DESERT HACKBERRY	5	15 GALLON	2	634	3,170	264
OP	CELTIS PALLIDA DESERT HACKBERRY	1	TRANSPLANT	2	634	634	53
	CORDIA PARVIFOLIA LITTLE LEAF CORDIA	33	15 GALLON	1	439	14,487	1,207
	DODONEA VISCOSA GREEN HOPSEED BUSH	11	5 GALLON	1	632	6,952	579
	ENCELIA FARINOSA BRITTLEBUSH	39	5 GALLON	2	101	3,939	328
	JUSTICIA CALIFORNCA CHUPAROSA	30	5 GALLON	2	101	3,030	253
	MAYTENUS PHYLLANTHOIDES MANGLE DULCE	33	5 GALLON	2	158	5,214	435
	SIMMONDSIA CHINENSIS JOJOBA	6	5 GALLON	2	281	1,686	141
ZO	ZIZYPHUS OBTUSIFOLIA GREYTHORN	3	TRANSPLANT	2	634	1,902	159
	ZIZYPHUS OBTUSIFOLIA GREYTHORN	18	5 GALLON	2	634	11,412	951

SYMBOL	PLANT NAME	QUANTITY	SIZE	WATER USE TYPE (NEEDS)	ADWR ANNUAL USE AT MATURITY (GALLONS)	ANNUAL WATER USE QUANTITY TIMES ADWR ANNUAL USE (GALLONS)	MONTHLY WATER USE ADWR ANNUAL USE DIVIDED BY 12 MONTHS
	ACCENTS						
	AGAVE MURPHEYI MURPHEY'S AGAVE	24	5 GALLON	1	110	2,640	220
	CARNEGIEA GIGANTEA SAGUARO	204	TRANSPLANT	1	2,741	559,164	46,597
	DASYLIRION WHEELERI DESERT SPOON	25	5 GALLON	1	110	2,750	229
	FEROCACTUS WISLIZENII FISH-HOOK BARREL	84	TRANSPLANT	1	10	840	70
	FOUQUIERIA SPLENDENS OCOTILLO	19	8-15 CANE MIN.	1	281	5,339	445
	TOTAL WATER AT MATURITY					**1,475,569**	**122,964**

EXISTING SAGUARO TO REMAIN

EXISTING VEGETATION TO REMAIN

HYDROSEED

HYDROSEED MIX SHALL BE ORO VALLEY APPROVED SEED MIX "D". HYDROSEED SHALL BE APPLIED AS INDICATED TO ALL DISTURBED AREAS NOT OTHERWISE IMPROVED.

AREA TO BE HYDROSEEDED SHALL INCORPORATE THE USE OF IMPRINTING OR PITTING OF THE SOIL. REVEGETATION IS REQUIRED TO RESTORE NATURAL VEGETATION ON DISTURBED LAND. TIMING OF REVEGETATION SHALL BE PLANTED TO MAXIMIZE AVAILABILTY OF RAINFALL. SEED MIX SHALL BE PER OVZCR ADDENDUM "D" , SPECIES AS FOLLOWS:

ORO VALLEY APPROVED REVEGETATION SEED MIX 'D'

Key: A = Annual; P = Perennial; C = Germinates and thrives in the cool season; W = Germinates and thrives in warm season; C/W = Germinates and thrives in cool/warm seasons.

	PLS
SHRUBS: minimum of 5 PLS/acre	
Acacia constricta, Whitethorn Acacia (P,W)	2.0
Calliandra eriophylla, Fairy Duster (P,C/W)	2.0
Celtis pallida, Desert Hackberry (P,C/W)	2.0
Encelia farinosa, Brittlebush (P,C/W)	1.0
Larrea tridentata [=L. divaricata], Creosote (P,W)	1.0
SMALL PERENNIALS: minimum of 5 PLS/acre	
Baileya multiradiata, Desert Marigold (P,C/W)	2.0
Cassia [= Senna] covesii, Desert Senna (P,W)	1.0
Psilostrophe cooperi, Paper Flower (P,C/W)	2.0
Sphaeralcea ambigua, Desert Globemallow (P,C,W)	1.0
Zinnia pumila, Desert Zinnia (P, C)	2.0
PERENNIAL GRASSES: minimum of 5 PLS/acre	
Aristida purpurea, Purple Three-Awn (P,W)	2.0
Bouteloua curtipendula, Side-Oats Grama (P,W)	1.0
Digitaria californica, Arizona Cottontop (P,W)	1.0
Muhlenbergia porteri, Bush Muhly (P,W)	1.0
ANNUAL HERBS AND GRASSES: minimum of 5PLS/acre	
Erigeron divergens, Spreading Fleabane (A,W)	1.0
Lupinus arizonicus, Arizona Lupine (A,W)	2.0
Orthocarpus purpurascens, Owlclover (A,C)	2.0
Penstemon parryi, Parry's Penstemon (P,A,C/W)	3.0
Salvia columbariae, Chia (A,C)	2.0

LANDSCAPE WATER PLAN

WINTER		SPRING			SUMMER	MONSOON				WINTER	
MONTH											
1	2	3	4	5	6	7	8	9	10	11	12
YEAR 3:											
CONTINUE TO INCREASE IRRIGATION WATER USE AS NEEDED AS PLANTS MATURE UP TO, BUT NOT EXCEEDING, 100% ADWR VALUE BY END OF YEAR.											
116,816	125,423	131,572	141,409	145,098	145,098	99,601	99,601	114,357	122,964	118,046	115,586
TOTAL (100% ADWR)					**GAL/YEAR**						**1475569**
YEAR 4:											
BEGIN GRADUALLY DECREASING IRRIGATION TO BUFFER MEDIAN AND ROW AREAS IN ORDER TO REACH ZERO IRRIGATION IN THOSE AREAS BY END OF YEAR 5.											
87,612	94,068	98,679	106,057	108,823	108,823	74,701	74,701	85,767	92,223	88,534	86,690
TOTAL (75% ADWR)					**GAL/YEAR**						**1106677**
YEAR 5:											
CONTINUE DECREASING IRRIGATION TO BUFFER, MEDIAN, AND ROW AREAS. BY END OF YEAR 5 IRRIGATION TO BUFFER, MEDIAN AND ROW AREAS MUST BE ZERO AND TOTAL AMOUNT OF WATER USED AT SITE MUST MEET 50% OF ADWR MATURITY VALUE. (AVERAGE MONTHLY WATER USE = 14,837 GAL/MONTH)											
58,408	62,712	65,786	70,704	72,549	72,549	49,800	49,800	57,178	61,482	59,023	57,793
TOTAL (50% ADWR)					**GAL/YEAR**						**737785**

DECOMPOSED GRANITE

2" MIN. DEPTH, 4" MINUS, (70% $\frac{3}{8}$" MINUS, 30% 2"-4" SCREENED). COLOR: "APACHE BROWN" AS AVAILABLE FROM KALAMAZOO MATERIALS (520) 575-9601

RIP RAP

RIP RAP COLOR: "APACHE BROWN" AS AVAILABLE FROM KALAMAZOO MATERIALS (520) 575-9601

BOULDERS

SYMBOL	QTY	SIZE (FT.)	COMMENTS
③	3	1 X 2 X 2	COLOR: "APACHE BROWN". TO BE HAULED AND INSTALLED BY CONTRACTOR
②	2	2 X 2 X 3	
①	4	3 X 3 X 3	

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REGISTERED LANDSCAPE ARCHITECT
CERTIFICATE NO.
25621
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Date Signed 4-30-20
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FINAL LANDSCAPE PLAN
PLANTING LEGEND
Sheet Title

No.	Date	Item

Revisions

Scale	N/A
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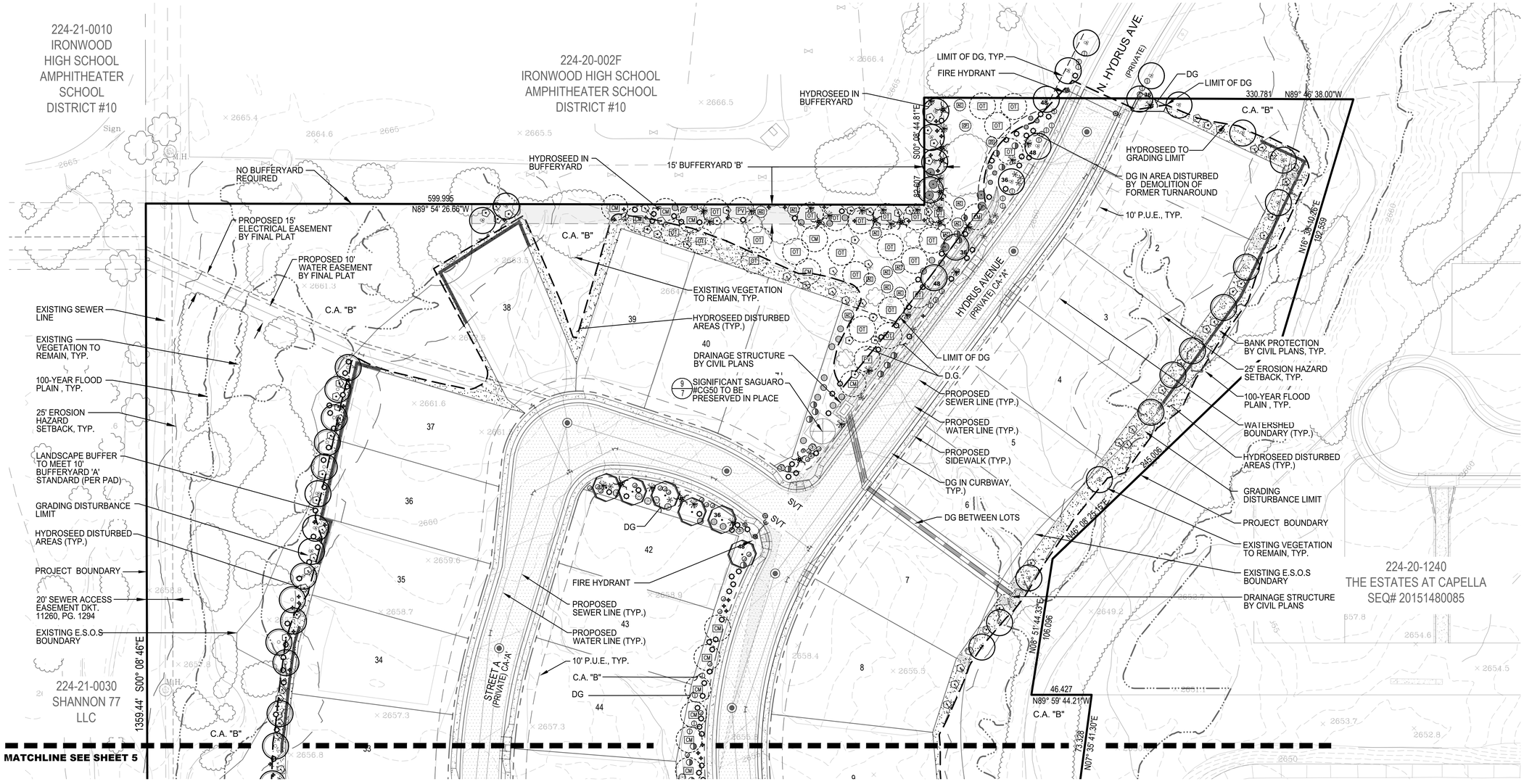
Date	JANUARY 2020
Designed By	PNR
Checked By	GLG
Sheet	3
of	13

Q:\110028\A-008 Parcel M Platting\02 Landscape\08 FLP\Cap M FLP 3 legend.dwg

NOTES:

1. FOR PLANTING LEGEND SEE SHEET 3.
2. FRONT YARD TREES ARE INDICATED ON SHEET 2.



0' 40' 80' 120'

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4444 East Broadway
Tucson, Arizona (520) 881-7480

CAPELLA PARCEL M
LOTS 1 THRU 48
COMMON AREAS 'A' AND 'B'
A PORTION OF SECTION 9 , T12S, R13E, G&SRM TOWN OF ORO VALLEY, PIMA COUNTY, ARIZONA
Project

FINAL LANDSCAPE PLAN
PLANTING PLAN
Sheet Title

No.	Date	Item

Revisions

Scale	1"=40'
Job No.	110028-D-002
Date	JANUARY 2020
Designed By	PNR
Checked By	GLG

REGISTERED LANDSCAPE ARCHITECT
CERTIFICATE NO.
25621
GARY L. GRIZZLE
Date Signed 1-30-20
ARIZONA U.S.A.

