WASH RESTORATION PLAN FOR:

MILLER RANCH

OV1802195

GENERAL NOTES

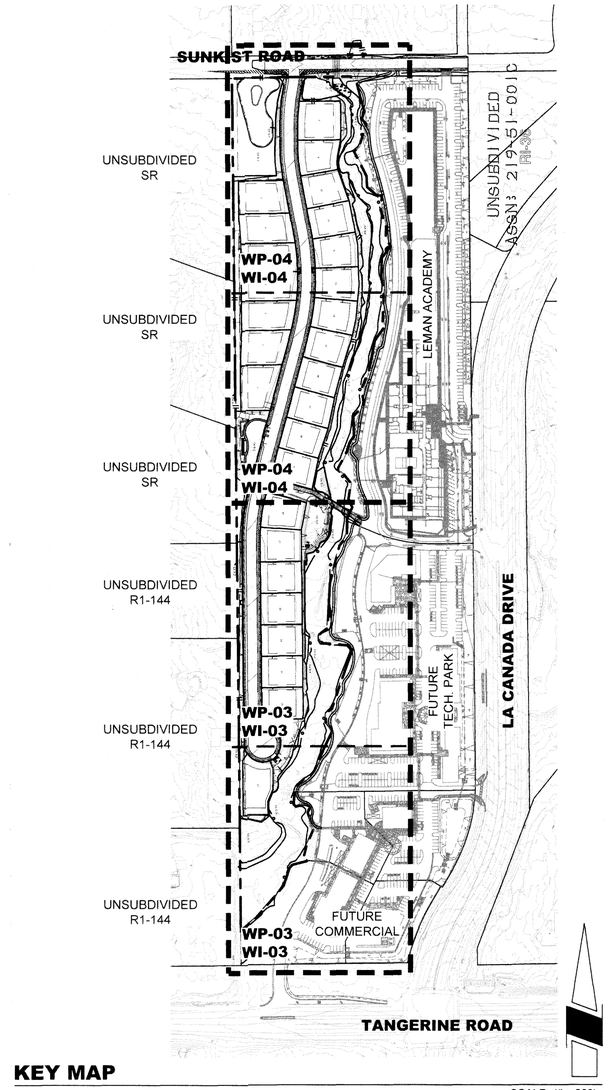
1. ZONING DESIGNATION: R1-10
2. PROPERTY OWNER IS RESPONSIBLE FOR MAINTAINING THE IRRIGATION SYSTEM AS LONG AS NECESSARY IN ORDER TO TRANSITION PLANTS OVER TO NATURAL SOURCES. ANY PLANT MATERIALS THAT DIE FOR ANY REASON SHALL BE REPLACED IN ACCORDANCE WITH SECTION 4-213.
3. PROPERTY OWNER SHALL MAINTAIN BUFFERYARD PLANTINGS TO ENSURE UNOBSTRUCTED VISIBILITY TO MOTORISTS. ALL SHRUBS, ACCENTS, AND GROUNDCOVERS SHALL NOT EXCEED 30" IN HEIGHT WITHIN SIGHT VISIBILITY TRIANGLES. TREES IN SVTS WILL BE MAINTAINED TO ENSURE THAT BRANCHES/FOLIAGE IS NOT BELOW A HEIGHT OF 6'.
4. IN THE EVENT OF ABANDONMENT OF THE SITE AFTER GRADING/DISTURBANCE OF NATURAL AREAS, DISTURBED AREAS SHALL BE RE-VEGETATED WITH A NON-IRRIGATED HYDROSEED MIX PER TOWN OF ORO VALLEY STANDARDS.
5. CONTRACTOR SHALL VERIFY WITH OWNER'S PROJECT MANAGER THAT PLANS ARE CURRENT AND APPROVED.
6. WORK SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE ORO VALLEY CODE. WHENEVER SPECIAL REQUIREMENTS CONFLICT ON ANY MATTER, THE OWNER'S PROJECT MANAGER SHALL DETERMINE WHICH SPECIAL CONDITION OR CODE SHALL GOVERN.
7. THE CONTRACTOR SHALL COMPLY WITH THE ENGINEERING SOILS REPORT RECOMMENDATIONS AS THEY RELATE TO HIS WORK.
8. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY AND/OR REQUIRED PERMITS AND PAY ALL RELATED FEES AND/OR TAXES REQUIRED TO INSTALL THE WORK ON THE PLANS.
9. THE CONTRACTOR SHALL BE APPROPRIATELY LICENSED AS REQUIRED BY THE STATE OF ARIZONA.
10. CONTRACTOR SHALL NOTIFY THE OWNER'S PROJECT MANAGER IMMEDIATELY OF ANY ERRORS, OMISSIONS OR DISCREPANCIES IN EXISTING CONDITIONS OR WITH THE PLANS PRIOR TO BEGINNING THE WORK.
11. UNIT PRICES FOR ALL IMPROVEMENTS SHALL BE ESTABLISHED AS A PART OF THE CONTRACT WITH THE OWNER'S PROJECT MANAGER PRIOR TO BEGINNING WORK, TO ACCOMMODATE ADDITIONS AND/OR DELETIONS OF MATERIAL AND/OR LABOR.
12. DETERMINATION OF "EQUAL" SUBSTITUTIONS SHALL BE MADE ONLY BY THE OWNER'S PROJECT MANAGER.
13. SITE OBSERVATION BY THE LANDSCAPE ARCHITECT DURING ANY PHASE OF THIS PROJECT DOES NOT RELIEVE THE CONTRACTOR OF HIS/HER PRIMARY RESPONSIBILITY TO PERFORM ALL WORK IN ACCORDANCE WITH THE PLANS, SPECIFICATIONS AND GOVERNING CODES.
14. THE CONTRACTOR SHALL PROVIDE FULL MAINTENANCE OF ALL LANDSCAPE AREAS AFTER INITIAL WRITTEN APPROVAL, SEE LANDSCAPE SPECIFICATIONS.
15. EXISTING UTILITIES AND STRUCTURES REPORTED BY OWNERS OR OTHERS AND THOSE SHOWN ON RECORDS EXAMINED, ARE INDICATED ON THE PLAN WITH THEIR APPROXIMATE LOCATION AND EXTENT. UNDERGROUND FACILITIES MAY EXIST WHICH HAVE NOT BEEN REPORTED OR OF RECORD. THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT THOSE FACILITIES FOUND AT THE SITE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE OWNER(S) OF THESE FACILITIES BEFORE STARTING WORK. CAUTION: BEFORE EXCAVATING, VERIFY THE LOCATION OF UNDERGROUND UTILITIES. AT LEAST TWO (2) WORKING DAYS PRIOR TO EXCAVATION, THE CONTRACTOR SHALL REQUEST MARK OUT OF UNDERGROUND UTILITIES BY CALLING BLUE STAKE AT 1-800-782-5348.
16. CONTRACTOR AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT. THIS INCLUDES THE SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND SHALL NOT BE LIMITED TO NORMAL WORKING HOURS. THE CONTRACTOR ALSO AGREES TO DEFEND, INDEMNIFY AND HOLD THE OWNER AND HIS REPRESENTATIVES HARMLESS FROM ANY AND ALL LIABILITY, REAL AND/OR ALLEGED IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT.
17. 1.2 ACRES OF WASH RESTORATION AREA PER THESE PLANS IS TO BE USED AS ESL CREDIT FOR THE MILLER RANCH RESIDENTIAL DEVELOPMENT. IN THE EVENT THAT SALVAGED PLANT MATERIAL FROM THE COMMERCIAL/TECH PARK AREA THAT IS PROPOSED FOR USE WITHIN THE CREDIT AREA AS SHOWN ON THIS PLAN IS UNAVAILABLE AT THE TIME OF WASH RESTORATION IN THE CREDIT AREA, NURSERY STOCK OF LIKE SPECIES MAY BE SUBSTITUTED FOR PROPOSED SALVAGED PLANT MATERIAL. MINIMUM SIZE OF NURSERY STOCK SUBSTITUTIONS SHALL BE 15 GALLON FOR TREES AND 5 GALLON FOR SHRUBS.
18. THE DEVELOPER(S) SHALL POST ASSURANCES FOR WASH RESTORATION PRIOR TO RELEASE OF THE GRADING PERMIT(S). SEPARATE ASSURANCES SHALL BE POSTED FOR EACH PHASE OF WASH RESTORATION.
19. WASH RESTORATION WILL BE COMPLETED PER RE-ZONING CONDITION AND PER TOWN OF ORO VALLEY CLARIFICATION LETTER DATED MARCH 20, 2019. AS STATED IN THE LETTER, "THE PORTION OF THE WASH OWNED BY SCHOOLHOUSE ORO VALLEY LLC AND D.R. HORTON MUST BE RESTORED CONCURRENTLY WITH THE DEVELOPMENT OF THE RESIDENCES AT MILLER RANCH AND BE COMPLETED PRIOR TO 35% OF BUILDING PERMITS WITHIN THE SUBDIVISION BEING ISSUED."

GRADING NOTES

1. THE ARIZONA DEPARTMENT OF AGRICULTURE (AZDA), TUCSON OFFICE, SHALL BE NOTIFIED IN WRITING OF PLANS TO CLEAR, GRADE AND/OR CONDUCT SURFACE DISTURBING ACTIVITIES ASSOCIATED WITH THE PROJECT AT LEAST 30 DAYS IN ADVANCE OF CLEARING AND GRADING ACTIVITIES. NOTIFICATION SHALL BE IN CONFORMANCE WITH THE ARIZONA NATIVE PLANT LAW, ARIZONA REVISED STATUTES, CHAPTER 7, AS ADMINISTERED BY THE AZDA.
2. THE CONTRACTOR SHALL CAUSE THE PROJECT SITE TO BE BLUE-STAKED PRIOR TO THE START OF ANY EXCAVATION OR TRENCHING WORK, AND SHALL BE FAMILIAR WITH PLANS SHOWING UTILITY LOCATIONS. ENGINEERING PLANS SHALL BE REVIEWED TO IDENTIFY THE LOCATIONS OF KNOWN UNDERGROUND UTILITY AND TELEPHONE LINES. BLUE-STAKING SHALL BE KEPT CURRENT DURING THE COURSE OF THE PROJECT.
3. SURFACE DISTURBANCE WITHIN THE WASH RESTORATION AREA SHALL BE MINIMIZED TO THE GREATEST EXTENT POSSIBLE. DISTURBANCE SHOULD GENERALLY BE LIMITED TO EXCAVATION FOR IRRIGATION INSTALLATION AND FOR PLANTING OPERATIONS.
4. SURFACE AREA PREPARATION: SURFACE AREA TO BE DISTURBED BY IRRIGATION INSTALLATION, PLANTING OPERATIONS, OR TRAIL INSTALLATION SHALL BE RAKED AND THE RAKED SURFACE MATERIALS (I.E., ROCK, WOODY DEBRIS, AND VEGETATIVE MATERIALS) SHALL BE SET ASIDE PRIOR TO CONSTRUCTION. THIS MATERIAL SHALL BE EVENLY DISTRIBUTED OVER THE SURFACE OF THE RESTORATION AREA AFTER ALL EXCAVATION, PLANTING, AND IRRIGATION INSTALLATION IS COMPLETE. ROUGH RAKE THE SURFACE TO BLEND WITH ADJACENT UNDISTURBED SOIL SURFACE.
5. LOCATIONS AND OUTLINES OF WATER HARVESTING BASINS SHALL BE FIELD STAKED BY THE CONTRACTOR AND THEN FIELD-EVALUATED AND APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO ANY SURFACE DISTURBANCE. MINOR ADJUSTMENTS IN LAYOUT MAY BE MADE IN ORDER TO BEST CAPTURE BASIN OUTFLOW AND MINIMIZE DISTURBANCE TO EXISTING VEGETATION.
6. WATER HARVESTING BASIN EXCAVATION:
   - BASINS SHALL BE DUG, SHAPED AND CONTOURED USING THE SMALLEST EQUIPMENT POSSIBLE, PREFERABLY HAND TOOLS TO AVOID EXCESSIVE SITE COMPACTION.
   - MAXIMUM DEPTH OF ANY BASIN SHALL NOT EXCEED 4" (BELOW EXISTING GRADE).
   - ROCK AND BOULDERS THAT ARE EXCAVATED SHALL BE UTILIZED IN PLANTING AREAS TO ENHANCE STORMWATER CAPTURE. BROKEN CONCRETE AND OTHER INORGANIC DEBRIS SHALL BE REMOVED FROM SITE.

MAINTENANCE NOTES

1. THE PROJECT OWNER, AND/OR HIS SUCCESSORS, AGREE TO PRESERVE AND PROTECT THE MITIGATION FOR THE DURATION OF THE PROJECT. FURTHER, SAID PROJECT OWNER, OR HIS SUCCESSORS, AGREE TO ACTIVELY MAINTAIN THE MITIGATED AREA FOR A PERIOD OF NOT LESS THAN FIVE YEARS. MAINTENANCE ACTIVITES SHALL INCLUDE, BUT NOT BE LIMITED TO, THE REGULAR OPERATION OF THE IRRIGATION SYSTEM, THE REPLACEMENT OF DEAD TREES, AND THE REMOVAL OF NON-INDIGENOUS, INVASIVE PLANT SPECIES.
2. PLANTINGS SHALL NOT BE PRUNED EXCEPT IF NECESSARY FOR SAFETY. RESTORATION AREA WILL BE MAINTAINED IN A MANNER THAT PRESERVES ITS NATURAL APPEARANCE AND HABITAT VALUES. MISTLETOE WILL BE LEFT IN TREES.
3. AREAS SHALL NOT BE RAKED OR OTHERWISE CLEARED OF NATURAL DEBRIS EXCEPT AS NECESSARY FOR INVASIVE SPECIES MANAGEMENT.
4. CONTAINER PLANTS WILL BE WEANED OFF IRRIGATION ONCE ESTABLISHED.
5. PLANTING BASINS SHALL BE MONITORED FOR ACCUMULATION OF SEDIMENT AND CLEANED OUT AS NECESSARY.