Sheet 4
of 13

NOTES:

1. FOR PLANTING LEGEND SEE SHEET 3.
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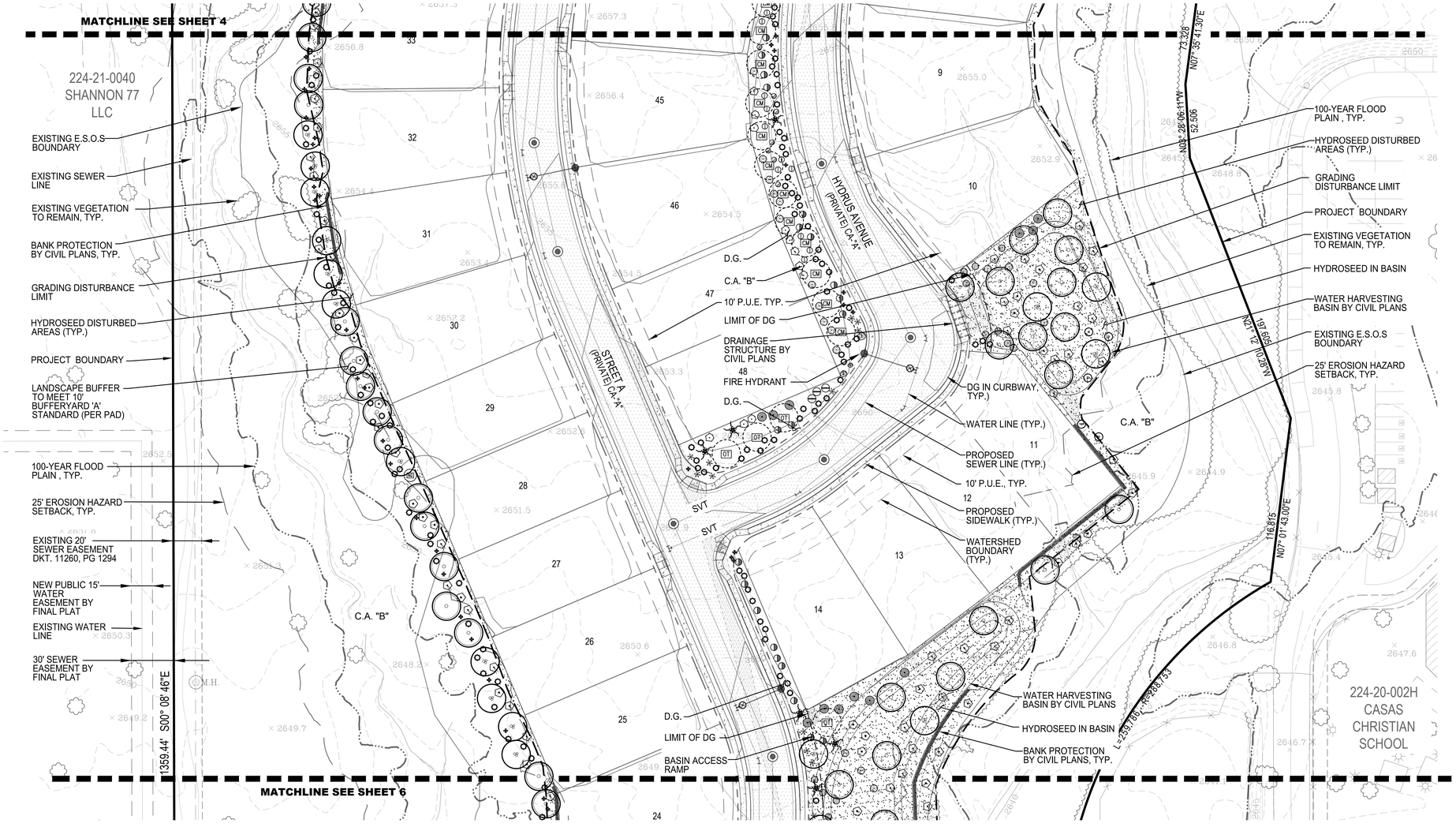

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Sheet Title

No.	Date	Item

Revisions

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CERTIFICATE NO.
25621
GARY L.
GRIZZLE
Date Expires 4-30-20
ARIZONA U.S.A.

Scale	1"=40'
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Sheet	5
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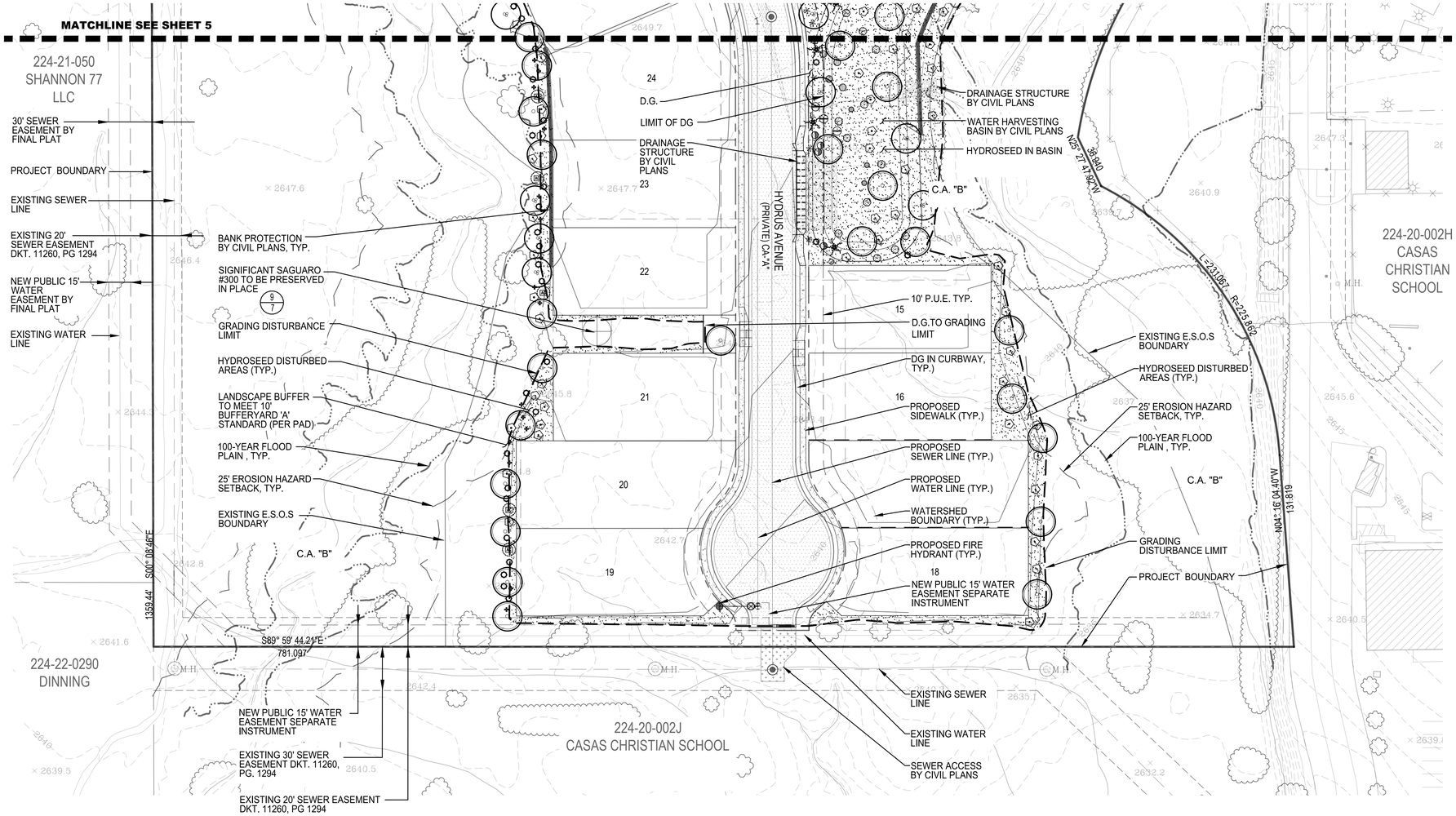

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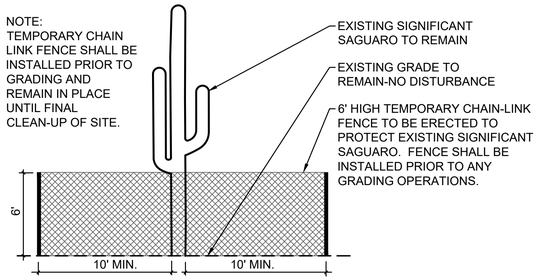
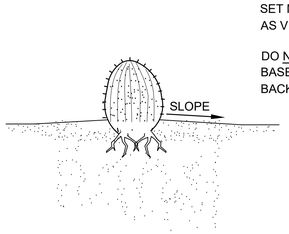


9 PROTECTVE FENCING FOR SIGNIFICANT SAGUAROS PRESERVED IN PLACE

CARNEGIEA GIGANTEA (CG50, CG300)

SCALE: NTS



SET MAIN STEM OF CACTUS PLUMB AS VIEWED FROM ALL SIDES.

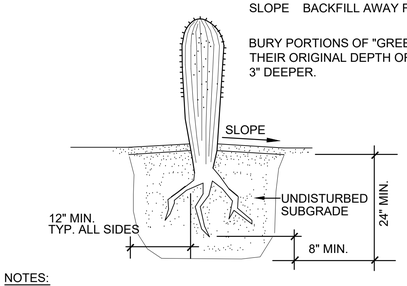
DO NOT CREATE A BASIN AT BASE OF CACTUS. SLOPE BACKFILL AWAY FROM STEM.