KEY MAP

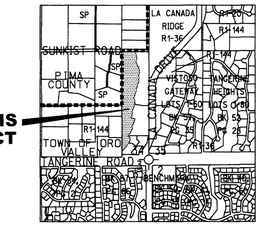
SCALE: 1" = 200'

SYMBOL LEGEND

- PROPERTY BOUNDARY
- LOT LINE
- BUILDING SETBACK
- EASEMENT
- TOP/TOE OF SLOPE
- PROPOSED RET. WALL
- GRADING LIMIT
- 100 YR. FLOODPLAIN
- 10 YR. FLOODPLAIN
- PROPOSED SEWER LINE
- PROPOSED WATER LINE

SCALE: 3"=1 MILE

THIS PROJECT



LOCATION MAP

A PORTION OF SECTION 34, T 11 S, R 13 E
G & SRM TOWN OF ORO VALLEY,
PIMA COUNTY, ARIZONA

PROJECT DIRECTORY:

OWNER/DEVELOPER

DESCO - MILLER, LLC.
AN ARIZONA LIMITED LIABILITY COMPANY
1795 E. SKYLINE DRIVE #193
TUCSON, ARIZONA 85718
(520) 297-8929
ATTN: MICHAEL SARABIA

LANDSCAPE ARCHITECT

RICK ENGINEERING CO.
3945 E. FORT LOWELL ROAD, SUITE 111
TUCSON, AZ 85712
CONTACT PERSON: MARK FELLINGER
PHONE: 520-795-1000
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CIVIL ENGINEER

RICK ENGINEERING CO.
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SHEET INDEX

APPROVAL

8/9/19

PLANNING AND ZONING ADMINISTRATOR — DATE

NO	BY	DATE	REVISION
1	MEF	1-12-15	REVISIONS PER OV914-006 REVIEW COMMENTS
2	MEF	2-13-18	REVISIONS TO REFLECT LEMAN AS-BUILT CONDITIONS AND PROPOSED RESIDENTIAL IMPROVEMENTS

REGISTERED LANDSCAPE ARCHITECT — CERTIFICATE NO. 36734 — MARK E. FELLINGER — 7/24/19 — ARIZONA, U.S.A.

M. Fellinger

RICK ENGINEERING COMPANY — Tucson
3945 EAST FORT LOWELL ROAD - SUITE 111
TUCSON, AZ. 85712
520.795.1000
(FAX)520.322.6956
Phoenix - San Diego - Sacramento - Riverside - Orange - San Luis Obispo - Bakersfield
rickengineering.com
JN 3668I

DESIGNED: MEF	DATE: 7/19	CHECKED BY: DATE:
DRAWN: MEF	DATE: 7/19	APPROVED BY: DATE:

WASH RESTORATION PLANS PREPARED FOR:
MASTER SUBMITTAL

MILLER RANCH

BEING A PORTION OF THE SOUTHEAST QUARTER OF SECTION 34, TOWNSHIP 11 SOUTH, RANGE 13 EAST GILA & SALT RIVER MERIDIAN, PIMA COUNTY, ARIZONA

OV1802195

REFERENCE:
OV914-006, OV1113-003, OV114-020, OV1208-07, OV1208-7A, OV904-02, OV1800713, OV1702695, (O)18-09, (R)14-10

WT-01

SCALE : 1" = 200'

SHEET 1 OF 14

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PLANT DENSITY CALCULATIONS

GROSS WASH RESTORATION AREA * :	6.3 ACRES
AREA OF 10-YEAR FLOODPLAIN:	2.4 ACRES
NET WASH RESTORATION AREA ** :	3.9 ACRES

* GROSS WASH RESTORATION AREA IS AREA FROM PARKING LOTS/VEHICULAR ACCESS DRIVES TO RESIDENTIAL LOTS.

** NET WASH RESTORATION AREA IS GROSS AREA MINUS AREA OF 10-YEAR FLOODPLAIN.

PROPOSED TREE QUANTITY: (EXCLUDING EXISTING TREES TO REMAIN IN PLACE)	263
PROPOSED SHRUB QUANTITY: (EXCLUDING EXISTING SHRUBS TO REMAIN IN PLACE)	991
PROPOSED TREES PER ACRE:	67
PROPOSED SHRUBS PER ACRE:	254

PLANT MATERIAL LEGEND

SYMBOL	BOTANICAL NAME / COMMON NAME	2	QTY.	SIZE	H x W (CALIPER)	WATER USE TYPE	ADWR ANNUAL USE (GAL.)	ANNUAL USE (GAL.)	MONTHLY USE (GAL.)
TREES									
	CERCIDIUM FLORIDUM BLUE PALO VERDE		32	15 GAL.	6' x 2' (.75 ")	2	5,702	182,464	15,205
	CERCIDIUM MICROPHYLLUM FOOTHILLS PALO VERDE		62	15 GAL.	4' x 2' (.5 ")	1	1,754	108,748	9,062
	CHILOPSIS LINEARIS DESERT WILLOW		63	24" BOX	7' x 4' (1.25")	2	5,702	359,226	29,935
	OLNEYA TESOTA IRONWOOD		43	15 GAL.	3' x 2' (.75 ")	1	2,741	117,863	9,822
	PROSOPIS VELUTINA VELVET MESQUITE		63	15 GAL.	5.5' x 3' (.5")	2	5,702	359,226	29,935
	EXISTING TREE TO REMAIN		55 +/-	BASED ON 2008 INVENTORY CONDUCTED BY RICK ENGINEERINGAND CURRENT AERIAL PHOTO ANALYSIS		(N/A - NOT IRRIGATED)			
						TOTAL (GAL.)		1,127,527	93,961

SYMBOL	BOTANICAL NAME / COMMON NAME	2	QTY.	SIZE	WATER USE TYPE	ADWR ANNUAL USE (GAL.)	ANNUAL USE (GAL.)	MONTHLY USE (GAL.)
SHRUBS								
	ACACIA CONSTRICTA WHITETHORN ACACIA		98	5 GAL.	1	1,754	171,892	14,324
	ACACIA GREGGII CATCLAW ACACIA		63	5 GAL.	1	1,754	110,502	9,209
	AMBROSIA DELTOIDEA TRIANGLE-LEAF BURSAGE		48	1 GAL.	3	39	1,872	156
	CALLIANDRA ERIOPHYLLA FAIRY DUSTER		66	1 GAL.	1	70	4,620	385
	CELTIS PALLIDA DESERT HACKBERRY		80	5 GAL.	2	634	51,274	4,273
	CLEMATIS DRUMMONDII VIRGIN'S BOWER		29	1 GAL.	2	35	1,015	85
	CYLINDROPUNTIA FULGIDA CHAINFRUIT CHOLLA		15	5 GAL.	1	158	2,370	198
	ECHINOCEREUS SPP. HEDGEHOG CACTUS		15	5 GAL.	1	18	270	23
	ENCELIA FARINOSA BRITTLE BUSH		147	1 GAL.	1	39	5,733	478
	HYMENOCLEA SALSOLA BURROBRUSH		51	1 GAL.	1	281	14,331	1,194
	LYCIUM FREMONTII WOLFBERRY		39	5 GAL.	1	281	10,959	913
	MAMMILLARIA SPP. PINCUSHION CACTUS		20	5 GAL.	1	1	20	2
	MUHLENBERGIA EMERSLEYI BULL GRASS		18	1 GAL.	1	110	1,980	165
	OPUNTIA SPP. PRICKLY PEAR CACTUS		25	5 GAL.	1	158	3,950	329
	PENSTEMON PARRYI PARRY'S PENSTEMON		41	1 GAL.	2	57	2,337	195
	PSILOSTROPHE COOPERI PAPER FLOWER		87	1 GAL.	2	25	2,175	181
	SIMMONDSIA CHINENSIS JOJOBA		30	5 GAL.	1	281	8,430	703
	SPOROLOBUS CRYPTANDRUS SAND DROPSEED		40	1 GAL.	3	9	360	30
	YUCCA ELATA SOAPTREE YUCCA		22	5 GAL.	1	281	6,182	515
	ZIZYPHUS OBTUSIFOLIA GRAY THORN		57	5 GAL.	2	634	36,138	3,012
	EXISTING SHRUBS TO REMAIN		175 +/-	BASED ON 2008 INVENTORY CONDUCTED BY RICK ENGINEERING AND CURRENT AERIAL PHOTO ANALYSIS	(N/A - NOT IRRIGATED)			
					TOTAL (GAL.)		438,487	36,540

NON-IRRIGATED HYDROSEED MIX "A"

SPECIES	PLS RATE LBS./ACRE
ACACIA CONSTRICTA, WHITETHORN ACACIA	2.0
AMBROSIA DELTIODEA, TRIANGLE LEAF BURSAGE	2.0
ARISTIDA PURPUREA, PURPLE THREE-AWN	1.0
ATRIPLEX CANESCENS, FOUR-WING SALTBUSH	2.0
BAHIA ABSINTHIFOLIA, DESERT BAHIA	1.0
BAILEYA MULTIRADIATA, DESERT MARIGOLD	1.5
BOTHRIOCHLOA BARBINODIS, CANE BEARDGRASS	1.0
BOUTELOUA CURTIPENDULA, SIDE-OATS GRAMA	1.0
BOUTELOUA BARBATA, SIX WEEKS GRAMA	1.0
ENCELIA FARINOSA, BRITTLEBUSH	2.0
KALLSTROEMIA GRANDIFLORA, ARIZONA POPPY	1.0
LARREA DIVARICATA, CREOSOTE	2.0
LEPTOCHLOA DUBIA, GREEN SPRANGLETOP	1.0
LUPINUS SPARSIFLORUS, DESERT LUPINE	1.0
MUHLENBERGIA PORTERI, BUSH MUHLY	1.0
PENSTEMON PARRYI, DESERT PENSTEMON	1.5
PLANTAGO INSULARIS, INDIAN WHEAT	1.5
PROBOSCIDEA PARVIFLORA, DEVIL'S CLAW	1.0
SENNA COVESII, DESERT SENNA	1.0
SPHAERALCEA AMBIGUA, DESERT GLOBE-MALLOW	2.0
SPOROBOLUS CRYPTANDRUS, SAND DROPSEED	1.0
TOTAL LBS./ACRE:	28.5 TOTAL
TOTAL ACRES:	3.58 AC (156,012 SF)

NON-IRRIGATED HYDROSEED MIX "B"

SPECIES	PLS RATE LBS./ACRE
ARISTIDA PURPUREA, PURPLE THREE-AWN	1.0
BAHIA ABSINTHIFOLIA, DESERT BAHIA	1.0
BAILEYA MULTIRADIATA, DESERT MARIGOLD	1.5
BOUTELOUA CURTIPENDULA, SIDE-OATS GRAMA	1.0
KALLSTROEMIA GRANDIFLORA, ARIZONA POPPY	1.0
LUPINUS SPARSIFLORUS, DESERT LUPINE	1.0
PLANTAGO INSULARIS, INDIAN WHEAT	1.5
SPOROBOLUS CRYPTANDRUS, SAND DROPSEED	1.0
TOTAL LBS./ACRE:	9.0 TOTAL
TOTAL ACRES:	0.64 AC (27,982 SF)

HYDROSEED NOTES:

1. SLURRY MIX FOR NATIVE SEED APPLICATION SHALL CONSIST OF THE FOLLOWING:
   - SEED =LBS/ACRE PER SEED MIX
   - WOOD FIBER MULCH =2000 LBS/ACRE
   - AMMONIUM PHOSPAHTE FERTILIZER (16-20-0) =200 LBS/ACRE

2. SURFACE DISTURBANCE WITHIN THE WASH RESTORATION AREA SHALL BE MINIMIZED TO THE GREATEST EXTENT POSSIBLE. DISTURBANCE SHOULD GENERALLY BE LIMITED TO EXCAVATION FOR IRRIGATION INSTALLATION AND FOR PLANTING OPERATIONS. DO NOT TILL SOIL SURFACE PRIOR TO HYDROSEEDING. DIRECT HYDROSEEDING OF SURFACE IS PREFERRED.

3. THIS SEED MIX WILL NOT BE IRRIGATED. APPLICATION OF SEED MIX SHALL COINCIDE WITH PERIODS OF SEASONAL RAIN (JULY-AUGUST OR NOVEMBER-DECEMBER) IN ORDER TO ENCOURAGE GERMINATION.

PLANTING NOTES:

IF SEASONAL VARIATIONS IN PLANT MATERIAL AVAILABILITY NECESSITATE SUBSTITUTION OF CONTAINER PLANT OR SEED MIX SPECIES, THE SPECIES DIVERSITY (NUMBER OF SPECIES) PRESENTED IN THE PLAN MUST BE MAINTAINED. ANY NEW SPECIES MUST BE NATIVE, SITE-APPROPRIATE, AND APPROVED BY THE TOWN OF ORO VALLEY.