NOTES:

1. USE CLEAN SAND, NO STONES, MORTAR SAND IS RECOMMENDED
2. ROOT PRUNE ALL SHRDDED OR DAMAGED ROOTS. ENSURE ALL WOUNDS TO THE ROOT SYSTEM ARE CLEAN CUT PRIOR TO PLANTING. DUST ALL ROOTS WITH SULFUR.
3. PLANTING WELL SHALL BE 6" MIN. WIDER THAN THE EXTENT OF THE SEVERED LATERAL ROOTS.
4. PLANTING DEPTH SHALL BE THE SAME DEPTH AT WHICH THE PLANT WAS GROWN. (NO MORE THAN 3" DEEPER THAN PREVIOUSLY GROWN) THE TAPERING OF ROOT COLLAR MUST BE VISIBLE ABOVE THE FINISHED GRADE.
5. BACKFILL PLANTING WELL WITH DRY NATIVE SOIL TREATED WITH SOIL SULFUR COMPACT SOIL IN 6" LIFTS TO ENSURE THE STABILITY OF THE BARREL CACTUS.
6. ALL BARREL CACTUS PLACEMENTS SHALL MATCH ORIGINAL NORTH SIDE FACING NORTH. ANY SUNBURNED BARREL CACTUS SHALL BE REPLACED BY THE LANDSCAPE CONTRACTOR.
7. MIST WITH WATER FROM TOP DOWN ONCE A MONTH IF PLANTED DURING HOT SEASON
8. AFTER TRANSPLANTING, ALLOW 2-3 WEEKS BEFORE FIRST WATERING.

10 BARREL CACTUS PLANTING DETAIL

SCALE: NTS



SET MAIN STEM OF CACTUS PLUMB AS VIEWED FROM ALL SIDES.

DO NOT CREATE A BASIN AT BASE OF CACTUS. SLOPE BACKFILL AWAY FROM STEM.

BURY PORTIONS OF "GREEN" CACTUS AT THEIR ORIGINAL DEPTH OR NO LOWER THAN 3" DEEPER.

NOTES:

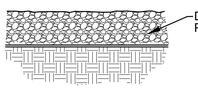
1. USE CLEAN SAND, NO STONES. MORTAR SAND IS RECOMMENDED
2. ROOT PRUNE ALL SHRDDED OR DAMAGED ROOTS. ENSURE ALL WOUNDS TO THE ROOT SYSTEM ARE CLEAN CUT PRIOR TO PLANTING. DUST ALL ROOTS WITH SULFUR.
3. PLANT SAGUARO AT LEAST 4' FROM SHRUBS OR TREES.
4. PLANTING WELL SHALL BE 6" MIN. WIDER THAN THE EXTENT OF THE SEVERED LATERAL ROOTS. CUT THROUGH TAPROOT TO PROVIDE A FLAT BASE WITH A DIAMETER SUFFICIENT TO SUPPORT THE WEIGHT OF THE UNSUPPORTED SAGUARO.
5. PLANTING DEPTH SHALL BE MAXIMUM OF 3" DEEPER THAN THE DEPTH AT WHICH THE PLANT WAS GROWN. THE TAPERING OF ROOT COLLAR MUST BE VISIBLE ABOVE THE FINISHED GRADE.
6. BACKFILL PLANTING WELL WITH DRY NATIVE SOIL TREATED WITH SOIL SULFUR COMPACT SOIL IN 6" LIFTS TO ENSURE THE STABILITY OF THE SAGUARO.
7. ALL SAGUARO PLACEMENTS SHALL MATCH ORIGINAL NORTH SIDE FACING NORTH. ANY SUNBURNED SAGUAROS SHALL BE REPLACED BY THE LANDSCAPE CONTRACTOR.
8. SAGUAROS ARE SPECIFIED BY HEIGHT. A VARIETY OF HEIGHTS MAY BE ACCEPTABLE PROVIDED THE AVERAGE IS NOT LESS THAN SPECIFIED. OWNER MUST APPROVE SAGUAROS PRIOR TO PLANTING.
9. MIST WITH WATER FROM TOP DOWN ONCE A MONTH IF PLANTED DURING HOT SEASON
10. AFTER TRANSPLANTING, ALLOW 2-3 WEEKS BEFORE FIRST WATERING.

6 COLUMNAR CACTUS PLANTING DETAIL

SCALE: NTS

NOTES:

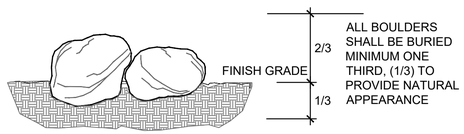
1. FINISHED DEPTH: 2" MIN.
2. BEFORE SPREADING ROCK, REMOVE ROCK & DEBRIS.
3. DURING INSTALLATION RAKE D.G. TO SETTLE FINES.
4. LIGHTLY BROOM SURFACE OF D.G. AFTER INSTALLATION.
5. APPLY PRE-EMERGENT TO ALL D.G. AREAS.
6. APPLY A LIGHT MIST OF WATER OVER THE ENTIRE D.G. SURFACE.



DECOMPOSED GRANITE/DECORATIVE ROCK PER PLANTING LEGEND

7 INERT GROUNDCOVER

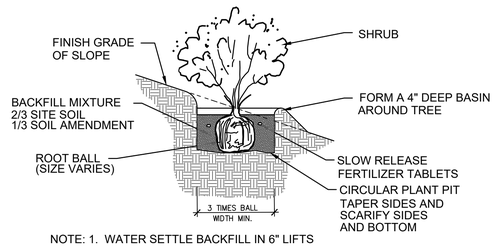
SCALE: NTS



NOTE: BOULDERS ARE DIMENSIONED ON PLANS. SIZES CALLED OUT ARE MINIMUM DIMENSIONS.

8 BOULDER PLACEMENT

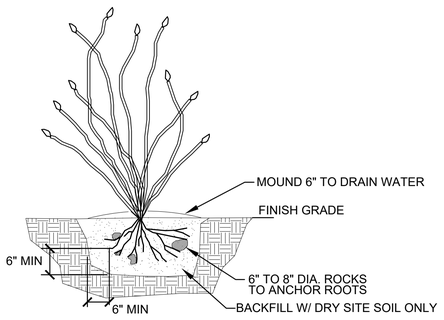
SCALE: NTS



NOTE: 1. WATER SETTLE BACKFILL IN 6" LIFTS

4 SHRUB PLANTING ON SLOPE

NTS

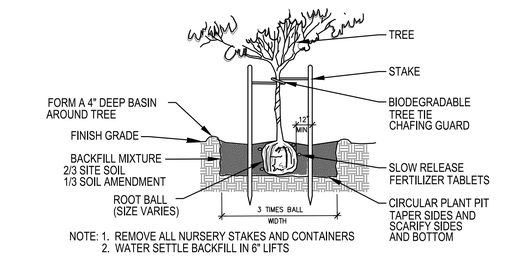


NOTES:

1. ROOT PRUNE ALL SHREDDED OR DAMAGED ROOTS.
2. ENSURE ALL WOUNDS TO THE ROOT SYSTEM ARE CLEAN CUT BEFORE PLANTING.
3. APPLY DUSTING SULFUR TO ALL AREAS BELOW GRADE.
4. BARE ROOTS SHALL NOT BE OUT OF THE GROUND FOR MORE THAN FIVE DAYS.
5. MIST WITH WATER FROM TOP DOWN EVERY OTHER WEEK IF PLANTED DURING HOTSEASON.

5 OCOTILLO PLANTING DETAIL

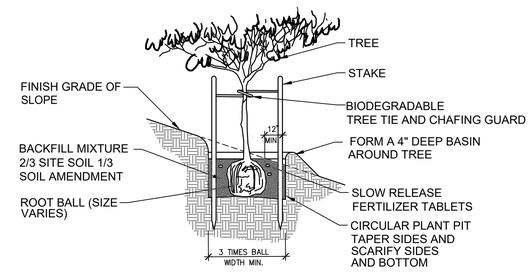
SCALE: NTS



NOTE: 1. REMOVE ALL NURSERY STAKES AND CONTAINERS
2. WATER SETTLE BACKFILL IN 6" LIFTS

1 TREE PLANTING

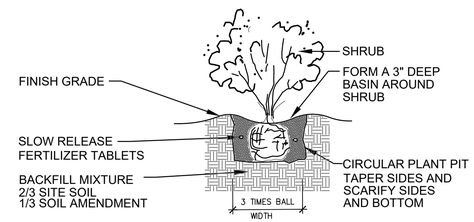
NTS



NOTE: 1. REMOVE ALL NURSERY STAKES AND CONTAINERS
2. WATER SETTLE BACKFILL 6" LIFTS

2 TREE PLANTING ON SLOPE

SCALE: NTS



NOTE: 1. WATER SETTLE BACKFILL 6" LIFTS

3 SHRUB PLANTING

SCALE: NTS

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CAPELLA PARCEL M

LOTS 1 THRU 48

COMMON AREAS 'A' AND 'B'

A PORTION OF SECTION 9 , T12S, R13E, G&SRM TOWN OF ORO VALLEY, PIMA COUNTY, ARIZONA

Project

FINAL LANDSCAPE PLAN

LANDSCAPE DETAILS

Sheet Title

No.	Date	Item

Revisions

Scale	N/A
Job No.	110028-D-002
Date	JANUARY 2020
Designed By	PNR
Checked By	GLG

Sheet 7

of 13

LANDSCAPE WORK

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:
1. Trees, Shrub and Cacti.
2. Inert Ground Cover.

1.2 SUBMITTAL REQUIREMENTS

A. General: The Contractor shall make the submittals identified below. Submittals shall be approved prior delivery or placement of materials.

B. Certificates of Compliance: Submit 3 copies of the following certificates of compliance to the Owner's Representative for review and approval:
1. Fertilizer, Soil Sulfur, Gypsum, Manganese Sulfate: Manufacturer's certified statement of analysis for each.
2. Organic Soil Conditioner: A certificate, signed by the supplier, stating that the product complies with the project specifications
3. Soil Stabilizer: Manufacturer's certified statement of analysis.

C. Materials Test Reports: for existing surface soil and imported soil.

D. Samples for Verification: For each of the following provide the following samples:
1. 5 lb of decomposed granite mulch for the color and gradation of decomposed granite proposed for use on the project, in labeled plastic bag.

1.3 COMPLIANCE WITH APPLICABLE REGULATIONS

A. The Contractor shall comply with all local, state, and federal regulations regarding materials, methods of work, and disposal of excess and waste materials. The Contractor shall provide notices required by all governmental authorities, request required inspections, obtain required permits, and pay for all associated fees.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: All work shall be performed by a Contractor licensed by the State of Arizona Register of Contractors. The commercial license held by the Contractor shall be appropriate for the work being performed.
1. The Contractor shall maintain an experienced full-time supervisor on Project site during the construction period.

B. Observation: Owner's Representative may observe plants either at place of growth or at site before planting for compliance with requirements for genus, species, variety, size, and quality. Owner's Representative retains right to observe plants further for size and condition of balls and root systems, insects, injuries, and latent defects and to reject unsatisfactory or defective material at any time during progress of work. Remove rejected plants immediately from Project site. Owner's Representative may observe any and all plant pits prior to backfilling or planting.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Do not prune trees, shrubs and cacti before delivery, except as approved by Owner's Representative. Protect bark, branches, and root systems from sun scald, drying, sweating, whipping, and other handling and tying damage. Do not bend or bind-tie trees, shrubs or cacti in such a manner as to destroy their natural shape. Provide protective covering of plants during delivery. Do not drop plants during delivery.

B. Deliver plants after preparations for planting have been completed and install immediately. If planting is delayed more than six hours after delivery, protect from weather and mechanical damage, and keep roots moist. Do not remove container-grown stock from containers before time of planting.

C. Inorganic Soil Amendments: Deliver in original sealed, labeled, and undamaged containers.

D. Fertilizer: Deliver in original sealed, labeled, and undamaged containers.

1.6 COORDINATION

A. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit.
B. Work that is completed or in-progress shall be protected during installation of landscape work. The Contractor shall coordinate all landscape related work with the Owner's Representative.

1.7 GUARANTEE

A. The Contractor shall guarantee all Contractor provided plants for the period indicated, commencing on the date of Final Acceptance, against all defects including death and unsatisfactory growth, except for defects resulting from lack of adequate maintenance, neglect, or abuse by Owner, causes deliberate, or incidents that are beyond Contractor's control.
1. Guarantee Period for Trees, Shrubs and Cacti: One year from date of Substantial Completion.
2. Remove dead plants immediately. Replace immediately unless directed otherwiseby Owner's Representative.
4. Replace plants that are diseased, or that exhibit more than 25 percent die-back, at end of guarantee period.
5. A limit of one replacement of each plant will be required, except for losses or replacements due to failure to comply with requirements.
6. Include the following remedial actions for turf as a minimum:
a. Immediately remove dead turf and replace.
b. Repair failed areas due to erosion, replace erosion control materials in failed areas.

1.8 MAINTENANCE DURING CONSTRUCTION

A. The Contractor shall maintain throughout the construction period all trees, shrubs, cacti, decomposed granite, and other landscape improvements. Maintenance during construction shall continue until the issue of a Certificate of Substantial Completion. All maintenance and plant replacements throughout the construction period shall be at no additional cost to the Owner.
1. Trees, Shrubs and Cacti: During the construction, maintain by pruning, cultivating, watering, weeding, fertilizing, restoring planting saucers, tightening and repairing stakes and guy supports, clean-up and resetting to proper grades or vertical position, as required to establish healthy, viable plantings. Spray as required to keep trees, shrubs, and cacti free of insects.
2. Decomposed Granite (including stabilized and field mixes): During the construction, maintain by raking, weeding, recompacting, reapplying, regrading, and repairing eroded areas. Protect field areas from traffic.

B. Inspection of Completed Landscape Work: Upon completion of the landscape work, the Contractor shall notify the Owner's Representative who will schedule an inspection of the landscape improvements. During the inspection, items that are incomplete or that must be repaired or replaced will be identified. Completion or correction of items noted will be required prior to the issuance of a Certificate of Substantial Completion.

1.9 MAINTENANCE AFTER SUBSTANTIAL COMPLETION

A. Maintenance Period: Six months from date of Substantial Completion for trees, shrubs, cactus and other landscape improvements. All work shall be performed in a professional manner within the standards of the industry, using quality equipment methods and materials.

B. Work Schedule: Contractor will supply the Owner's Representative with a proposed schedule of the expected day and time tasks listed below will be performed. This schedule shall be approved prior to project maintenance commencement.

Item No.	Task Work Item Description	Task Work Item Description	Time Frame
1	Prune Plants	Once	4th Month
2	Fertilize Plants	Once	4th Month
3	Irrigate Plants	Adjust per Season	---
4	Weed All Areas	2x Month	---
5	Apply Pre-Emergent Herbicide	Once	4th Month
6	Ensure Soil Conditions	Once	2nd Month
7	Insect, Rodent and Disease Control	Monthly	---
8	Granite Areas	Monthly	---
9	Police Site	Weekly	---

The frequencies of the tasks stated above are suggested minimums only. During extremely wet or dry periods, the Contractor must adjust schedules to ensure correct and proper conditions are maintained.

C. After satisfactory completion of the maintenance period, the Owner will assume responsibility for landscape maintenance

1.10 SUSPENSION OF MAINTENANCE PERIOD FOR NON-COMPLIANCE

A. Failure to comply with the specified maintenance requirements, as determined by the Owner's representative, may result in the suspension of the maintenance period until such time as the required remedial actions have been completed by the Contractor. A number of days equal to the number of days of the suspension will be added to the maintenance period.

PART 2 - PRODUCTS

2.1 TREE, SHRUB, AND CACTI MATERIAL

A. General: All Contractor-provided plants used on the project shall be subject to the Owner's review and approval.

B. Plant Form and Quality: All plants shall comply with the project specifications, be normally developed individuals of their species. Provide well-shaped, fully branched, healthy, vigorous stock free of disease, insects, eggs, larvae, and defects such as knots, sun scald, injuries, abrasions, and disfigurement.

C. Grade: Provide quality, size, genus, species, and variety of plants indicated, complying with applicable requirements in ANSI Z60.1, "American Standard for Nursery Stock" or "Arizona Nurseryman's Association Recommended Average Tree Specifications", whichever is the more stringent. Trees, shrubs, and cacti of a larger size may be used if acceptable to Owner's Representative and at no additional cost to Owner.

D. Plant Root Systems: All plants shall have healthy root systems. Container-grown plants shall have been in containers for a sufficient time for the root system to hold the soil when the plant is removed from the container, but not long enough for the plant to become root-bound or to cause a hardening of the root system.

E. Label at least one tree, shrub, and cacti of each variety and caliper with a securely attached, waterproof tag bearing legible designation of botanical and common name.

2.2 PREPARED PLANTING SOIL MIX FOR TREES, SHRUBS, AND CACTI

A. Planting Soil Mix: Planting soil shall be native topsoil mixed to a uniform volume and loose measure, with the following soil amendments and fertilizers in the following quantities per cubic yard:
1. Trees and Shrubs: 20 cubic feet of (native) topsoil, 7 cubic feet of organic soil conditioner, 2 lbs soil sulfur, 1 lb of fertilizer (16-20-0). The prepared planting soil shall be thoroughly blended prior to placement in plant pits.
2. Cacti: Planting soil shall be native topsoil with 0.25 lbs of soil sulfur incorporated into the soil backfill at each cactus.

2.3 FERTILIZER

A. General Requirements: All fertilizers used on the project shall be in pelleted form and of recent manufacture.

B. Slow-Release Fertilizer for Tree and Shrub Planting: Ammonium Phosphate consisting of 50 percent water-insoluble nitrogen, and phosphorus in the following composition:
1.Composition: 16 percent nitrogen, 20 percent phosphoric acid by weight.

2.4 INERT GROUNDCOVER

A. Decomposed Granite: Decomposed granite shall be durable granite material size as shown on the plan. Except as may be approved by the Owner's Representative, all materials used on the project shall be from the same source and shall match the approved sample. Decomposed granite shall be free of loam, sand, clay, and other foreign substances.
1. Type: As indicated on plans.

2.5 TREE STAKING

A. Tree Stakes: Tree Stakes shall be 2-inch (minimum) diameter by 8 feet (minimum) long peeled Lodge Pole Pine stakes. Treat with an EPA approved wood preservative. If required to support properly trees used on the project, stakes longer than specified shall be used at no cost to the Owner.

B. Tie Wire: 12 gauge, annealed, galvanized wire.

C. Chafing Guard: Biodegradable cotton tree ties with brass eyelet, provided in lengths required to protect tree trunks from damage. Cut tree ties are not acceptable.

2.6 HORTICULTURAL CHEMICALS

A. Pre-Emergent Herbicide: "Surflan" or "Pendulum", or approved equal. Delivered in original, sealed, and fully labeled containers and mixed according to manufacturer's written instructions.

B. Post-Emergent Herbicide: "Round-Up", or approved equal. Delivered in original, sealed, and fully labeled containers and mixed according to manufacturer's written instructions.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas to receive plants and decomposed granite for compliance with requirements and conditions affecting installation and performance. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 BLUE STAKING

A. The Contractor shall have the work area Blue-Staked prior to the start of any excavation work. Blue Staking shall be kept current throughout the course of the work. All utilities damaged by the Contractor shall be repaired or replaced by the Contractor, as required by the Owner or applicable utility company, at the Contractor's expense.

3.3 SITE PREPARATION

A. Protect structures, utilities, sidewalks, pavements and other facilities and existing plants from damage caused by landscape operations.

B. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

C. Lay out individual tree locations. Stake locations, adjust locations when requested, and obtain Owner's Representative's acceptance of layout before planting. Make minor adjustments as required.

3.4 TREE AND SHRUB PIT EXCAVATION

A. Seasonal Limitations: The planting of trees and shrubs may be done at any time selected by the Contractor consistent with the overall project schedule. Planting during excessively hot, cold, or windy weather shall be at the Contractor's risk. Plants that die or are damaged as a result of weather conditions shall be replaced by the Contractor at no additional cost to the Owner.

B. Excavation of Plant Pits: Excavate circular pits with sides sloped inward, pit size according to the drawings. Do not disturb sub-grade. Scarify sides of plant pit if smeared or smoothed during excavation.

C . Subsoil removed from excavations may be amended as specified and used as backfill.

D. Obstructions: Do not install any plant if a large obstruction is encountered below the rootball. Notify Owner's Representative if unexpected rock or obstructions detrimental to trees, shrubs or cactus are encountered in excavations.

E. Tests for Drainage: Partially fill plant pits with water and allow water to percolate away. For acceptance, all pits shall drain at least 6" per hour. All pits not draining at 6" per hour shall be deepened or relocated as directed by Owner's Representative. Drainage testing for up to 25 percent of all tree pits shall be performed by the Contractor at no additional cost to the Owner.
1. Deepening Tree Pits: Drill 6-inch diameter holes into free-draining strata or to a depth of ten feet, whichever is less, and backfill with free-draining material.
2. Deepening all tree pits shall be performed by the Contractor at no additional cost to the Owner.

3.5 TREE AND SHRUB PLANTING

B. Set container-grown stock plumb and in center of pit or trench with top of root ball one inch above adjacent finish grades. Plants that settle shall be excavated and re-planted at correct grade.
1. Carefully remove root ball, immediately prior to planting, from container, without damaging root ball, stems or foliage. Damaged plants shall be replaced by the Contractor at no additional cost to the Owner.
2. Backfill planting soil mix around root ball in layers, tamping to settle mix and eliminate voids and air pockets. When pit is approximately one-half backfilled, water thoroughly before placing remainder of backfill. Repeat watering until no more water is absorbed. Water again after placing and tamping final layer of planting soil mix.

3.6 TREE AND SHRUB PRUNING

A. Prune, thin, and shape trees and shrubs according to standard horticultural practice. Unless otherwise indicated by Owner's Representative, do not cut tree leaders; remove only injured or dead branches. Prune shrubs to ANA Standards to retain natural character. Shrub sizes indicated are sizes after pruning.
1. All dead wood, suckers, broken or bruised branches shall be removed.
2. Pruning shall be carried out with clean, sharp tools.
3. If, in the opinion of the Owner's Representative, pruning results in a plant not natural in character, the plant shall be replaced by the Contractor at no additional cost to the Owner.

3.7 TREE STAKING

A. Upright Staking and Tying: Stake trees as detailed on the drawings. Use a minimum of 2 stakes of length required to penetrate at least 18 inches below bottom of backfilled excavation and to extend at least 72 inches above grade. Set vertical stakes and space to avoid penetrating root balls or root masses. Support trees with two tree ties at contact points with tree trunk. Allow enough slack to avoid rigid restraint of tree. Use the number of stakes shown on the drawings.
1. Staking and tying shall be capable of supporting the plant, without repair, for two years.