TOTAL WATER USE AT MATURITY	ANNUAL USE (GAL.)	MONTHLY USE (GAL.)
TREES	1,127,527	93,961
SHRUBS	438,487	36,540
TOTAL	1,566,014	130,501

NO.	BY	DATE	REVISION
2	MEF	2-13-18	REVISIONS TO REFLECT LEMAN AS-BUILT CONDITIONS AND PROPOSED RESIDENTIAL IMPROVEMENTS

REGISTERED LANDSCAPE ARCHITECT
CERTIFICATE NO.
36734
MARK E. FELLINGER
DATE 7/24/19
Date Signed
ARIZONA USA

M. Fellinger

RICK ENGINEERING COMPANY
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Phoenix - San Diego - Sacramento - Riverside - Orange - San Luis Obispo - Bakersfield
JN 3668I

DESIGNED:	MEF	DATE:	7/19
DRAWN:	MEF	DATE:	7/19
CHECKED BY:		DATE:	
APPROVED BY:		DATE:	

WASH RESTORATION PLANS PREPARED FOR:
MASTER SUBMITTAL

MILLER RANCH

BEING A PORTION OF THE SOUTHEAST QUARTER OF SECTION 34, TOWNSHIP 11 SOUTH, RANGE 13 EAST GILA & SALT RIVER MERIDIAN, PIMA COUNTY, ARIZONA

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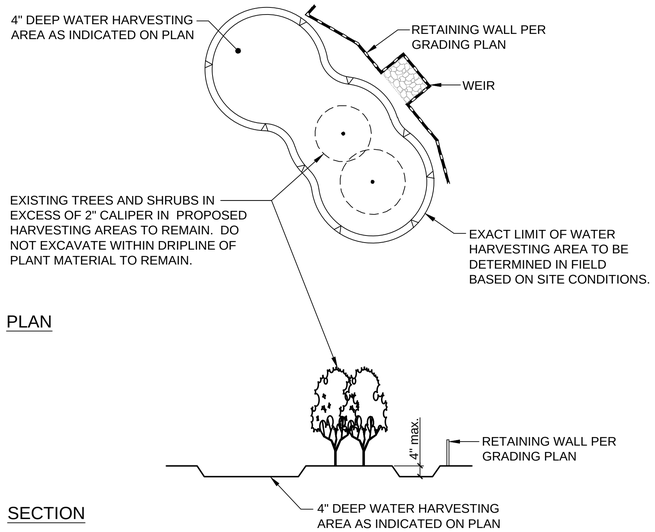
WP-01

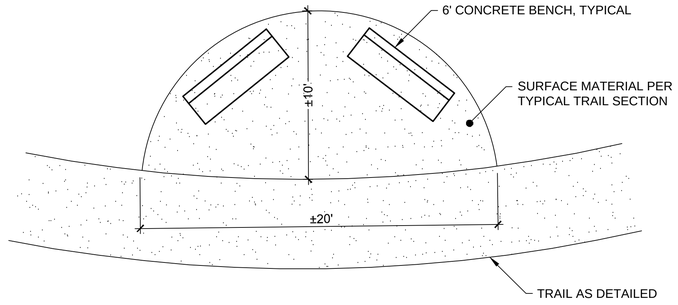
SCALE : N/A

SHEET 2 OF 14



A WATER HARVESTING DETAIL

NOT TO SCALE



C TYPICAL SEATING AREA

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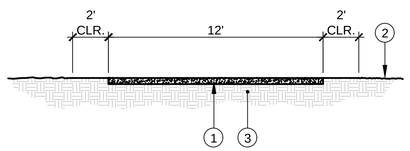

1. DG TRAIL. 2" THICK LAYER OF 1/4" MINUS DECOMPOSED GRANITE OVER 95% COMPACTED NATIVE SOIL. DG SHALL BE INSTALLED IN 1" LIFTS WITH EACH LIFT MOISTENED AND COMPACTED TO 95%. DG COLOR SHALL BE 'DESERT GOLD' OR EQUAL UNLESS OTHERWISE SPECIFIED ON PLANS.
2. FINISH GRADE
3. NATIVE SOIL SUBGRADE. COMPACT TO 95% FOR WIDTH OF TRAIL, PLUS 2' ON EITHER SIDE OF TRAIL.

B TRAIL

NOT TO SCALE

INVASIVE SPECIES MANAGEMENT NOTES

1. INVASIVE SPECIES HAVE BEEN IDENTIFIED FOR REMOVAL. INVASIVE SPECIES MANAGEMENT WILL OCCUR DURING CONSTRUCTION AS WELL AS THROUGH THE LIFE OF THE PROJECT. INDIVIDUAL SPECIES SHALL BE REMOVED AS INDICATED IN THE INVASIVE SPECIES MANAGEMENT TABLE.
2. IF HERBICIDE APPLICATION IS NECESSARY, IT SHALL BE APPLIED DIRECTLY TO INDIVIDUAL PLANTS AND NOT BROADCAST ON THE SOIL. HERBICIDE WILL BE APPLIED ONLY BY PERSONNEL WITH ALL CURRENT AND APPLICABLE APPLICATOR LICENSING FROM THE STATE OF ARIZONA. HERBICIDES SHALL BE APPLIED ACCORDING TO MANUFACTURER'S LABEL, AND ALL APPLICABLE SAFE-HANDLING MEASURES SHALL BE FOLLOWED.
3. THE RESTORATION SITE WILL BE MONITORED FOR INVASIVE SPECIES FOR FIVE YEARS FOLLOWING CONSTRUCTION. AREAS THAT HAVE BEEN TREATED FOR INVASIVE SPECIES SHOULD BE CLOSELY MONITORED FOR RESPROUTING AND/OR SEEDLING GERMINATION; APPROPRIATE CONTROL METHODS SHOULD BE PROMPTLY APPLIED. THE RESTORATION AREA'S COVER OF INVASIVE NON-NATIVE PLANT SPECIES WILL NOT EXCEED AN ABSOLUTE VALUE OF 5 PERCENT.

INVASIVE SPECIES MANAGEMENT TABLE

SPECIES	MECHANICAL TREATMENT	CHEMICAL TREATMENT	TIMING	IMPORTANT CONSIDERATIONS
BUFFELGRASS	REMOVE INDIVIDUAL PLANTS BY SHOVEL OR DIGGING BAR IMMEDIATELY. INFLORESCENCES SHOULD BE CLIPPED AND SECURELY BAGGED PRIOR TO DIGGING TO REDUCE THE NUMBER OF SEEDS THAT ESCAPE.	GLYPHOSATE	TREAT WITH GLYPHOSATE WHILE PLANT IS ACTIVELY GROWING.	FOLLOW UP CONTROL SHOULD OCCUR AT LEAST TWICE PER YEAR
BERMUDA GRASS	MULCHING OR SOLARIZATION	GLYPHOSATE	MULCHING/SOLARIZATION METHODS MUST OCCUR DURING HOT SUMMER MONTHS. GLYPHOSATE APPLICATION SHOULD OCCUR DURING VIGOROUS ACTIVE GROWTH.	FOLLOW UP CONTROL SHOULD OCCUR AT LEAST TWICE PER YEAR
LEHMANN'S LOVEGRASS	REMOVE INDIVIDUAL PLANTS BY SHOVEL OR DIGGING BAR.	SPOT APPLICATIONS OF HERBICIDES MAY BE USED AS DEEMED NECESSARY		
FOUNTAIN GRASS	REMOVE INDIVIDUAL PLANTS BY SHOVEL OR DIGGING BAR IMMEDIATELY. INFLORESCENCES SHOULD BE CLIPPED AND SECURELY BAGGED PRIOR TO DIGGING TO REDUCE THE NUMBER OF SEEDS THAT ESCAPE.	GLYPHOSATE	TREAT WITH GLYPHOSATE WHILE PLANT IS ACTIVELY GROWING.	FOLLOW UP CONTROL SHOULD OCCUR AT LEAST TWICE PER YEAR

SCALE: 1" = 30'

NO.	BY	DATE	REVISION

REGISTERED LANDSCAPE ARCHITECT CERTIFICATE NO. 36734 MARK E. FELLINGER Date 7/24/19 Signed ARIZONA USA

M. Fellinger

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DESIGNED:	MEF	DATE: 7/19	CHECKED BY:
DRAWN:	MEF	DATE: 7/19	APPROVED BY:

WASH RESTORATION PLANS PREPARED FOR:
MASTER SUBMITTAL

MILLER RANCH

BEING A PORTION OF THE SOUTHEAST QUARTER OF SECTION 34, TOWNSHIP 11 SOUTH, RANGE 13 EAST GILA & SALT RIVER MERIDIAN, PIMA COUNTY, ARIZONA

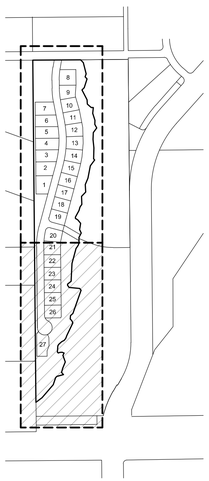
OV1802195

REFERENCE:
OV914-006, OV1113-003, OV114-020, OV1208-07, OV1208-7A, OV904-02, OV1800713, OV1702695, (O)18-09, (R)14-10

WP-02

SCALE : N/A

SHEET 3 OF 14



SHEET INDEX

MATCHLINE 'A' - THIS SHEET

MATCHLINE - SEE SHEET WP-04

SCALE: 1" = 30'

CA 'A-2'

CA 'C-2'

CA 'B'

27

21

22

23

24

25

26

BASIN 4
7 cfs

BASIN 3
2 cfs

BASIN 5
2 cfs

BASIN 6
3 cfs

A WD-01 WATER HARVESTING AREA.

B WD-01 5' WIDE PEDESTRIAN TRAIL, TYP.

C WD-01 SEATING AREA, TYP.

RETAINING WALL PER GRADING PLAN, TYPICAL

100-YEAR FLOOD LIMIT

10-YEAR FLOOD LIMIT

PHASE 1

PHASE 2

2790

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PHASE 2 SHALL BE COMPLETED WITH FUTURE COMMERCIAL AND TECH. PARK DEVELOPMENT.

TANGERINE ROAD

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1	MEF	1-12-15	REVISIONS PER OV914-006 REVIEW COMMENTS
2	MEF	2-13-18	REVISIONS TO REFLECT LEMAN AS-BUILT CONDITIONS AND PROPOSED RESIDENTIAL IMPROVEMENTS
3	MEF	7-24-18	ADDED PHASE LINE

REGISTERED LANDSCAPE ARCHITECT
CERTIFICATE #
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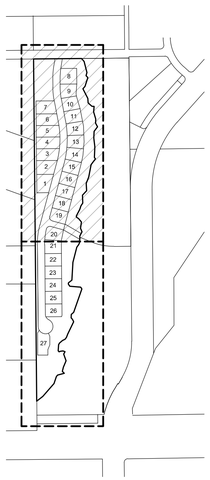
WP-03

SCALE : 1" = 30'

SHEET 4 OF 14



SHEET INDEX

MATCHLINE 'B' - THIS SHEET

MATCHLINE - SEE SHEET WP-03

MATCHLINE 'B' - THIS SHEET

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WP-04

SCALE : 1" = 30'

SHEET 5 OF 14

IRRIGATION NOTES

WATER SOURCE

1. THE IRRIGATION P.O.C. SHALL BE AT NEW RECLAIMED WATER METER AS SHOWN. VERIFIY LOCATION IN FIELD.
2. THE IRRIGATION SYSTEM IS DESIGNED TO OPERATE AT 50 PSI AT THE POINT OF CONNECTION. THE IRRIGATION SYSTEM IS DESIGNED TO OPERATE WITH ONLY ONE VALVE OPEN AT A TIME.
3. THE CONTRACTOR SHALL VERIFY THE WATER PRESSURE IN THE FIELD PRIOR TO PURCHASE OF ANY EQUIPMENT AND PERFORMING ANY INSTALLATIONS, IF THE PRESSURE IS NOT AS STATED ABOVE, THE CONTRACTOR SHALL CONTACT THE LANDSCAPE ARCHITECT FOR INSTRUCTIONS BEFORE PROCEEDING. PROCUREMENT AND/OR INSTALLATION OF ANY IRRIGATION EQUIPMENT WITHOUT VERIFICATION OF SATISFACTORY WATER PRESSURE SHALL BE AT THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
4. ALL WATER USE FOR LANDSCAPE IRRIGATION AND ENHANCEMENT SHALL CONFORM TO THE ARIZONA GROUNDWATER CODE, ARIZONA REVISED STATUTES TITLE 45, CHAPTER 2.

GENERAL

1. DRAWINGS ARE DIAGRAMMATIC. THE SCALE OF THE PLANS SOMETIMES MAKES IT NECESSARY TO SHOW IRRIGATION PIPELINES WITHIN BUILDINGS, WALKS OR OTHERWISE OUTSIDE OF PLANTING AREAS. THIS IS ONLY FOR CLARITY OF THE PLANS. ALL IRRIGATION EQUIPMENT SHALL BE INSTALLED IN PLANTER AREAS WHEREVER POSSIBLE.
2. UNLESS OTHERWISE SPECIFIED ON THE PLANS: ALL LATERAL END RUNS ARE TO BE 3/4"; MAINLINE IS TO BE TO BE 1" UNLESS OTHERWISE SPECIFIED ON PLAN; ALL PIPE SHALL BE DOWNSIZED IN DIRECTION OF FLOW ONLY.
3. THE CONTRACTOR SHALL NOT INSTALL THE IRRIGATION SYSTEM AS SHOWN ON THE PLANS WHEN IT IS OBVIOUS THAT FIELD CONDITIONS SUCH AS OBSTRUCTIONS, GRADING DIFFERENCES OR DIFFERENCES IN SIZE AND SHAPE OF THE PLANTED AREAS MAY NOT HAVE BEEN ACCOMMODATED IN THE ORIGINAL DESIGN. THE CONTRACTOR SHALL NOTIFY THE LANDSCAPE ARCHITECT OF SUCH CHANGE IN FIELD CONDITIONS. IF NOTIFICATION IS NOT PERFORMED, THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE INSTALLATION AND FOR THE NEED OF ANY SUBSEQUENT REVISIONS.
4. ALL PIPE LINES AND CONTROL WIRES CROSSING UNDER PAVING SHALL BE SLEEVED. SLEEVES SHALL BE PVC SCH 40 PIPE WITH BELLED ENDS AND SHALL BE TWO TIMES THE DIAMETER OF THE SLEEVED PIPE OR WIRE BUNDLE (2" MINIMUM). CONTROL WIRE TO BE SLEEVED SEPARATELY FROM PIPE.
5. IN CASE OF POSSIBLE CONTROL WIRE FAILURE OR FUTURE EXPANSION, THE CONTRACTOR SHALL INSTALL A MINIMUM OF TWO SPARE CONTROL WIRES FROM THE CONTROLLER TO THE FARTHEST VALVE IN EACH CONTROLLER SERVICE AREA. ADDITIONALLY SPARE WIRE FROM ALL EMPTY STATIONS SHALL BE INSTALLED SIMILARLY. ALL SPARE WIRES SHALL PASS THROUGH ALL VALVE BOXES ALONG THE MAINLINE ROUTE. THESE WIRES SHALL BE A DIFFERENT COLOR FROM OTHER CONTROL WIRES AND BE LABELED AS SPARE AT THE CONTROLLER CABINET, IN THE VALVE BOX OF THE FARTHEST VALVE, AND AT ALL OTHER VALVE BOXES.
6. CONTRACTOR SHALL VERIFY LOCATION OF ALL UNDERGROUND UTILITIES WITHIN WORK AREA PRIOR TO START OF CONSTRUCTION. AT LEAST TWO WORKING DAYS PRIOR TO EXCAVATION, THE CONTRACTOR SHALL REQUEST MARKOUT OF UNDERGROUND UTILITIES BY CALLING BLUESTAKE AT 1-800-782-5348. THE CONTRACTOR SHALL ALSO REFER TO ALL OTHER IMPROVEMENT PLANS FOR THIS PROJECT FOR UTILITY LOCATIONS.

CONTROLS

1. SYSTEMS OF THIS PROJECT ARE CONTROLLED BY SOLID STATE, COMPUTER IRRIGATION CONTROLLERS. THE CONTRACTOR SHALL EXERCISE STRICT COMPLIANCE WITH THE MANUFACTURERS' INSTRUCTIONS FOR INSTALLATION AND GROUNDING.
2. CONTROLLER LOCATION IS SHOWN DIAGRAMMATICALLY. FINAL LOCATION TO BE APPROVED BY THE OWNER'S REPRESENTATIVE. POWER SHALL BE PROVIDED BY OTHERS (SEE ELECTRICAL AND/OR ARCHITECTURAL DRAWINGS). THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONNECTION OF POWER TO THE CONTROLLER IN COMPLIANCE TO ALL GOVERNING CODES.

EMITTERS

1. INSTALL 3/4" EMITTER TUBING WITH DRIP EMITTERS AS REQUIRED TO PROVIDE IRRIGATION TO ALL NEW SHRUBS AND TREES (EXCEPT CACTUS) AS SHOWN ON PLANTING PLAN.
2. LAYOUT EMITTER TUBING PARALLEL TO TOPOGRAPHY WHEREVER POSSIBLE. INSTALL AUTOMATIC FLUSH TYPE END CAP AT ENDS OF ALL 3/4" LINES AND FLUSH THOROUGHLY BEFORE INSTALLING EMITTERS.
3. INSTALL ONE SINGLE OUTLET EMITTER AT EACH SHRUB. MULTI-OUTLET EMITTERS MAY BE SUBSTITUTED FOR INDIVIDUAL EMITTERS.
4. INSTALL ONE MULTI-OUTLET EMITTER (6 PORT) AT EACH TREE. LOCATE TWO (2) OF THE OUTLET POINTS AT 12" FROM THE TREE TRUNK AND LOCATE FOUR (4) OUTLET POINTS AT 30" FROM THE TREE TRUNK. SPACE OUTLET POINTS EVENLY AROUND THE TREE.
5. USE SHORT PIECES OF 1/4" DISTRIBUTION TUBING (MAXIMUM LENGTH 8') TO EXTEND EMITTERS TO EACH ROOTBALL. HOLD IN PLACE WITH STAKES.

TOWN OF ORO VALLEY IRRIGATION 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 IN ACCORDANCE WITH SEC. 27.6.E.4., MAINTENANCE.
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 ORO VALLEY TOWN 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.

IRRIGATION EQUIPMENT LEGEND

SYMBOL	DESCRIPTION	MANUFACTURER / MODEL	REMARKS
M	NEW 1" RECLAIMED WATER METER		SEE WATER PLAN
C	AUTOMATIC CONTROLLER	HUNTER ICC-800-SS WITH PED-SS AND PWB	
BP	BACKFLOW PREVENTION ASSEMBLY	2" FEBCO 825Y	
	REMOTE CONTROL VALVE ASSEMBLY	(1) RAINBIRD 2" PESB SERIES VALVE (1) RAINBIRD RBY100MPTX FILTER, OR EQUAL (1) BALL VALVE, NIBCO OR EQUAL	INSTALL IN JUMBO VALVE BOX. COLOR: PURPLE
	IN-LINE PRESSURE REGULATOR	RAINBIRD PSI-L30X-075, OR EQ.	
	QUICK COUPLER	RAINBIRD 33-DNP, OR EQUAL	INSTALL IN 10" ROUND VALVE BOX. COLOR: PURPLE
	BALL VALVE	NIBCO, OR EQUAL	LINE SIZE, INSTALL IN 10" ROUND VALVE BOX. COLOR: PURPLE
	PVC MAINLINE PIPE	AS APPROVED	PVC SCH 40, PURPLE, SIZE PER PLAN
	PVC LATERAL LINE PIPE	AS APPROVED	PVC CLASS 200,PURPLE, SIZE PER PLAN, 1" MINIMUM
	PVC SLEEVE	AS APPROVED	PVC SCH 40; TWO TIMES DIA. OF PIPE OR WIRE BUNDLE. (4" MIN.)
	3/4" POLYETHYLENE LATERAL	AS APPROVED	EXTEND FROM PRESSURE REGULATORS TO WITHIN 8' OF EACH TREE AND SHRUB.
NOT SHOWN	SINGLE OUTLET EMITTER	RAINBIRD XB-10, OR EQUAL	
NOT SHOWN	MULTI-OUTLET EMITTER	RAINBIRD XB-10-6, OR EQUAL	INSTALL IN 6" ROUND VALVE BOX. COLOR: PURPLE
	AUTOMATIC FLUSH CAP	API MODEL FCH, OR EQUAL	INSTALL IN 6" ROUND VALVE BOX. COLOR: PURPLE

VALVE KEY

A - *
SIZE
GPM
TREE

- STATION NUMBER
- VALVE SIZE
- FLOW (GPM)
- PLANTING TYPE

EMITTER SCHEDULE

SPECIES	EMITTER FLOW (GPH)	# OF EMITTERS PER PLANT
24" BOX TREE	1.0	12
15 GAL. TREE	1.0	6
5 GAL. SHRUB	1.0	2
1 GAL. SHRUB	1.0	1

LANDSCAPE WATER PLAN

JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC

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. (average monthly water use = 130,600 gal/month)

59,558 76,799 122,252 163,002 200,618 213,157 183,377 161,435 145,762 115,982 73,664 51,722

TOTAL (100% ADWR) 1,567,328

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. (to reach 75% ADWR by end of year, average monthly water use = 98,000 gal/month)

44,669 57,599 91,689 122,252 150,463 159,867 137,533 121,076 109,321 86,987 55,248 38,791

TOTAL (75% ADWR) 1,175,496

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 = 65,300 gal/month)

29,779 38,400 61,126 81,501 100,309 106,578 91,689 80,717 72,881 57,991 36,832 25,861

TOTAL (50% ADWR) 783,664

LANDSCAPE WATER PLAN BASE IRRIGATION SCHEDULE

PLANT TYPE	YEAR	AVERAGE # OF IRRIGATION DAYS PER MONTH	RUN TIME PER IRRIGATION DAY	AVERAGE TOTAL WATER USE PER MONTH	AVERAGE TOTAL WATER USE PER YEAR
TREES	3	8	120 MIN.	130,610 GAL.	1,567,328 GAL.
SHRUBS		16	60 MIN.		
TREES	4	4	120 MIN.	97,958 GAL.	1,175,496 GAL.
SHRUBS		12	60 MIN.		
TREES	5	2	120 MIN.	65,305 GAL.	783,664 GAL.
SHRUBS		8	60 MIN.		

LATERAL PIPE SIZING CHART:

SCH 40 PIPE	GPM
3/4"	0-7
1"	8-11
1-1/4"	12-21
1-1/2"	22-29
2"	30-49
2-1/2"	50-75

SLEEVING SCHEDULE

PIPE SIZE	SLEEVE SIZE
3/4"	2"
1"	2-1/2"
1-1/4"	3"
1-1/2"	4"
2"	4"
2-1/2"	6"
3"	6"

NO. | BY | DATE | REVISION

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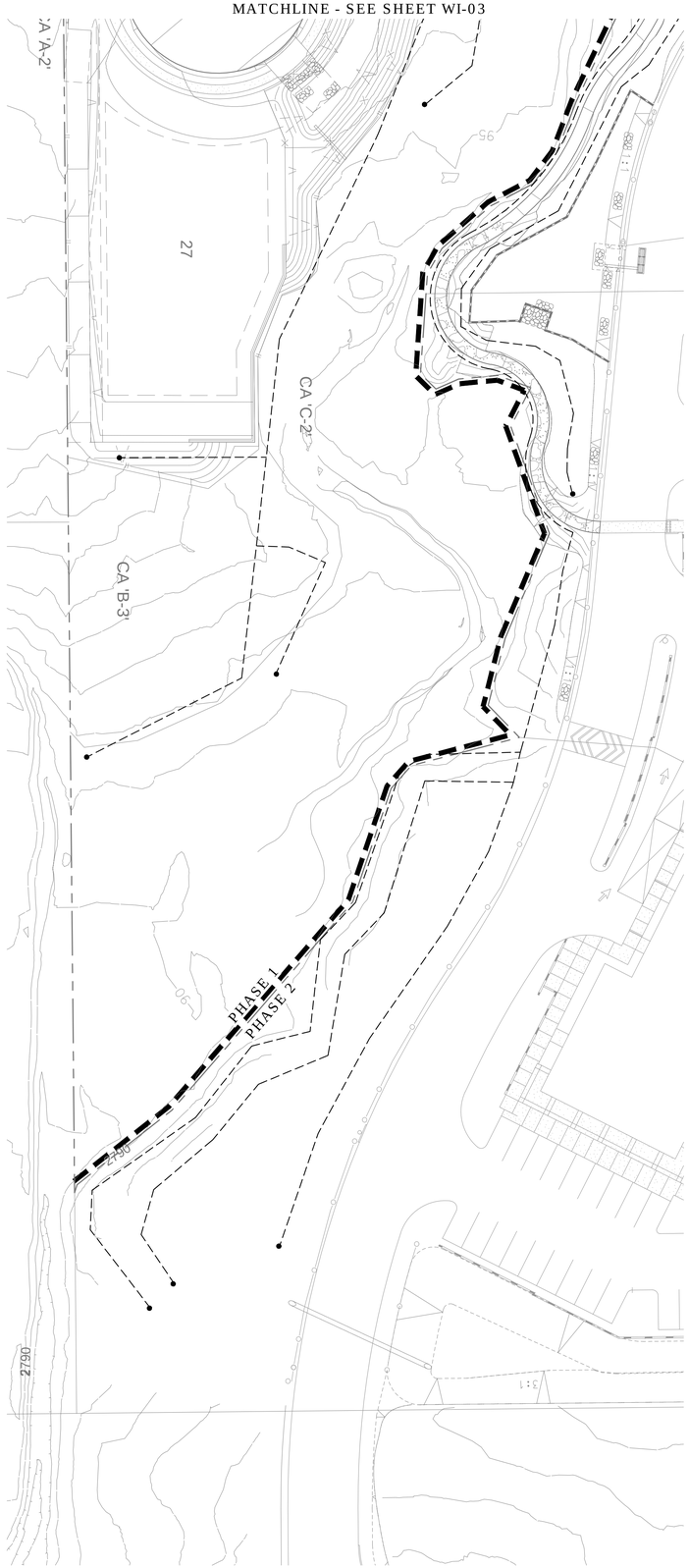
WI-01