3.8 INORGANIC SURFACING INSTALLATION

A. Decomposed Granite Surfacing: All areas to be surfaced with decomposed granite shall be brought to the lines and grades shown on the plans, with allowance made for depth of the decomposed granite. Install decomposed granite in accordance with the project drawings.
1. A reveal shall be provided adjacent to paved surfaces as shown on the project drawings. Where not detailed, the reveal shall be ¾ inch.

3.9 HORTICULTURAL CHEMICALS

A. Herbicides: Herbicides shall be applied according to manufacturer's written instructions by an Applicator licensed by the state of Arizona.

3.10 CLEANUP AND PROTECTION

A. During landscape operations, keep adjacent paving and construction clean and work area in an orderly condition.

B. Protect all plants and decomposed granite areas from damage due to landscape operations, operations by other contractors and trades, and others. Maintain protection during installation and maintenance periods. Treat, repair, or replace damaged items.

C. Promptly remove soil and debris created by landscape work from paved areas. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved areas.

D. Erect barricades and warning signs as required, to protect newly landscaped areas from traffic.

3.11 DISPOSAL

A. Disposal: Remove surplus soil and waste material, including excess subsoil, unsuitable soil, trash, and debris and trimmings, and dispose of them legally off Owner's property.

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Tucson, Arizona (520) 881-7480

REGISTERED LANDSCAPE ARCHITECT
CERTIFICATE NO.
25521
GARY L. GRIZZLE
Date Signed 1-30-20
ARIZONA U.S.A.

CAPELLA PARCEL M
LOTS 1 THRU 48
COMMON AREAS 'A' AND 'B'
A PORTION OF SECTION 9 , T12S, R13E, G&SRM TOWN OF ORO VALLEY, PIMA COUNTY, ARIZONA
Project

FINAL LANDSCAPE PLAN
LANDSCAPE SPECIFICATIONS
Sheet Title

No.	Date	Item

Revisions

Scale	N/A
Job No.	110028-D-002
Date	JANUARY 2020
Designed By	PNR
Checked By	GLG
Sheet	8
of	13

GENERAL NOTES

1. IRRIGATION AND/OR WATERING PLANS SHALL MEET THE MINIMUM STANDARDS OF THE AMERICAN SOCIETY OF IRRIGATION CONSULTANTS.
2. IF DESERT LANDSCAPING IS USED WHICH WILL ULTIMATELY RELY ON NATURAL WATER SOURCES, A TEMPORARY DRIP IRRIGATION SYSTEM SHALL BE EMPLOYED UNTIL SUCH TIME AS THE PLANT MATERIALS ARE SUSTAINED BY NATURAL WATER SOURCES.
3. THE PROPERTY OWNER IS RESPONSIBLE FOR MAINTAINING THE TEMPORARY SYSTEM AS LONG AS NECESSARY IN ORDER TO TRANSITION PLANTS OVER TO NATURAL SOURCES. ANY PLANT MATERIALS THAT DIE IN TRANSITION, FOR ANY REASON, SHALL BE REPLACED (SECTION 27.6.E.4).
4. IRRIGATION SYSTEMS CONNECTED TO POTABLE WATER MAINS (PUBLIC OR PRIVATE) SHALL BE EQUIPPED WITH BACKFLOW PREVENTERS.
5. THE ANNUAL WATER USE FOR A PROJECT SHALL NOT EXCEED THE ANNUAL LANDSCAPE WATER PLAN
6. IRRIGATION METER READINGS SHALL BE USED TO DETERMINE COMPLIANCE WITH THE LANDSCAPE WATER PLAN. NON-COMPLIANCE IS SUBJECT TO PENALTIES UNDER THE ZONING CODE
7. METER READINGS SHALL BE TAKEN, AT A MINIMUM, ON AN ANNUAL BASIS. MONTHLY READINGS MAY BE REQUIRED, AT THE DISCRETION OF THE PLANNING AND ZONING ADMINISTRATOR, IN ORDER TO ADDRESS NON-COMPLIANCE WITH THE WATER PLAN.
8. AN INITIAL METER READING SHALL BE TAKEN PRIOR TO THE ISSUANCE OF THE CERTIFICATE OF OCCUPANCY AND RECORDED FOR REFERENCE AS PART OF THE WATER PLAN.
9. IRRIGATION WATER SHALL NOT LEAVE THE LANDSCAPED AREAS AND FLOW ONTO ROADS, PARKING AREAS OR SIDEWALKS.
10. SPRINKLER HEADS SHALL BE INSTALLED AT LEAST EIGHT (8) INCHES AWAY FROM IMPERMEASBLE SURFACES (E.G., SIDEWALKS, BUILDINGS, WALLS, ETC.)
11. THE IRRIGATION SYSTEM SHALL BE OPERATED SUCH THAT ANNUAL WATER USE IS THE SAME OR LESS THAN THE APPROVED, ANNUAL LANDSCAPE WATER PLAN. SEASONAL ADJUSTMENTS OF THE IRRIGATION SCHEDULE AND MAINTENANCE ARE REQUIRED AND ARE THE RESPONSIBILITY OF THE PROPERTY OWNER.

IRRIGATION NOTES

1. ALL WATER USE FOR IRRIGATION AND ENHANCEMENT SHALL CONFORM TO THE ARIZONA GROUNDWATER CODE, ARIZONA REVISED STATUTES 45, CHAPTER 2.
2. IRRIGATION PLAN IS SCHEMATIC AND DRAWN FOR GRAPHIC CLARITY. INSTALL EQUIPMENT WITHIN PLANTING AREAS AND ADJACENT TO WALKWAYS WHEREVER POSSIBLE.
3. IRRIGATION SYSTEM IS DESIGNED FOR A MINIMUM PRESSURE OF 50 PSI. PRIOR TO START OF IRRIGATION WORK, CONTRACTOR SHALL VERIFY EXISTING WATER PRESSURE AT THE METER (ASSUMED TO BE 43 PSI) AND NOTIFY OWNER'S REPRESENTATIVE OF ANY DISCREPANCY BETWEEN EXISTING PRESSURE AND DESIGN PRESSURE BEFORE PROCEEDING WITH WORK. NOTIFY LANDSCAPE ARCHITECT IF PRESSURE EXCEEDS 120 PSI
4. COORDINATE WITH OTHER WORK AS REQUIRED TO PROVIDE POWER TO IRRIGATION CONTROLLERS.
5. MAKE IRRIGATION POINTS OF CONNECTION TO WATER LINES AS INDICATED ON PLANS AND COORDINATE WITH OTHER WORK AS REQUIRED.
6. EXACT LOCATION OF CONTROLLERS SHALL BE APPROVED PRIOR TO INSTALLATION.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SLEEVES, WHETHER INDICATED ON THESE PLANS OR NOT. INSTALL ALL PIPE AND WIRE UNDER PAVING OR WALLS IN SLEEVE, SIZE AS REQUIRED. COORDINATE WITH OTHER WORK AS REQUIRED.
8. INSTALL 3/4" EMITTER TUBING WITH DRIP EMITTERS AS REQUIRED TO PROVIDE IRRIGATION TO ALL NEW SHRUBS AND TREES PER PLANTING PLAN
9. LAY OUT EMITTER TUBING PARALLEL TO TOPOGRAPHY WHEREVER POSSIBLE. INSTALL FLUSH END CAP AT ENDS OF ALL 3/4" LINES AND FLUSH THOROUGHLY BEFORE INSTALLING EMITTERS. BURY TUBING AT AN 8" DEPTH.
10. FOR SHRUBS AND VINES: INSTALL SINGLE OUTLET EMITTERS AS FOLLOWS:
    (2) 1-GPH EMITTERS AT EACH 5 GALLON PLANT
    (1) 1-GPH EMITTERS AT EACH 1 GALLON PLANT
    (1) 0.5-GPH EMITTERS AT EACH CACTUS OR SUCCULENT. MULTI-OUTLET EMITTERS MAY BE SUBSTITUTED FOR INDIVIDUAL EMITTERS.
11. FOR TREES: INSTALL MULTI-OUTLET EMITTER AS FOLLOWS:
    (8) 1-GPH EMITTERS AT EACH 48" BOX /TRANSPLANTED TREE
    (6) 1-GPH EMITTERS AT EACH 24" BOX /36" BOX
    (4) 1-GPH EMITTERS AT EACH 15 GALLON
12. SINGLE OUTLET EMITTER - RAIN BIRD XB-10PC, OR EQUAL MULTI-OUTLET EMITTER - RAIN BIRD XBT-10-6, OR EQUAL. MULTI-OUTLET EMITTERS MAY BE SUBSTITUTED FOR INDIVIDUAL EMITTERS.
13. USE SHORT PIECES OF 1/4" DISTRIBUTION TUBING (MAXIMUM LENGTH 8') TO EXTEND EMITTERS TO EACH ROOTBALL. HOLD IN PLACE WITH STAKES.
14. REVIEW EMITTER LAYOUT WITH LANDSCAPE ARCHITECT AND ADJUST NUMBER OF EMITTERS FOR INDIVIDUAL PLANTS THAT REQUIRE GREATER OR LESSER VOLUME OF WATER THAN INDICATED.
15. IRRIGATION CONTRACTOR SHALL SUBMIT AN IRRIGATION SCHEDULE FOR REVIEW.
16. ALL BURIED IRRIGATION PIPE GREATER THAN TWO INCHES IN DIAMETER SHALL HAVE A #18 UF TYPE TRACER WIRE ATTACHED SECURELY TO IT AT 8 FT. INTERVALS. AT THE TERMINATION POINT ATTACH WIRE SECURELY TO PIPE AND PROVIDE TWELVE INCHES OF TRACER WIRE ACCESSIBLE ABOVE GRADE.

IRRIGATION LEGEND

SYMBOL	DESCRIPTION	MANUFACTURER/MODEL	COMMENTS
M	WATER METER	1" SEE CIVIL PLANS	CONTRACTOR TO COORDINATE WITH WATER COMPANY AND MAKE APPLICATION IF REQUIRED
C	IRRIGATION CONTROLLER	RAIN BIRD ESP-LXD 2-WIRE CONTROLLER 50-STATION	PEDESTAL MOUNT PER MANUFACTURER'S RECOMMENDATIONS. COORDINATE ELECTRICAL SUPPLY
	BACKFLOW PREVENTER IN ENCLOSURE	FEBCO 825Y, 1"	GUARDSHACK ENCLOSURE GS-1, COLOR: WOODLAND TAN. INSTALL ON 4" THICK CONCRETE SLAB. INSTALL TAN COLOR GUARDSHACK R30 "FROSTGUARD" BLANKET
	ISOLATION VALVE	NIBCO T-113K	LINE SIZE, IN VALVE BOX BOX SIZE: AMETEK 10" ROUND, OR EQUAL. COLOR: TAN
	QUICK COUPLING VALVE	RAINBIRD 33 DLRC OR EQUAL	PROVIDE (3) KEYS
	MAIN LINE	SCH. 40 PVC PIPE	SIZE: 2" UNLESS OTHERWISE NOTED. SCH. 80 FITTINGS. SOLVENT WELD
	REMOTE CONTROL VALVE ASSY. (TREE/SHRUB)	CONTROL VALVE: IRRITROL 700 P SERIES, OR EQUAL BALL VALVE: KBI PVC BALL VALVE, OR EQUAL PRESSURE REGULATOR: RAIN BIRD PSI-M40X-100 WYE FILTER: RAIN BIRD RBY-150-MX, OR EQUAL	SIZE PER PLAN IN VALVE BOX BOX SIZE: AMETEK "JUMBO", OR EQUAL. COLOR: TAN
NOT SHOWN	POLYETHYLENE LATERAL	U.S PLASTICS OR EQUAL	SIZE 3/4". MAX. RUN 250 FT.
NOT SHOWN	MULTI-OUTLET EMITTER (TREES)	RAINBIRD XB-10-6 MULTI-OUTLET XERI-BUG, OR EQUAL	PROVIDE (1) TO EACH TREE. BOX SIZE: AMETEK 6" ROUND, OR EQUAL. COLOR: TAN
NOT SHOWN	SINGLE EMITTER (SHRUBS)	RAINBIRD XB-10PC, OR EQUAL (1 GPH)	PROVIDE (2) TO EACH SHRUB..
	SLEEVE	SCH. 40 PVC PIPE	SCH 40 PVC. 4" DIA.
NOT SHOWN	FLUSH END	SEE DETAIL	LOCATE AT END OF LATERAL RUN IN VALVE BOX*, 10" ROUND SIZE.

*VALVE BOXES TO BE COLOR TAN.

PIPE SIZE CHART (PVC LATERAL)

FLOW	PIPE SIZE
1-6 GPM	3/4"
6.1-10 GPM	1"
10.1-16 GPM	1-1/4"
16.1-24 GPM	1-1/2"
24.1-46 GPM	2"

IRRIGATION CONTROLLER SCHEDULE

YEAR	DAYS	FREQUENCY	TIME (HRS.)	TOTAL WATER
3	MON. WED. FRI.	1	2.75	1,475,569
4	MON. THUR.	1	3	1,106,677
5	WED.	1	4	737,785

IRRIGATION CONTROLLER NOTES

PLANT WATERING REQUIREMENTS VARY ACCORDING TO SIZE OF PLANT, AGE, EXPOSURE, SOIL, LOCATION, WEATHER, AND OTHER FACTORS. ADJUST CONTROLLER AS NEEDED.

ADJUST CONTROLLER AND INSPECT THE TIME CLOCK AT LEAST ONCE A MONTH TO MAKE SURE IT IS OPERATING PROPERLY. LESS IRRIGATION IS GENERALLY REQUIRED IN DECEMBER, JANUARY, AND FEBRUARY.

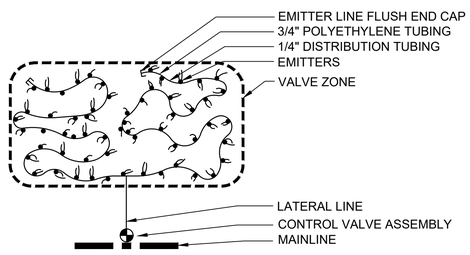
TREES

WATERING DEPTH OF 24 - 36 INCHES

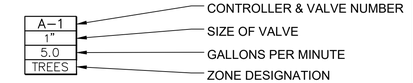
SHRUBS / GROUNDCOVER

WATERING DEPTH OF 18 - 24 INCHES

TYPICAL EMITTER LINE LAYOUT



TYPICAL VALVE CALL OUT



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CAPELLA PARCEL M
LOTS 1 THRU 48
COMMON AREAS 'A' AND 'B'
A PORTION OF SECTION 9 , T12S, R13E, G&SRM TOWN OF ORO VALLEY, PIMA COUNTY, ARIZONA
Project

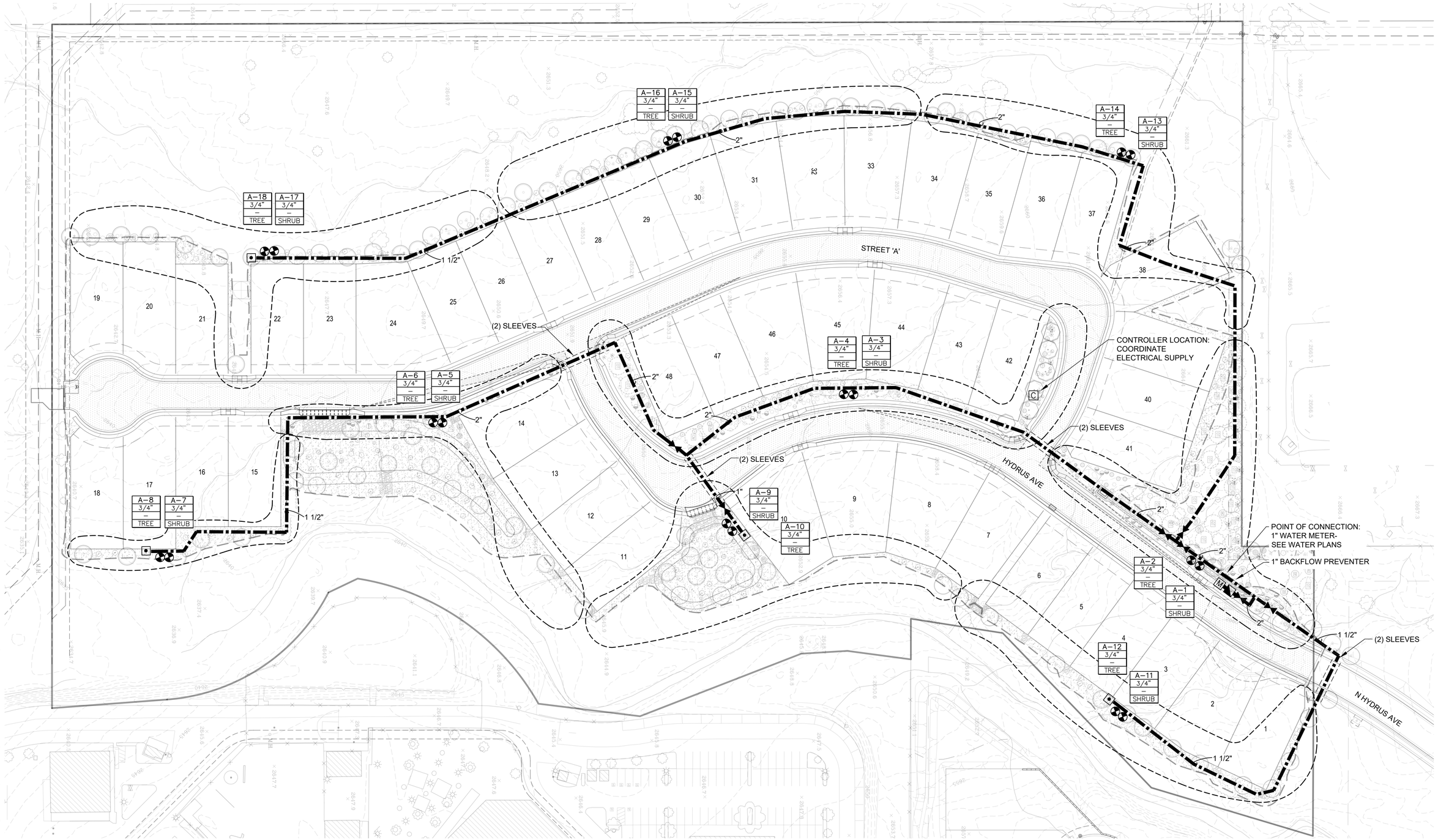
FINAL LANDSCAPE PLAN
IRRIGATION LEGEND
Sheet Title

No.	Date	Item

Revisions

REGISTERED LANDSCAPE ARCHITECT
CERTIFICATE NO.
25621
GARY L. GRIZZLE
Date Expires 6-30-20
ARIZONA U.S.A.

Scale	N/A
Job No.	110028-D-002
Date	JANUARY 2020
Designed By	PNR
Checked By	GLG
Sheet	9
of	13



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CAPELLA PARCEL M
LOTS 1 THRU 48
COMMON AREAS 'A' AND 'B'
A PORTION OF SECTION 9 , T12S, R13E, G&SRM TOWN OF ORO VALLEY, PIMA COUNTY, ARIZONA
Project

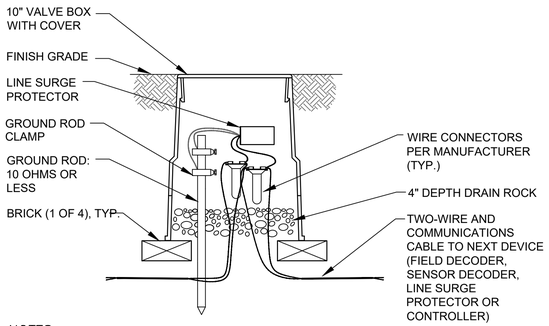
FINAL LANDSCAPE PLAN
IRRIGATION PLAN
Sheet Title

No.	Date	Item

Revisions

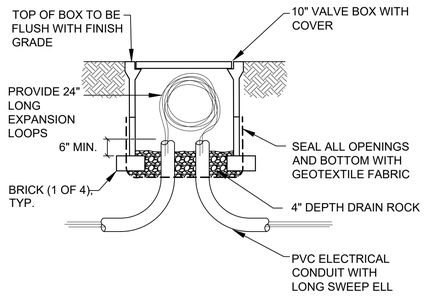
REGISTERED LANDSCAPE ARCHITECT
CERTIFICATE NO.
25621
GARY L. GRIZZLE
Date Signed 4-30-20
ARIZONA U.S.A.

Scale	1"=50'
Job No.	110028-D-002
Date	JANUARY 2020
Designed By	PNR
Checked By	GLG
Sheet	10
of	13



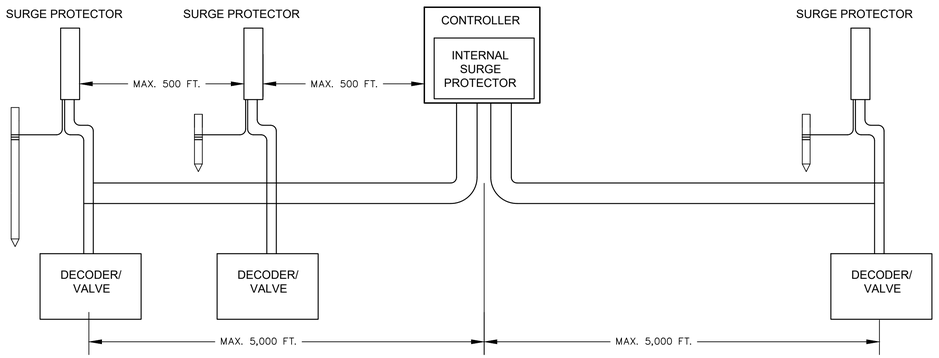
NOTES:
1. REFER TO MANUFACTURER'S WIRING DIAGRAMS.