SCALE : N/A

SHEET 6 OF 14

MATCHLINE - SEE SHEET WI-03



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WI-02

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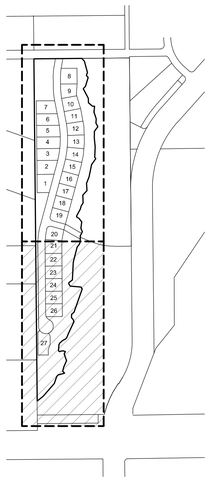
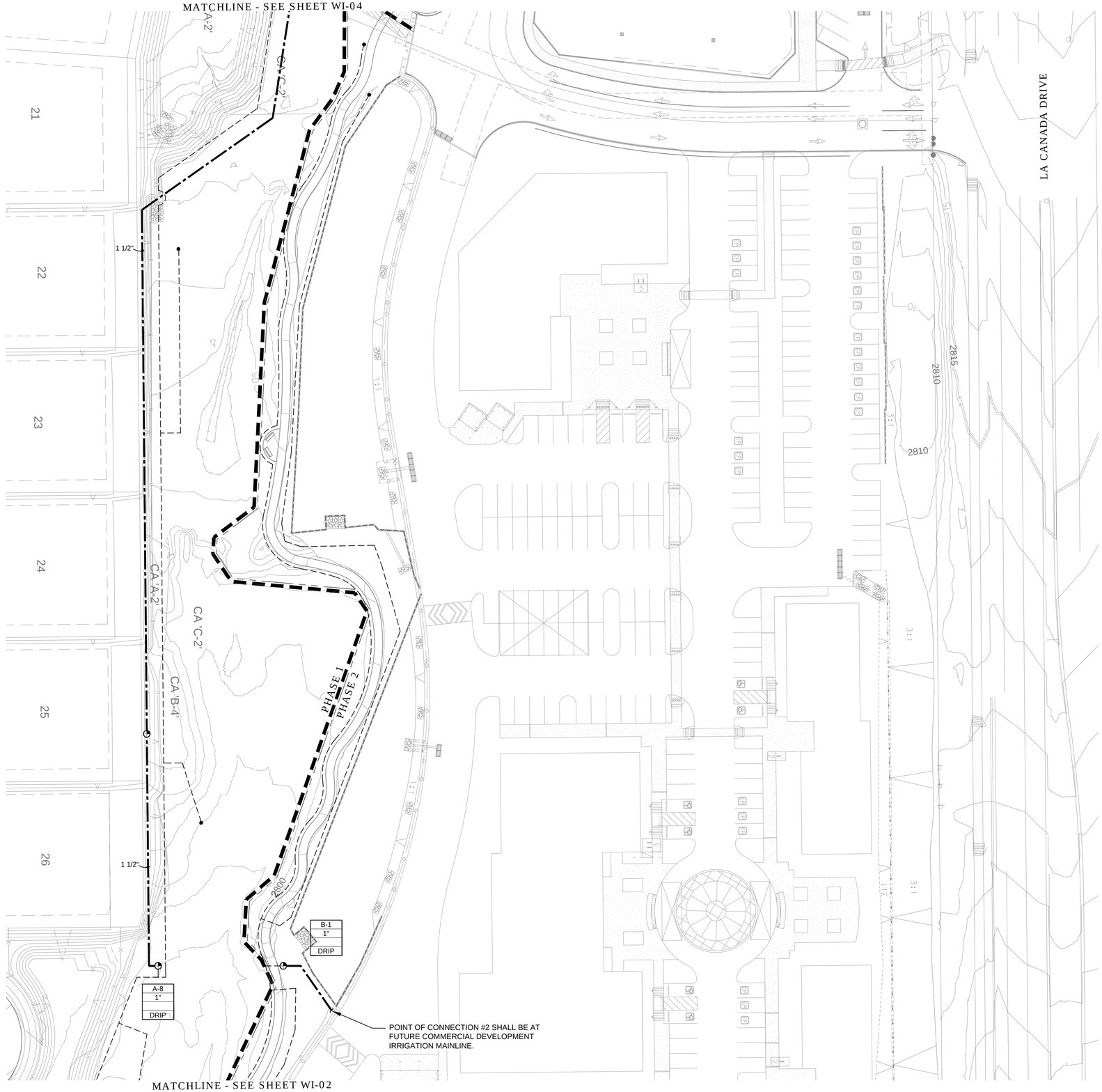


SHEET INDEX

MATCHLINE - SEE SHEET WI-04



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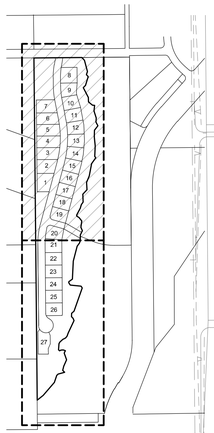

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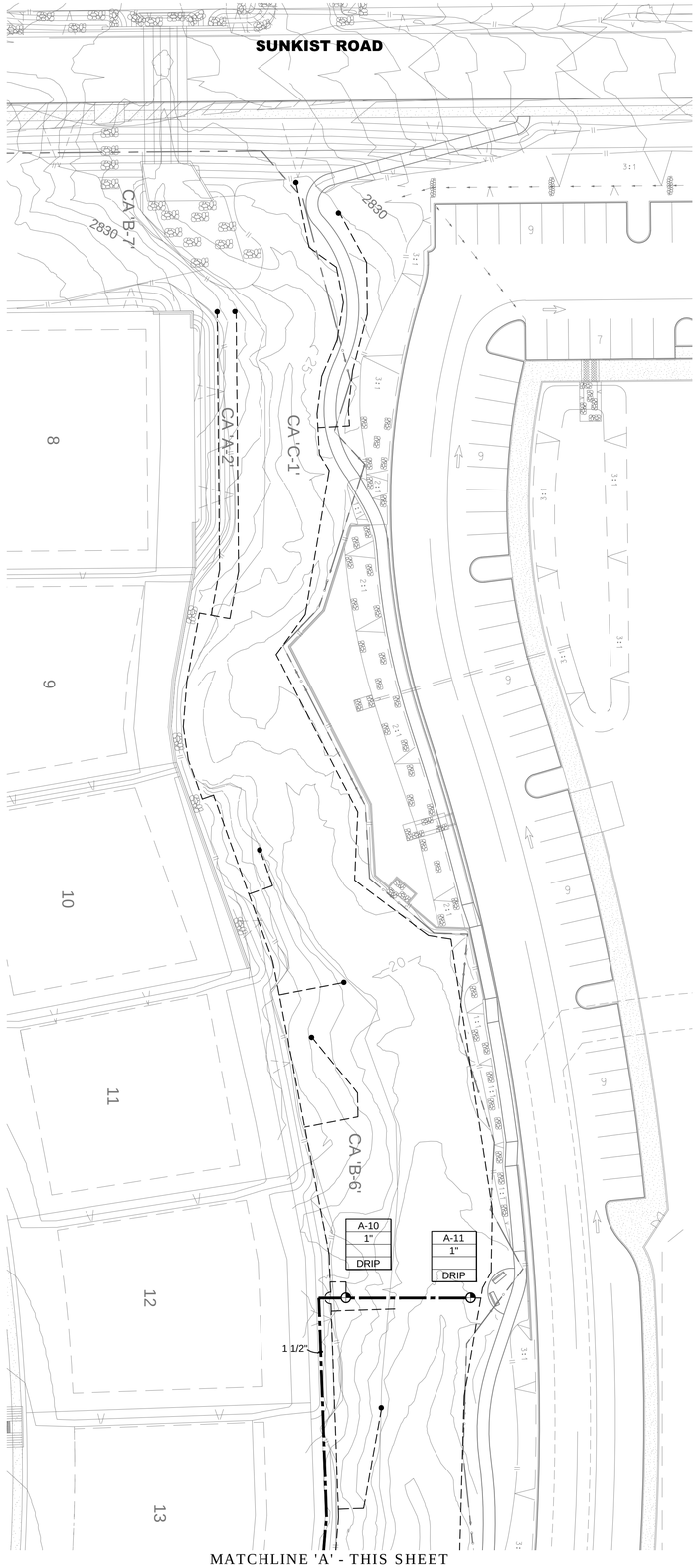

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DESIGNED:	MEF	DATE: 7/19	CHECKED BY: DATE:
DRAWN:	MEF	DATE: 7/19	APPROVED BY: DATE:

WASH RESTORATION PLANS PREPARED FOR:
MASTER SUBMITTAL

MILLER RANCH

BEING A PORTION OF THE SOUTHEAST QUARTER OF SECTION 34, TOWNSHIP 11 SOUTH, RANGE 13 EAST GILA & SALT RIVER MERIDIAN, PIMA COUNTY, ARIZONA

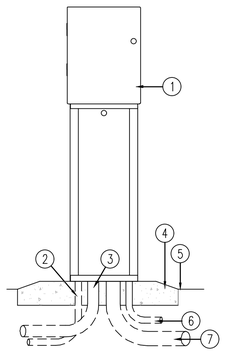
OV1802195

REFERENCE:
OV914-006, OV1113-003, OV114-020, OV1208-07, OV1208-7A, OV904-02, OV1800713, OV1702695, (O)18-09, (R)14-10

WI-04

SCALE : 1" = 30'

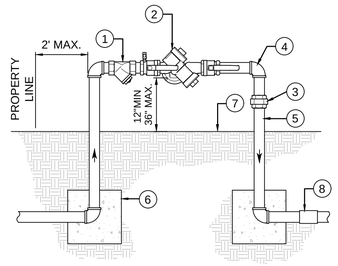
SHEET 9 OF 14



1. ENCLOSURE AND AUTOMATIC CONTROLLER PER IRRIGATION LEGEND
2. 3/4" POWER CONDUIT: SIZE, TYPE, DEPTH PER LOCAL CODE
3. GROUND WIRE CONDUIT, MIN. 1-1/2". GROUND PER ASIC GUIDELINES
4. 6" THICK FORMED AND POURED-IN-PLACE CONCRETE BASE
5. FINISH GRADE
6. CONDUIT FOR GCBL WIRING
7. CONDUIT FOR DECODER WIRES

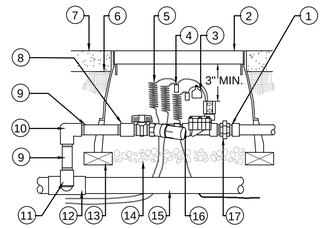
NOTES:
1. SEE INSTRUCTION MANUAL FOR MOUNTING INSTRUCTIONS.
2. ALL WIRING SHALL BE INSTALLED PER LOCAL CODES.
3. 120 VOLT POWER TO BE SUPPLIED BY OWNER.

A IRRIGATION CONTROLLER
NOT TO SCALE



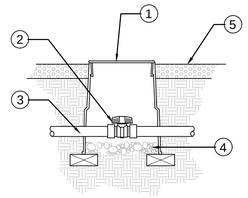
1. WYE STRAINER (LINE SIZE), SEE LEGEND
2. REDUCED PRESSURE BACKFLOW DEVICE WITH 2 BALL VALVES, REFER TO PLAN FOR TYPE AND SIZE OF EQUIPMENT
3. BRASS UNION
4. BRASS ELL (TYPICAL)
5. BRASS NIPPLE, TYPICAL
6. 1 CU. FT. CONCRETE THRUST BLOCKS, TYPICAL. WRAP PIPES W/ 10 MIL. TAPE. SATURATE AND COMPACT SUB-GRADE TO 90% PRIOR TO POUR.
7. FINISH GRADE
8. PVC MALE ADAPTER

B BACKFLOW PREVENTION DEVICE
NOT TO SCALE



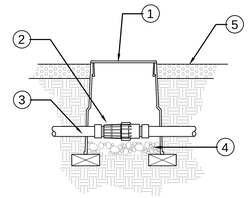
1. PVC SCH. 80 NIPPLE (CLOSE)
2. VALVE BOX W/ COVER: 24" SIZE (PURPLE)
3. ID TAG
4. WATER PROOF CONNECTION (1 OF 2)
5. 30-INCH LINEAR LENGTH OF WIRE, COILED
6. FINISH GRADE
7. TOP OF MULCH
8. PVC SCH. 40 COUPLING
9. PVC SCH. 80 NIPPLE (LENGTH AS REQ'D)
10. PVC SCH. 40 ELL
11. PVC SCH. 80 NIPPLE (2" LENGTH, HIDDEN) AND PVC SCH. 40 ELL
12. PVC SCH. 40 TEE OR ELL
13. BRICK (1 OF 4)
14. 3" MIN. DEPTH OF 3/4" WASHED GRAVEL
15. PVC MAINLINE, SIZE PER PLANS
16. DRIP VALVE ASSEMBLY PER LEGEND
17. PVC SCH. 80 UNION FOR SERVICING ASSEMBLY
20. PVC SCH. 40 MALE ADAPTER

C REMOTE CONTROL VALVE (DRIP)
NOT TO SCALE



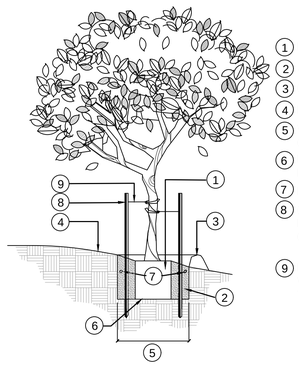
1. 6" ROUND VALVE BOX (PURPLE)
2. BALL VALVE PER LEGEND
3. LATERAL LINE (PURPLE)
4. 3" MIN. DEPTH OF 3/4" WASHED GRAVEL
5. FINISH GRADE OF DG.