6 SURGE PROTECTOR CONNECTION/GROUNDING
NTS

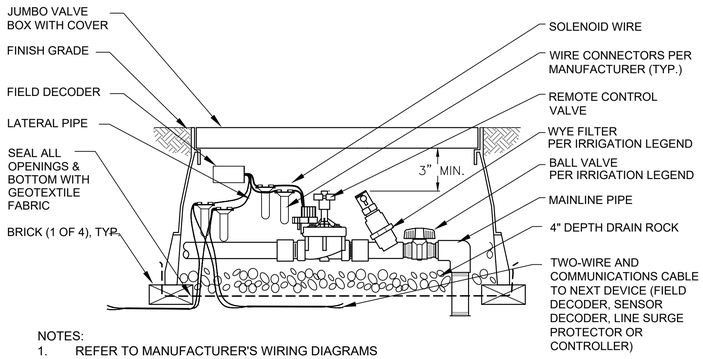


NOTES:
1. SPACE PULL-BOXES AT 250' MAX. OR AT EACH CHANGE OF DIRECTION 90° OR SHARPER
2. NO SPLICES PERMITTED

7 COMMUNICATIONS CABLE PULL-BOX
NTS

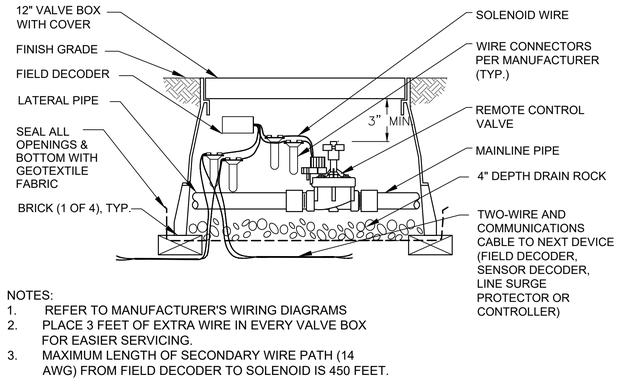


8 SYSTEM SCHEMATIC-STRAIGHT LINE CONFIGURATION
NTS



NOTES:
1. REFER TO MANUFACTURER'S WIRING DIAGRAMS
2. PLACE 3 FEET OF EXTRA WIRE IN EVERY VALVE BOX FOR EASIER SERVICING.
3. MAXIMUM LENGTH OF SECONDARY WIRE PATH (14 AWG) FROM FIELD DECODER TO SOLENOID IS 450 FEET.

4 DRIP CONTROL VALVE ASSEMBLY & DECODER
NTS



NOTES:
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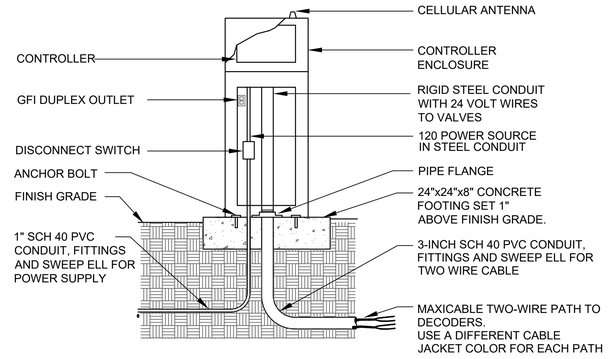
2. PLACE 3 FEET OF EXTRA WIRE IN EVERY VALVE BOX FOR EASIER SERVICING.
3. MAXIMUM LENGTH OF SECONDARY WIRE PATH (14 AWG) FROM FIELD DECODER TO SOLENOID IS 450 FEET.

5 TURF CONTROL VALVE ASSEMBLY & DECODER
NTS



1 PEDESTAL MOUNT CONTROLLER
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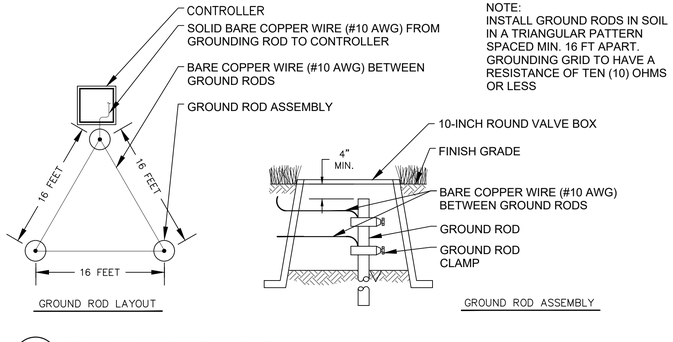
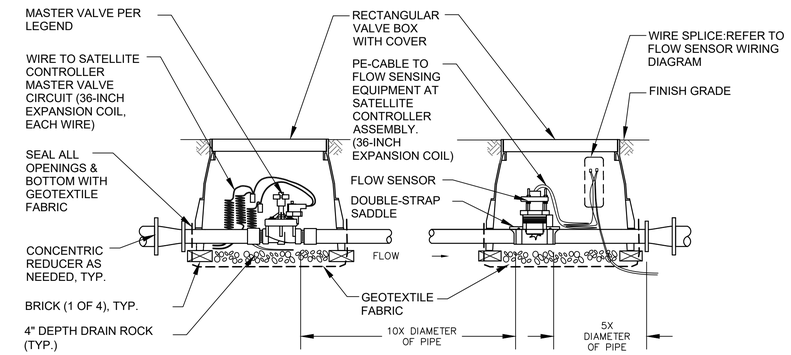


2 CONTROLLER GROUNDING
NTS



3 MASTER VALVE & FLOW SENSOR
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A PORTION OF SECTION 9 , T12S, R13E, G&SRM TOWN OF ORO VALLEY, PIMA COUNTY, ARIZONA
Project

FINAL LANDSCAPE PLAN
IRRIGATION DETAILS
Sheet Title

No.	Date	Item

Revisions

REGISTERED LANDSCAPE ARCHITECT CERTIFICATE NO. 25621 GARY L. GRIZZLE Date Signed 1-30-20 ARIZONA U.S.A.

Scale	AS SHOWN
Job No.	110028-D-002
Date	JANUARY 2020
Designed By	PNR
Checked By	GLG
Sheet	11
of	13

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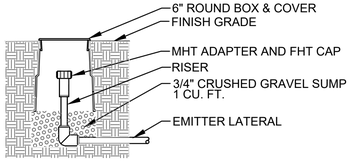
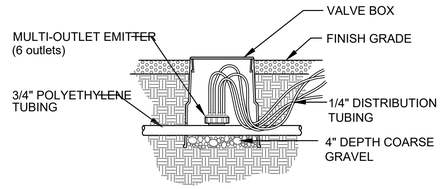


8 FLUSH END ASSEMBLY
SCALE: NTS



5 MULTI OUTLET EMITTER
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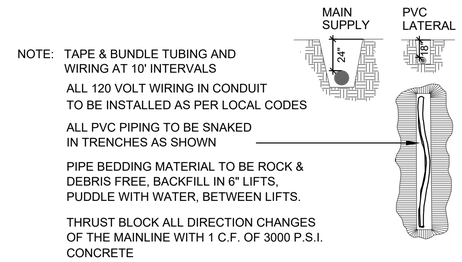
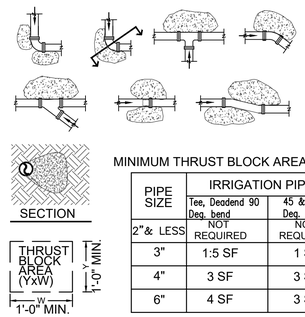


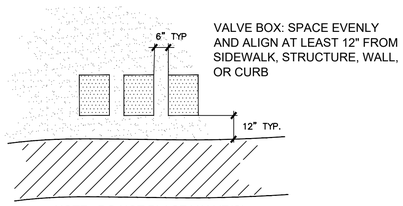
3 TRENCH
SCALE: NTS



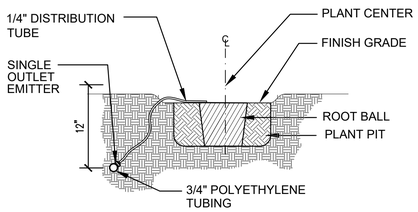
MINIMUM THRUST BLOCK AREA (YxW)

PIPE SIZE	IRRIGATION PIPE	
	Tee, Deadend 90 Deg. bend	45 & 22.5 Deg.
2"& LESS	NOT REQUIRED	NOT REQUIRED
3"	1:5 SF	1 SF
4"	3 SF	3 SF
6"	4 SF	3 SF

1 THRUST BLOCK DETAIL
SCALE: NTS

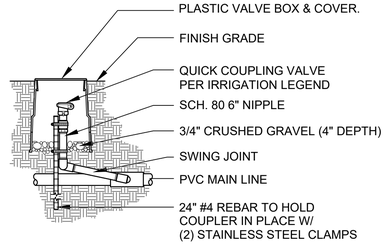


9 VALVE BOX PLACEMENT
SCALE: NTS

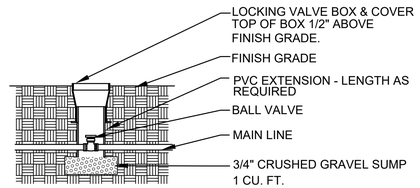


NOTE: IF PLANTED ON SLOPE, PLACE EMITTER ON UPHILL SIDE OF PLANT

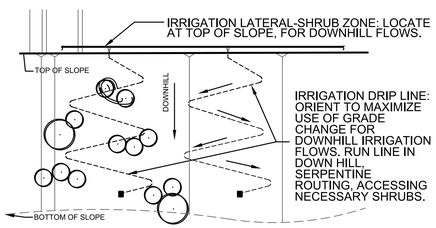
6 SINGLE OUTLET EMITTER
SCALE: NTS



4 QUICK COUPLER
SCALE: NTS

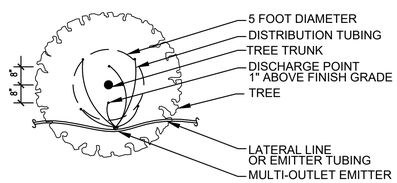


2 ISOLATION VALVE
SCALE: NTS



NOTE: ALL IRRIGATION SUB LATERALS AND DRIP-TUBING SHOULD MAXIMIZE USE OF SLOPE TO REDUCE PRESSURE LOSS DUE TO ELEVATION CHANGE - ORIENT RUNS DOWNHILL, AVOID UPHILL RUNS. MAXIMUM RUN SHOULD NOT EXCEED 250'.

10 SHRUB ZONE ON SLOPE DETAIL
SCALE: NTS



7 EMITTER PLACEMENT AT TREES
NTS

Q:\110028\A-008 Parcel M Platting\02 Landscape\08 FLP\Cap M FLP 12 irrigation_details2.dwg

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CAPELLA PARCEL M
LOTS 1 THRU 48
COMMON AREAS 'A' AND 'B'
A PORTION OF SECTION 9 , T12S, R13E, G&SRM TOWN OF ORO VALLEY, PIMA COUNTY, ARIZONA
Project

FINAL LANDSCAPE PLAN
IRRIGATION DETAILS
Sheet Title

No.	Date	Item

Revisions

REGISTERED LANDSCAPE ARCHITECT
CERTIFICATE NO.
25621
GARY L.
GRIZZLE
Date Signed 1-30-20
ARIZONA U.S.A.

Scale	N/A
Job No.	110028-D-002
Date	JANUARY 2020
Designed By	PNR
Checked By	GLG
Sheet	12
of	13

IRRIGATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Codes and Standards:
1. NFPA 70: National Electric Code
2. American Water Works Association (AWWA) for pipe and fitting manufacturer compliance
3. American Society for Testing and Materials International (ASTM) for pipe and fitting manufacturer compliance

1.2 SUMMARY

A. Section Includes:
1. Piping.
2. Encasement for piping.
3. Manual valves.
4. Automatic control valves.
5. Transition fittings.
6. Miscellaneous piping specialties.
7. Quick couplers.
8. Drip irrigation specialties.
9. Controllers.
10. Boxes for automatic control valves.
11. Backflow Preventer.
12. Evapo-transpiration Sensor or Weather Station.