D BALL VALVE
NOT TO SCALE



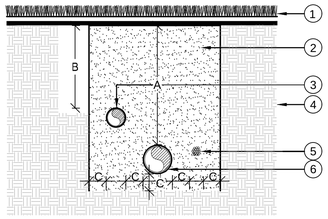
1. 6" ROUND VALVE BOX (PURPLE)
2. PRESSURE REGULATOR PER LEGEND
3. LATERAL LINE (PURPLE)
4. 3" MIN. DEPTH OF 3/4" WASHED GRAVEL
5. FINISH GRADE OF DG.

E PRESSURE REGULATOR
NOT TO SCALE



1. ROOTBALL
2. AMENDED BACKFILL MIX
3. 6" HIGH BERM/MICRO BASIN
4. FINISH GRADE
5. WIDTH TWICE DIAMETER OF ROOTBALL
6. PLACE ROOTBALL ON NATURAL GRADE
7. FERTILIZER TABLETS
8. (2) 2" DIA. X 10' LONG, LODGE POLES, PLACE OUTSIDE ROOTBALL
9. BLACK PLASTIC CINCH-TIE WITH ONE TWIST NAILED TO STAKES

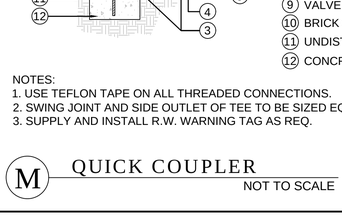
F TREE PLANTING ON SLOPE
NOT TO SCALE



1. FINISH GRADE
2. CLEAN COMPACTED BACKFILL
3. LATERAL LINES, SEE SPECS.
4. UNDISTURBED SOIL
5. CONTROL WIRES, SEE SPECS.
6. PRESSURE MAINLINE, SEE SPECIFICATIONS

DIMENSION	A	B	C
1/2" TO 2-1/2" SIZE	18"	12"	4"
3" IN SIZE	24"		4"
4" AND LARGER	36"		4"

G TRENCHING
NOT TO SCALE

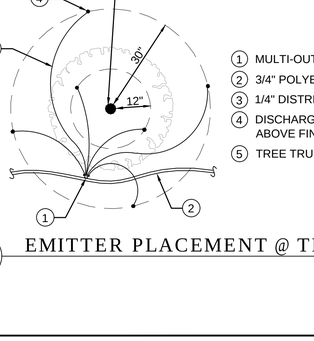


1. PAVING
2. SAND BACKFILL COMPACTED TO THE DENSITY OF EXISTING SOIL
3. LATERAL LINE SEE LEGEND FOR SPECS
4. CONTROL WIRE SEE LEGEND FOR SPECS
5. UNDISTURBED SOIL
6. MAINLINE SLEEVE, SEE LEGEND FOR SPECS

DIMENSION- PEDESTRIAN	A	B	C	D
2" TO 12" SIZE	30"	24"	12"	4"
DIMENSION- VEHICLE	A	B	C	D
2" TO 12" SIZE	36"	30"	24"	4"

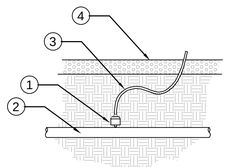
NOTES:
1. ALL SLEEVES TO BE PVC SCH. 40 PIPE.
2. ALL SLEEVES TO BE SIZED TWICE THE DIA. OF THE WORKING PIPE.
3. ALL SLEEVES TO RUN A MIN. OF 12" BEYOND HARDSCAPE EDGES.
4. WRAP #12 GALVANIZED WIRE AROUND EACH END OF SLEEVE (10 WRAPS MIN.) AND EXTEND TO SURFACE AS A LOCATING DEVICE.

H SLEEVING
NOT TO SCALE



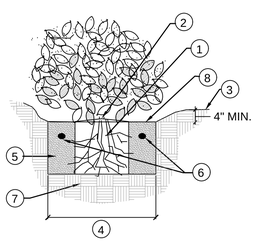
1. 6" ROUND VALVE BOX (PURPLE)
2. MULTI-OUTLET DRIP EMITTER PER LEGEND
3. 3/4" POLYETHYLENE LATERAL
4. 1/4" DISTRIBUTION TUBING
5. 3" MIN. DEPTH OF 3/4" WASHED GRAVEL
6. FINISH GRADE

I MULTI-OUTLET DRIP EMITTER
NOT TO SCALE



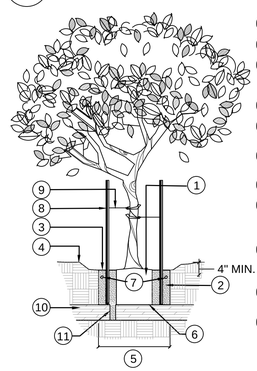
1. SINGLE OUTLET DRIP EMITTER PER LEGEND
2. 3/4" POLYETHYLENE LATERAL
3. 1/4" DISTRIBUTION TUBING
4. FINISH GRADE

J SINGLE OUTLET DRIP EMITTER
NOT TO SCALE



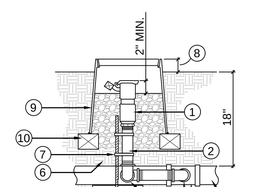
1. ROOTBALL
2. CROWN 1" ABOVE FINISH GRADE
3. FINISH GRADE
4. 2 X ROOTBALL DIAMETER
5. BACKFILL (SEE SPECS)
6. PLANT TABLETS (SEE SPECS)
7. UNDISTURBED NATIVE SOIL
8. PLANTING BASIN DEPRESSED A MINIMUM OF 4" FROM FINISHED GRADE.

K SHRUB PLANTING
NOT TO SCALE



1. ROOTBALL
2. AMENDED BACKFILL MIX
3. PLANTING BASIN DEPRESSED A MINIMUM OF 4" FROM FINISHED GRADE.
4. FINISH GRADE
5. WIDTH TWICE DIAMETER OF ROOTBALL
6. PLACE ROOTBALL ON NATURAL GRADE
7. FERTILIZER TABLETS
8. (2) 2" DIA. X 10' LONG, LODGE POLES, PLACE OUTSIDE ROOTBALL
9. BLACK PLASTIC CINCH-TIE WITH ONE TWIST NAILED TO STAKES
10. HARDPAN OR CALICHE SOIL LAYER
11. DRILL 8" DIAMETER CHIMNEY DRAINAGE HOLE TO THE SIDE OF ROOTBALL IF HARDPAN OR CALICHE SOIL LAYER IS ENCOUNTERED.

L TREE PLANTING
NOT TO SCALE



1. QUICK COUPLER VALVE.
2. BRASS RISER L.A.R. (SIZE EQUAL TO QCV INLET).
3. SWING JOINT (2 SCH 80 ST ELLS; 1 SCH 80 T X T ELL; 1 SCH 80 NIPPLE).
4. PVC TEE (SST) OR EL (ST) ON PRESS MAIN.
5. PVC PRESSURE MAIN. (PURPLE)
6. PEA GRAVEL SUMP WITHIN BOX.
7. 1/2"x36" SCH 40 GALV STEEL PIPE STAKE AND 2 STAINLESS STEEL TIES.
8. FLUSH IN TURF; 2" IN IN SHRUB AREA
9. VALVE BOX. (PURPLE)
10. BRICK OR CONCRETE SUPPORTS (TYP).
11. UNDISTURBED/COMPACTED SUBGRADE.
12. CONCRETE FOOTING (12"x12"x12").

NOTES:
1. USE TEFLON TAPE ON ALL THREADED CONNECTIONS.
2. SWING JOINT AND SIDE OUTLET OF TEE TO BE SIZED EQUAL TO QCV INLET.
3. SUPPLY AND INSTALL R.W. WARNING TAG AS REQ.

M QUICK COUPLER
NOT TO SCALE

1. MULTI-OUTLET DRIP EMITTER
2. 3/4" POLYETHYLENE LATERAL
3. 1/4" DISTRIBUTION TUBING
4. DISCHARGE POINT, TO BE 1" ABOVE FINISH GRADE
5. TREE TRUNK

N EMITTER PLACEMENT @ TREES
NOT TO SCALE

REVISION	NO.	BY	DATE

REGISTERED LANDSCAPE ARCHITECT — CERTIFICATE NO. 36734 — MARK E. FELLINGER — Date Signed 7/24/19 — ARIZONA USA

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WASH RESTORATION PLANS PREPARED FOR:
MASTER SUBMITTAL

MILLER RANCH

BEING A PORTION OF THE SOUTHEAST QUARTER OF SECTION 34, TOWNSHIP 11 SOUTH, RANGE 13 EAST GILA & SALT RIVER MERIDIAN, PIMA COUNTY, ARIZONA

OV1802195
REFERENCE:
OV914-006, OV1113-003, OV114-020, OV1208-07, OV1208-7A, OV904-02, OV1800713, OV1702695, (O)18-09, (R)14-10

WD-01

SCALE : NTS

SHEET10 OF 14

IRRIGATION SPECIFICATIONS

SECTION 02810 - IRRIGATION SYSTEM

PART 1 - GENERAL

1.1. RELATED DOCUMENTS:

1.1.1. DRAWINGS AND GENERAL PROVISIONS OF CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND DIVISION-1 SPECIFICATION SECTIONS, APPLY TO WORK OF THIS SECTION.

1.1.2. THE WATER AGENCIES' STANDARD SPECIFICATIONS SECTION 15152, RECYCLED WATER FACILITIES (ONSITE), SHALL APPLY TO THE WORK IN THIS SECTION. IN THE EVENT OF ANY CONFLICT, THE WATER AGENCIES' STANDARD SPECIFICATIONS SECTION 15152, RECYCLED WATER FACILITIES (ONSITE) SHALL SUPERCEDE THESE SPECIFICATIONS.

1.2. REQUIREMENTS:

1.2.1. ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH THE UNIFORM PLUMBING CODE PUBLISHED BY THE WESTERN PLUMBING OFFICIALS ASSOCIATION, ALL STATE AND LOCAL CODES AND REGULATIONS. SHOULD THE CONSTRUCTION DOCUMENTS OR INSTRUCTIONS BE AT VARIANCE WITH THE AFOREMENTIONED RULES AND REGULATIONS, NOTIFY THE MUNICIPAL WATER DISTRICT AND AWAIT THEIR INSTRUCTIONS BEFORE PROCEEDING WITH THE WORK EFFECTED.

1.2.2. MANUFACTURER'S DIRECTIONS: MANUFACTURER'S DIRECTIONS AND DETAILED DRAWINGS SHALL BE FOLLOWED IN ALL CASES WHERE THE MANUFACTURER OR ARTICLES USED IN THIS CONTRACT FURNISH DIRECTIONS COVERING POINTS NOT SHOWN IN THE DRAWINGS AND SPECIFICATIONS.

1.2.3. MANUFACTURER'S WARRANTIES: MANUFACTURER'S WARRANTIES SHALL NOT RELIEVE LIABILITIES UNDER GUARANTEE.

1.2.4. ALL WORK CALLED FOR ON THE DRAWINGS BY NOTES SHALL BE FURNISHED AND INSTALLED WHETHER OR NOT SPECIFICALLY NOTED IN THE SPECIFICATIONS. DO NOT WILLFULLY INSTALL THE IRRIGATION SYSTEM AS INDICATED ON THE DRAWINGS WHEN IT IS OBVIOUS IN THE FIELD THAT UNKNOWN OBSTRUCTIONS OR GRADE DIFFERENCES EXIST THAT MIGHT NOT HAVE BEEN CONSIDERED IN THE IRRIGATION DESIGN, OR IF DISCREPANCIES IN THE CONSTRUCTION DETAILS, LEGEND, OR SPECIFIC NOTES ARE DISCOVERED. ALL SUCH OBSTRUCTIONS OR DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT. IN THE EVENT THAT THIS IS NOT DONE, THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR THE NECESSARY REVISIONS.

1.2.5. DUE TO THE SCALE OF DRAWINGS, IT IS NOT POSSIBLE TO INDICATE ALL OFFSETS, FITTINGS, SLEEVES, ETC. WHICH MAY BE REQUIRED. THE CONTRACTOR SHALL CAREFULLY INVESTIGATE THE STRUCTURAL AND FINISHED CONDITIONS AFFECTING ALL OF HIS WORK AND PLAN HIS WORK ACCORDINGLY, FURNISHING SUCH FITTINGS, ETC., AS MAY BE REQUIRED TO MEET SUCH CONDITIONS. DRAWINGS ARE GENERALLY DIAGRAMMATIC AND INDICATIVE OF THE WORK TO BE INSTALLED. THE WORK SHALL BE INSTALLED IN SUCH A MANNER AS TO AVOID CONFLICTS BETWEEN IRRIGATION SYSTEMS, PLANTING AND ARCHITECTURAL FEATURES.

1.3. PROTECTION AND DAMAGE:

1.3.1. PROTECT WORK AND MATERIALS FROM DAMAGE DURING CONSTRUCTION AND STORAGE. PVC PIPE AND FITTINGS SHALL BE PROTECTED FROM DIRECT SUNLIGHT.

1.3.2. ASSUME ALL RESPONSIBILITY FOR DAMAGE TO EXISTING CONSTRUCTION AND RESTORE TO ITS ORIGINAL CONDITION SHOULD DAMAGE OCCUR AS A RESULT OF THIS WORK.