1.3 DEFINITIONS

A. Circuit Piping: Downstream from control valves to sprinklers, specialties, and drain valves. Piping is under pressure during flow.
B. Drain Piping: Downstream from circuit-piping drain valves. Piping is not under pressure.
C. Main Piping: Downstream from point of connection to water distribution piping to, and including, control valves. Piping is under water-distribution-system pressure.

1.4 PERFORMANCE REQUIREMENTS

A. Irrigation zone control shall be automatic operation with controller and automatic control valves.
B. Location of Emission Devices and Specialties: It is hereby specified that the system shall be complete and fully operational covering 100% of the planted area.
C. Minimum Working Pressures: The following are minimum pressure requirements for piping, valves, and specialties, unless otherwise indicated:
1. Minimum Pressure at drip emission devices: 15 psi.

1.5 CLOSEOUT SUBMITTALS

A. As-built Drawings: Document the piping sizes and layout, each zone, zone type, number of heads in each zone, note emitter spacing. In addition closeout submittals should include:
1. Controller Keys.
2. Controller manual.
3. Quick Coupler key.
4. As-built drawings.
Submit 2 copies; one 11"x17" laminated copy, one full-sized copy. Submit one electronic copy in .pdf format
5. Controller schedule.
6. Backflow preventer test certificate.
7. Warranty documents for the irrigation system.
8. Backflow preventer enclosure keys.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store plastic piping protected from direct sunlight. Support to prevent sagging and bending.

1.7 PROJECT CONDITIONS

A. Interruption of Existing Water Service: Do not interrupt water service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary water service according to requirements indicated:
1. Notify Owner's Representative no fewer than two (2) days in advance of proposed interruption of water service.
2. Do not proceed with interruption of water service without Owner's Representative's permission.

1.8 MAINTENANCE SERVICE

A. Initial Maintenance Service: Provide full maintenance by skilled employees of irrigation installer. Maintain as required in Part 3. Begin maintenance immediately after each area is planted and continue until not less than the following period:
1. Maintain until 30 days after handover and approved at "30 Day Walk."

1.9 WARRANTY

A. Special Warranty: Installer agrees to repair or replace irrigation and accessories tha fail in materials or workmanship within on-year warranty period.

PART 2-PRODUCTS

2.1 PIPES, TUBES, AND FITTINGS

A. Comply with requirements for applications of pipe, tube, and fitting materials, and for joining methods for specific services, service locations, and pipe sizes.
B. PVC Pipe: ASTM D 1785, PVC 1120 compound, Schedule 40.
1. PVC Socket Fittings: ASTM D 2466, Schedule 40.
2. PVC Threaded Fittings: ASTM D 2464, Schedule 80.
3. PVC Socket Unions: Construction similar to MSS SP-107, except both headpiece and tailpiece shall be PVC with socket ends.

2.2 PIPING JOINING MATERIALS

A. Solvent Cements for Joining PVC Piping: ASTM D 2564. Include primer according to ASTM F 656.
B. Plastic, Pipe-Flange Gasket, Bolts, and Nuts: Type and material recommended by piping system manufacturer unless otherwise indicated.

2.3 ISOLATION VALVES

Isolation Valves shall be as indicated on the irrigation plans.

2.4 AUTOMATIC CONTROL VALVES

A. Automatic Circuit Control Valves shall be as indicated on the irrigation plans.

2.5 TRANSITION FITTINGS

A. General Requirements: Same size as, and with pressure rating at least equal to and with ends compatible with, piping to be joined. Provide products compatible with piping, valves, heads and controllers for proposed system which conform to standards of practice.

2.6 QUICK COUPLERS

A. Quick-Coupling Valves shall be as indicated on the irrigation plans.

2.7 DRIP IRRIGATION SPECIALTIES

A. Drip Tubes:
1. Tubing:
a. Body Material: PE or vinyl.
b. Mounting: On riser, inserted into lateral line at set intervals.
2. Capacities and Characteristics: As indicated on the irrigation plans.
B. Emission Device:
1. Emitter: As indicated on Irrigation Plans.
C. Off-Ground Supports: Plastic stakes.
D. Application Pressure Regulators: Brass or plastic housing, NPS ¾, with corrosion-resistant internal parts; capable of controlling outlet pressure to approximately 30 psig.
E. Filter Units: Brass or plastic housing, with corrosion-resistant internal parts; of size and capacity required for devices downstream from unit.
F. Air Relief Valves: Brass or plastic housing, with corrosion-resistant internal parts.
G. Vacuum Relief Valves: Brass or plastic housing, with corrosion-resistant internal parts.

2.8 CONTROLLERS

A. Controller shall be as indicated on the irrigation plans.
1. Provide 2 spare - unused controller zones. Provide expansion modules as necessary to operate number of valves indicated on irrigation plans.
B. Mount at location indicated on the irrigation plans.

2.9 BOXES FOR AUTOMATIC CONTROL VALVES AND FLUSH ENDS

A. Plastic Boxes shall be as indicated on the irrigation plans. Description: Box and cover, with open bottom and openings for piping; designed for installing flush with grade.
1. Size: 10" Round-Isolation Valve; "Jumbo" Rectangular-Control Valve. One Valve per Box.
2. Shape: Round and Rectangular.
3. Sidewall Material: PE.
4. Cover Material: PE.
5. Lettering: Irrigation Valve Box.

2.10 BACKFLOW PREVENTER

A. Provide backflow preventer on concrete pad in lockable enclosure as indicated on the irrigation plans.
a. Provide R-30 Insulation cover.

2.11 WEATHER SENSOR

A. Weather Sensor shall be as indicated on the irrigation plans.

PART 3 - EXECUTION

3.1 EARTHWORK

A. Install warning tape directly above pressure piping, 12 inches below finished grades, except 6 inches below subgrade under pavement and slabs.
B. Provide minimum cover over top of underground piping according to the following:
1. Irrigation Main Piping: Minimum depth of 18 inches
2 Circuit Piping: 12 inches.
3. Drain Piping: 12 inches.
4. Sleeves: 24 inches.

3.2 PREPARATION

A. Set stakes to identify locations of proposed irrigation system. Obtain Owner's Representative's approval before excavation. Notify Owner's Representative of any conflicts prior to installation.

3.3 PIPING INSTALLATION

A. Location and Arrangement: Drawings indicate location and arrangement of piping systems.
B. Install piping at minimum uniform slope of 0.5 percent down toward drain valves.
C. Install piping free of sags and bends.
D. Install group of pipes parallel to each other, spaced to permit valve servicing.
E. Install fittings for changes in direction and branch connections.
F. Install unions adjacent to valves and to final connections to other components with NPS 2 or smaller pipe connection.
G. Install flanges adjacent to valves and to final connections to other components with NPS 2-1/2 or larger pipe connection.
H. Install expansion loops in control-valve boxes for plastic piping.
I. Lay piping on solid sub-base, uniformly sloped without humps or depressions.
J . Install PVC piping in dry weather when temperature is above 40 deg F. Allow joints to cure at least 24 hours at temperatures above 40 deg F before testing.
K. Install pressure regulators with shutoff valve and strainer on inlet and pressure gauge on outlet. Install shutoff valve on outlet. Install aboveground or in control-valve boxes.
L. Install piping in sleeves under parking lots, roadways, and sidewalks.
M. Install sleeves made of 4" Schedule 40 PVC pipe and socket fittings, and solvent-cemented joints.
N. Install transition fittings for plastic-to-metal pipe connections according to the following:
1. Underground Piping:
a. NPS 1-1/2 and Smaller: Plastic-to-metal transition fittings.
b. NPS 2 and Larger: AWWA transition couplings.
2. Aboveground Piping (Not permitted in markets of freezing environments):
a. NPS 2 and Smaller: Plastic-to-metal transition fittings and unions.
b. NPS 2 and Larger: Use dielectric flange kits with one plastic flange.

3.4 JOINT CONSTRUCTION

A. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.
B. Remove scale, slag, dirt and debris from inside and outside of pipe and fittings before assembly.
C. PVC Piping Solvent-Cemented Joints: Clean and dry joining surfaces. Join pipe and fittings according to the following:
1. Comply with ASTM F 402 for safe-handling practice of cleaners, primers, and solvent cements.
2. PVC Pressure Piping: Join schedule number, ASTM D 1785, PVC pipe and PVC socket fittings according to ASTM D 2672. Join other-than-schedule-number PVC pipe and socket fittings according to ASTM D 2855.
3. PVC Non-pressure Piping: Join according to ASTM D 2855.

3.5 VALVE INSTALLATION

A. Valve (All) Location:
1. Valve and Control Boxes must be a minimum 3' behind face of curb or sidewalk.
2. Top of all Irrigation Boxes must be at grade or slightly above.
B. Above-ground Valves: Install as components of connected piping system.

3.6 DRIP IRRIGATION SPECIALTY INSTALLATION

A. Install freestanding emitters on pipe riser to mounting height indicated.
B. Install manifold emitter systems with tubing to emitters. Plug unused manifold outlets. Install emitters on off-ground supports at height indicated.
C. Install multiple-outlet emitter systems with tubing to outlets. Plug unused emitter outlets. Install outlets on off-ground supports at height indicated.
D. Install drip tubes with direct-attached emitters on in 6" round valve boxes.
E. Install drip tubes with remote-discharge in 6" round valve boxes. with outlets on off-ground supports at height indicated.
F. Install off-ground supports of length required for indicated mounted height of device.
G. Install drip assembly pressure regulator and filter below grade in a 10" round valve box as shown on the detail. Locate within 2' of the electronic control valve.

3.7 AUTOMATIC IRRIGATION-CONTROL SYSTEM INSTALLATION

A. Equipment Mounting: Install interior controllers in Low Voltage Cabinet.
1. Place and secure anchorage devices. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
2. Install anchor bolts to elevations required for proper attachment to supported equipment.
B. Install control wire in same trench as irrigation piping and at least 2 inches beside piping. Provide conductors of size not smaller than recommended by controller manufacturer. Install cable in separate sleeve under paved areas.

3.8 CONNECTIONS

A. Drawings indicate general arrangement of piping, fittings, and specialties.
B. Install piping adjacent to equipment, valves, and devices to allow service and maintenance.
C. Connect wiring between controllers and automatic control valves.

3.9 FIELD QUALITY CONTROL

A. Tests and Inspections:
1. Leak Test: After installation, charge system and test for leaks. Repair leaks and retest until no leaks exist.
2. Operational Test: After electrical circuitry has been energized, operate controllers and automatic control valves to confirm proper system operation.
3. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
B. Any irrigation product will be considered defective if it does not pass tests and inspections.

3.10 START UP SERVICE

A. Perform startup service.
1. Complete installation and startup checks according to manufacturer's written instructions.
2. Verify that controllers are installed and connected according to the Contract Documents.
3. Verify that electrical wiring installation complies with manufacturer's submittal.

3.11 ADJUSTING

A. Adjust settings of controllers.
B. Adjust automatic control valves to provide flow rate at rated operating pressure required for each irrigation circuit.
C. Adjust devices, except those intended to be mounted aboveground, so they will be flush with finish grade.

3.12 CLEANING

A. Flush dirt and debris from piping before installing emission devices.

3.13 DEMONSTRATION

A. Coordinate an operating demonstration and acceptance meeting with Owner's Representative.

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25621
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