1.3.3. CONTRACTOR SHALL SECURELY COVER OPENINGS INTO SYSTEM AND COVER APPARATUSES, EQUIPMENT, AND APPLIANCES BOTH BEFORE AND AFTER BEING SET IN PLACE TO PREVENT OBSTRUCTION IN THE PIPES AND PREVENT BREAKAGE, MISUSE, OR DISFIGUREMENT OF THE APPARATUSES, EQUIPMENT OR APPLIANCES.

1.4. DESCRIPTION OF WORK:

1.4.1. THE WORK CONSISTS OF FURNISHING LABOR, TOOLS, MACHINERY, MATERIALS, AND PROCESSES REQUIRED TO COMPLETE THE IRRIGATION SYSTEM DESCRIBED HEREIN AND SHOWN ON THE DRAWINGS.

1.4.2. THE INTENT OF THE DRAWINGS AND SPECIFICATIONS IS TO INDICATE AND SPECIFY A COMPLETE IRRIGATION SYSTEM, INSTALLED READY FOR USE WITHOUT FURTHER COST IN LABOR OR MATERIALS TO THE OWNER.

1.5. QUALITY ASSURANCE:

1.5.1. SUBCONTRACT WORK TO A SINGLE FIRM SPECIALIZING IN IRRIGATION WORK. CONTRACTOR SHALL POSSESS ALL LICENSES AND PERMITS REQUIRED TO PERFORM THE WORK OF THIS CONTRACT INCLUDING A A-21 LANDSCAPING LICENSE.

1.6. SUBMITTALS:

1.6.1. THE CONTRACTOR SHALL FURNISH THE ARTICLES, EQUIPMENT, MATERIALS OR PROCESSES SPECIFIED BY NAME IN THE DRAWINGS AND SPECIFICATIONS. NO SUBSTITUTION WILL BE ALLOWED WITHOUT PRIOR WRITTEN APPROVAL BY THE LANDSCAPE ARCHITECT, OR THE OWNER'S AUTHORIZED REPRESENTATIVE.

1.6.2. THE CONTRACTOR SHALL SUBMIT TO THE LANDSCAPE ARCHITECT CATALOG DATA AND FULL DESCRIPTIVE LITERATURE FOR APPROVAL OF ITEMS DIFFERENT THAN THOSE SPECIFIED.

1.6.3. EQUIPMENT OR MATERIALS INSTALLED OR FURNISHED WITHOUT THE PRIOR APPROVAL OF THE LANDSCAPE ARCHITECT MAY BE REJECTED AND THE CONTRACTOR MAY BE REQUIRED TO REMOVE SUCH MATERIALS FROM THE SITE AT HIS OWN EXPENSE.

1.6.4. APPROVAL OF ANY ITEM, ALTERNATE OR SUBSTITUTE INDICATES ONLY THAT THE PRODUCT(S) APPARENTLY MEET THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS ON THE BASIS OF THE INFORMATION OR SAMPLES SUBMITTED.

1.6.5. MANUFACTURER'S WARRANTIES SHALL NOT RELIEVE THE CONTRACTOR OF HIS LIABILITY UNDER THE GUARANTEE. SUCH WARRANTY SHALL ONLY SUPPLEMENT THE GUARANTEE.

1.7. GUARANTEE:

1.7.1. FURNISH GUARANTEE IN ACCORDANCE WITH THE GENERAL CONDITIONS, FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF FINAL ACCEPTANCE - AT THE CONCLUSION OF THE MAINTENANCE PERIOD - ON COMPLETE WATER IRRIGATION SYSTEM, INCLUDING NON-SETTLING OF THE BACKFILL IN TRENCHES, WHICH, IF OCCURS, SHALL BE CORRECTED, INCLUDING REPAIRS AND/OR REPLACEMENT OF ANY MATERIAL DAMAGED THEREBY OR THERE FROM.

1.7.2. MANUFACTURER'S WARRANTIES SHALL NOT RELIEVE THE CONTRACTOR OF HIS LIABILITY UNDER THE GUARANTEE. SUCH WARRANTY SHALL ONLY SUPPLEMENT THE GUARANTEE.

PART 2 - PRODUCTS

2.1. MATERIALS:

2.1.1. PRESSURE PIPE: COMPLY WITH FOLLOWING:

2.1.1.1. PVC PLASTIC PRESSURE LINES: FOR PIPING UPSTREAM OF REMOTE CONTROL VALVES AND QUICK COUPLERS. ALL TWO (2) INCHES AND LARGER SHALL BE CLASS 315 POLYVINYL CHLORIDE (PVC) SIMPSON OR APPROVED EQUAL. ALL ONE AND ONE-HALF (1-1/2) INCHES AND SMALLER SHALL BE TYPE I, GRADE 2, DESIGNATED AS PVC 1220, SCHEDULE 40.

2.1.1.2. NON-PRESSURE PIPE: (DOWNSTREAM FROM REMOTE CONTROL VALVES): COMPLY WITH FOLLOWING:

2.1.2. PLASTIC NON-PRESSURE LINES: FOR PIPING DOWNSTREAM OF REMOTE CONTROL VALVES, TYPE 1, GRADE 2 (IMPACT MODIFIED), AS DESIGNATED AS PVC 1220, CLASS 200, (SDR21), CONFORMING TO COMMERCIAL STANDARDS CS256-63.

2.1.3. POLYETHYLENE NON-PRESSURE TUBING: FOR PIPING DOWNSTREAM OF REMOTE CONTROL DRIP VALVES, CONFORMING TO ASTM D-2239 REQUIREMENTS FOR SIDR 19, NSF LISTED. ALL TUBING SHALL BE CONTINUOUSLY AND PERMANENTLY MARKED WITH A PURPLE STRIPE.

2.1.4. PIPE SLEEVES SHALL BE PVC SCHEDULE 40.

2.1.4.1. WHEN ENCLOSING RECYCLED WATER PIPING, THE PVC SLEEVE SHALL ALSO SATISFY THE REQUIREMENTS FOR RECYCLED WATER PIPE:

2.1.5. IDENTIFICATION: FURNISH PLASTIC PIPE CONTINUOUSLY AND PERMANENTLY MARKED WITH FOLLOWING INFORMATION: MANUFACTURER'S NAME OR TRADE MARK, SIZE, CLASS AND TYPE OF PIPE, WORKING PRESSURE AT 73.4 DEGREES F., AND NATIONAL SANITATION FOUNDATION (NSF) RATING.

2.1.6. PIPE SHALL BE PURPLE COLORED PVC MATERIAL MEETING ASTM-D1784, TYPE 1, GRADE 1, PVC-1120 CELL CLASS 12454-B SPECIFICATIONS AS MANUFACTURED BY BROWNLINE INC. OR EQUAL.

2.1.7. ALL PLASTIC PIPE SHALL BE CONTINUOUSLY AND PERMANENTLY MARKED WITH THE FOLLOWING INFORMATION: MANUFACTURER'S NAME, NOMINAL PIPE SIZE, SCHEDULE OR CLASS, PRESSURE RATING IN PSI, NSF APPROVAL AND DATE OF EXTRUSION.

2.1.8. A WARNING MUST BE IMPRINTED ON ALL RECYCLED WATER PRESSURE AND NON-PRESSURE SERVICE PIPES CONTINUOUSLY AND PERMANENTLY ON TWO SIDES WITH THE FOLLOWING INFORMATION IN 5/8" BLACK LETTERS: "CAUTION: RECYCLED WATER - DO NOT DRINK", AND PELIGRO: AGUA IMPURA - NO BEBER".

2.1.9. PIPE SHALL BE SOLID PURPLE-COLORED PVC MATERIAL CONFORMING TO THE FOLLOWING:

2.1.9.1. 75MM (3") OR SMALLER PIPE SHALL CONFORM TO ASTM-D1784, TYPE 1, GRADE 1, PVC-1120 FOR SCHEDULE 40 OR 80, OR ASTM-D2241, TYPE 1, GRADE 1, PVC-1120 FOR SDR RATED PIPE. ENDS SHALL BE SOLVENT WELDED JOINTS CONFORMING TO ASTM-D2672:

2.1.9.2. 100MM (4") AND LARGER PIPE SHALL CONFORM TO EITHER AWWA C900 OR C905 WITH ELASTOMERIC RING BELL-TYPE PIPE ENDS, CONFORMING TO ASTM-D3139. WHERE PURPLE PIPE IS UNAVAILABLE, 0.203MM (0.008" OR 8 MILS) PURPLE PLASTIC SLEEVE MATERIAL MAY BE USED IN ACCORDANCE WITH SECTION 15151:

2.1.10. BRASS PIPE: BRASS PIPE SHALL BE IPS STANDARD WEIGHT 125 POUNDS, 85% RED BRASS.

2.1.11. PIPE FITTINGS AND CONNECTIONS: COMPLY WITH FOLLOWING:

2.2 FITTINGS AND CONNECTIONS:

2.2.1. POLYVINYL CHLORIDE PIPE FITTINGS AND CONNECTIONS: TYPE II, GRADE 1, SCHEDULE 40, HIGH IMPACT MOLDED FITTINGS, MANUFACTURED FROM VIRGIN COMPOUNDS AS SPECIFIED FOR PIPING TAPERED SOCKET OR MOLDED THREAD TYPE, SUITABLE FOR EITHER SOLVENT WELD OR SCREWED CONNECTIONS. MACHINE THREADED FITTINGS AND PLASTIC SADDLE AND FLANGE FITTINGS ARE NOT ACCEPTABLE. FURNISH FITTINGS PERMANENTLY MARKED WITH FOLLOWING INFORMATION: NOMINAL PIPE SIZE, TYPE AND SCHEDULE OF MATERIAL, AND NATIONAL SANITATION FOUNDATION (NSF) SEAL OF APPROVAL. PVC FITTING SHALL CONFORM TO ASTM D2464 AND D2466.

2.2.1.1. ALL PVC THREADED NIPPLES SHALL BE STANDARD WEIGHT SCHEDULE 80 WITH MOLDED THREADS AND SHALL CONFORM TO ASTM D1785:

2.2.2. COMPRESSION FITTINGS SHALL BE MOLDED FROM UV-RESISTANT ABS MATERIAL AND SHALL ACCEPT ALL POLYETHYLENE TUBING SIZES AS SPECIFIED ON THE PLANS PROVIDING A LEAK-FREE COMPRESSION FIT.

2.2.3. FITTINGS: FITTINGS FOR PVC PIPE SHALL CONFORM TO THE FOLLOWING:

2.2.3.1. 75MM (3") AND SMALLER PIPE SHALL USE SOLVENT WELD JOINT TYPE FITTINGS, MINIMUM SCHEDULE 40 WITH A WORKING PRESSURE RATING NO LOWER THAN THAT OF THE PIPE. SCHEDULE 40 FITTINGS SHALL CONFORM TO ASTM-D2466 AND SCHEDULE 80 FITTINGS TO ASTM-D2464 AND D-2467. PVC SOLVENT CEMENT SHALL CONFORM TO ASTM-D2564.

2.2.3.2. 100MM (4") AND LARGER PIPE SHALL USE EITHER MECHANICAL JOINT DUCTILE-IRON CLASS 350 FITTINGS CONFORMING TO AWWA C153; OR GRIP TITE FITTINGS CONFORMING TO AWWA C110 AND C111.

2.2.3.3. (RECYCLED WATER ONLY) NO CLOSE NIPPLES OR CROSSES SHALL BE USED. PVC NIPPLES SHALL BE BLACK IN COLOR.

2.2.4. BRASS PIPE FITTINGS AND CONNECTIONS: STANDARD 125 POUND CLASS 85% RED BRASS FITTINGS AND CONNECTIONS.

2.2.5. SOLVENT CEMENTS SHALL COMPLY WITH ASTM D2564. SOCKET JOINTS SHALL BE MADE PER RECOMMENDED PROCEDURES FOR JOINING PVC PLASTIC PIPE AND FITTINGS WITH PVC SOLVENT CEMENT BY THE PIPE AND FITTING MANUFACTURER AND PROCEDURES OUTLINED IN THE APPENDIX OF ASTM D2564.

2.2.6. THREAD LUBRICANT SHALL BE TEFLON RIBBON-TYPE, OR APPROVED EQUAL, SUITABLE FOR THREADED INSTALLATIONS AS PER MANUFACTURER'S RECOMMENDATIONS.

2.3. VALVES: MANUFACTURER'S STANDARD, OF TYPE AND SIZE INDICATED, AND AS FOLLOWS:

2.3.1. REMOTE CONTROL VALVES SHALL BE OF THE MANUFACTURER SIZE, AND TYPE INDICATED ON THE PLANS. VALVE SHALL BE OPERABLE MANUALLY WITHOUT ELECTRICITY.

2.3.2. QUICK COUPLER VALVES SHALL BE OF THE MANUFACTURER SIZE, AND TYPE INDICATED ON THE PLANS.

2.3.2.1. QUICK COUPLER KEY SHALL BE OF BRASS/BRONZE WITH A HOSE BIB ASSEMBLY. SUPPLY TWO (2) HOSE BIB ASSEMBLIES.

2.3.3. QUICK-COUPLING VALVES SHALL BE ACME THREAD TYPE FOR OPERATION WITH A SPECIAL COUPLER KEY. THEY SHALL BE CONSTRUCTED OF BRASS WITH A SOLID PURPLE-COLORED LOCKING RUBBER OR VINYL COVER. THE LOCKING COVER SHALL HAVE THE WARNING "NON-POTABLE - DO NOT DRINK" IN ENGLISH AND SPANISH AND THE INTERNATIONAL "DO NOT DRINK" SYMBOL. THE WARNINGS SHALL BE PERMANENTLY MOLDED INTO THE COVER.

2.3.4. BALL AND GATE VALVES SHALL BE OF THE MANUFACTURER SIZE, AND TYPE INDICATED ON THE PLANS.

2.3.5. DRIP VALVE ASSEMBLY SHALL BE OF THE MANUFACTURER SIZE, AND TYPE INDICATED ON THE PLANS AND SHALL CONSIST OF A REMOTE CONTROL VALVE, WYE FILTER, AND PRESSURE REGULATING DEVICE.

2.4. BACKFLOW PREVENTER ASSEMBLY:

2.4.1. BACKFLOW PREVENTERS SHALL BE BRASS, BRONZE, OR EPOXY COATED CAST IRON BODIES WITH ALL BRONZE OR STAINLESS STEEL TRIM AND ALL MOVING PARTS OF NON-CORROSIVE MATERIALS, AND SHALL COMPLETELY AND POSITIVELY PREVENT BACK-SIPHONING OF WATER. THE BACKFLOW PREVENTER ASSEMBLY SHALL INCLUDE INLET AND DISCHARGE SHUTOFF GATE VALVES WITH ALL RISERS, CONNECTORS, AND APPURTENANCES OF CLASS 1 RED BRASS PIPE, CONFORMING TO WW-P-351, AND RED BRASS FITTINGS WITH PRESSURE RATING 1 CONFORMING TO WW-P-460. BACKFLOW PREVENTERS SHALL BE OF THE TYPE AND SIZE DESIGNATED ON THE DRAWINGS AND INSTALL IN ACCORDANCE WITH REQUIREMENTS SET FORTH IN THE LOCAL CODES AND AGENCIES.

2.5. IDENTIFICATION TAPE:

2.5.1. MARKER TAPE FOR SLEEVES SHALL BE METALLIC BACKED LOCATING TAPE MARKED 'IRRIGATION" IN TWO INCH CAPITAL LETTERS EVERY THREE FEET ALONG THE TAPE.

2.5.2. MARKER TAPE FOR DIRECT BURIAL WIRES SHALL BE RED COLORED "ALLEN MARKING TAPE" OR APPROVED EQUAL. TAPE SHALL BE 3" WIDE.

2.6. VALVE BOXES:

2.6.1. VALVE BOXES SHALL BE PER INDUSTRY STANDARDS WITH SOLID PURPLE-COLORED LIDS AS A MINIMUM. THE ENTIRE BOX MAY BE MOLDED FROM PURPLE-COLORED PVC. THE LIDS SHALL HAVE THE WARNING, "NON-POTABLE - DO NOT DRINK" IN ENGLISH AND SPANISH AND THE INTERNATIONAL "DO NOT DRINK" SYMBOL. THE WARNINGS SHALL BE PERMANENTLY MOLDED INTO THE LID.

2.6.1.1. REMOTE CONTROL VALVE BOXES FOR RECYCLED IRRIGATION SYSTEMS SHALL BE JUMBO SIZE MANUFACTURED AMETEK (PART #190122).

2.6.1.2. BALL VALVE BOXES FOR RECYCLED IRRIGATION SYSTEMS SHALL BE MANUFACTURED BY AMETEK (PART #181113).

2.6.1.3. MULTI-OUTLET DRIP EMITTER BOXES FOR RECYCLED IRRIGATION SYSTEMS SHALL BE MANUFACTURED BY AMETEK (PART #182107).

2.7. CONCRETE THRUST BLOCK AND SUPPORTS:

2.7.1. ALL CONCRETE WORK SHALL BE 2,000 PSI MINIMUM COMPRESSIVE STRENGTH AT TWENTY-EIGHT (28) DAYS, 5 SACK MIX, TOOL FINISHED ON EXPOSED SURFACES.

2.8. AUTOMATIC CONTROL SYSTEM:

2.8.1. GENERAL: FURNISH LOW VOLTAGE SYSTEM MANUFACTURED EXPRESSLY FOR CONTROL OF AUTOMATIC CIRCUIT VALVES OF UNDERGROUND IRRIGATION SYSTEMS. PROVIDE UNIT OF CAPACITY TO SUIT NUMBER OF CIRCUITS AS INDICATED.

2.8.2. AUTOMATIC CONTROLLER:

2.8.2.1. CONTROLLER SHALL BE FURNISHED AND INSTALLED COMPLETE WITH ALL ELECTRICAL CONNECTIONS, READY FOR OPERATION.

2.8.2.2. CONTROLLER SHALL BE THE LATEST MODEL OF THE PARTICULAR MANUFACTURER SUPPLIED.

2.8.2.3. UNIT SHALL HAVE AN INPUT OF 110/120 VOLT, 60 CYCLE AND BE COMPLETELY AUTOMATIC.

2.8.3. IRRIGATION CONTROLLER ENCLOSURE SHALL BE OF THE MANUFACTURER SIZE, AND TYPE INDICATED ON THE PLANS.

2.8.4. IRRIGATION ASSEMBLY AND OPTIONS SHALL BE OF THE MANUFACTURER SIZE, AND TYPE INDICATED ON THE PLANS.

2.9. AUTOMATIC CONTROL WIRE:

2.9.1. ELECTRIC WIRING RUNS FROM CONTROLLER TO THE AUTOMATIC CONTROL VALVES SHALL BE SOLID, SINGLE CONDUCTOR, COPPERWIRE, 4/64 IN. INSULATION, 4/64 IN. NEOPRENE JACKET, STYLE DB (DIRECT BURIAL) OR EQUAL, COLOR CODE WIRES TO EACH VALVE, COMMON WIRE SHALL BE BLACK. (EXCEPT AS NOTED ON DRAWINGS FOR CITY STANDARD REQUIREMENTS). WIRES SHALL CONFORM TO FEDERAL SPECIFICATION JC-30.

2.10. DRIP IRRIGATION EMITTERS

2.10.1. SINGLE OUTLET EMITTERS SHALL HAVE A 1/2 INCH FEMALE NATIONAL PIPE THREAD (FNPT) INLET FOR CONNECTING TO THE PIPING SYSTEM OR A ¼ INCH BARBED INLET FOR CONNECTING TO THE PIPING SYSTEM, AS SPECIFIED ON THE PLANS AND SHALL HAVE AN OUTLET PORT THAT IS BARBED TO RETAIN ¼ INCH DRIP EMITTER TUBING PROVIDING A LEAK-FREE COMPRESSION FIT..

2.10.2. MULTI-OUTLET EMITTERS SHALL HAVE A ½ INCH FEMALE NATIONAL PIPE THREAD (FNPT) INLET FOR CONNECTING TO THE PIPING SYSTEM OR A ¼ INCH BARBED INLET FOR CONNECTING TO THE PIPING SYSTEM, AS SPECIFIED ON THE PLANS AND SHALL HAVE SIX OUTLET PORTS THAT ARE BARBED TO RETAIN ¼ INCH DRIP EMITTER TUBING PROVIDING A LEAK-FREE COMPRESSION FIT.

2.10.3. THE EMITTER SHALL OPERATE WITHIN A PRESSURE RANGE OF 5-50 PSI.

2.10.4. THE EMITTER BODY SHALL BE CONSTRUCTED OF DURABLE HEAT-RESISTANT ACETYL PLASTIC (UV RESISTANT). THE FLOW REGULATING DIAPHRAGM SHALL BE OF SILICONE RUBBER.

2.10.5. PRODUCTS: THE EMITTER SHALL BE THE MANUFACTURER SIZE, AND TYPE INDICATED ON THE PLANS.

2.11. DRIP EMITTER TUBING

2.11.1. DRIP EMITTER TUBING SHALL BE ¼ INCH POLYETHYLENE TUBING MADE FROM EXTRUDED LINEAR LOW-DENSITY POLYETHYLENE RESIN.

2.11.2. INSIDE DIAMETER SHALL BE SUCH THAT A LEAK-FREE SEAL IS ACHIEVED WITH THE BARBED FITTINGS OF THE SPECIFIED EMITTERS.

2.12. DRIP WYE FILTER

2.12.1. WYE FILTER SHALL BE OF THE MANUFACTURER SIZE AND TYPE INDICATED ON THE PLANS.

2.13. DRIP PRESSURE REGULATOR

2.13.1. PRESSURE REGULATOR SHALL BE OF THE MANUFACTURER SIZE AND TYPE INDICATED ON THE PLANS.

2.14. DRIP FLUSH VALVE

2.14.1. FLUSH VALVE SHALL BE OF THE MANUFACTURER SIZE AND TYPE INDICATED ON THE PLANS.

2.14.2. FLUSH VALVE SHALL OPERATE AUTOMATICALLY WITH THE OPERATION OF THE CONTROL VALVE.

2.15. RECYCLED IDENTIFICATION TAG:

2.15.1. RECYCLED WATER IDENTIFICATION TAGS SHALL BE WEATHERPROOF PLASTIC, 3" X 4", PURPLE IN COLOR WITH THE WORDS, "CAUTION: RECLAIMED WATER - DO NOT DRINK" IMPRINTING ON ONE SIDE AND "PELIGRO: AGUA IMPURA - NO BEBER" ON THE OTHER SIDE. IMPRINTING SHALL BE PERMANENT AND BLACK IN COLOR.

2.15.2. RECYCLED WATER IDENTIFICATION TAGS AS MANUFACTURED BY T. CHRISTY ENTERPRISES, 1207 WEST STRUCK AVE., SUITE E, ORANGE, CA 92667 (714) 771-4142 OR APPROVED EQUAL.

PART 3 - EXECUTION

3.1 SYSTEM DESIGN:

3.1.1. ALL SCALED DIMENSIONS ARE APPROXIMATE. THE CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS ON THE SITE PRIOR TO PROCEEDING WITH WORK UNDER THIS CONTRACT.

3.1.2. THE CONTRACTOR SHALL LOCATE AND MARK ALL EXISTING UTILITIES SUCH AS POWER, TELEPHONE, DOMESTIC WATER, WATER, AND TILE DRAINS. EXTREME CARE SHALL BE TAKEN BY THE CONTRACTOR WHEN EXCAVATING OR WORKING IN THESE AREAS, AND COORDINATION AND COOPERATION BETWEEN THE OWNER'S REPRESENTATIVE AND THE CONTRACTOR IS REQUIRED AS THE WORK PROGRESSES TO THE AREA. CONTRACTOR SHALL GIVE 24 HOURS NOTICE TO REPRESENTATIVE AS WORK PROGRESSES OF UNDERGROUND UTILITY AREAS. CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO ANY UTILITIES.

3.1.3. SHOULD UTILITIES NOT LOCATED OR MARKED BE FOUND DURING EXCAVATION, THE CONTRACTOR SHALL PROMPTLY NOTIFY THE OWNER AND SHALL DISCONTINUE WITH WORK IN THE AREA, EXCEPT FOR NECESSARY EMERGENCY WORK, TO REPAIR OR PREVENT DAMAGE UNTIL INSTRUCTIONS ARE GIVEN TO THE CONTRACTOR BY THE OWNER'S REPRESENTATIVE.

3.1.4. FAILURE TO NOTIFY THE OWNER OF DISCOVERY OF SUCH UTILITIES OR DAMAGE THERETO WILL RESULT IN THE CONTRACTOR BEING LIABLE FOR ANY AND ALL DAMAGE CAUSED TO THE UTILITIES AS A RESULT OF HIS ACTIONS.

3.1.5. THE CONTRACTOR SHALL, BEFORE STARTING WORK ON THE IRRIGATION SYSTEM, CAREFULLY NOTE ALL FINISH GRADES IN ORDER TO SATISFY HIMSELF THAT HE MAY PROCEED WITH THE WORK, AND TO RESTORE FINISH GRADES TO ORIGINAL CONTOURS BEFORE COMPLETION.

3.1.6. THE INSTALLATION OF ALL IRRIGATION MATERIALS, INCLUDING PIPE, SHALL BE COORDINATED WITH THE LANDSCAPE DRAWINGS TO AVOID INTERFERING WITH THE TREES, SHRUBS, OR OTHER PLANTING.

REVISION | DATE | BY | NO.

REGISTERED LANDSCAPE ARCHITECT
CERTIFICATE NO.
36734
MARK E. FELLINGER
Date 7/24/19
Signed
ARIZONA USA

M. Fellinger

JN 3668I

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	DATE:	CHECKED BY:
	7/19	DATE:
DESIGNED: MEF	DATE: 7/19	APPROVED BY:
DRAWN: MEF		DATE:

WASH RESTORATION PLANS PREPARED FOR:
MASTER SUBMITTAL

MILLER RANCH

BEING A PORTION OF THE SOUTHEAST QUARTER OF SECTION 34, TOWNSHIP 11 SOUTH, RANGE 13 EAST GILA & SALT RIVER MERIDIAN, PIMA COUNTY, ARIZONA

OV1802195
REFERENCE:
OV914-006, OV1113-003, OV114-020, OV1208-07, OV1208-7A, OV904-02, OV1800713, OV1702695, (O)18-09, (R)14-10

WS-01

SCALE : N/A

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IRRIGATION SPECIFICATIONS

3.1.7. LAY OUT SPRINKLER HEADS AND MAKE ANY MINOR ADJUSTMENTS REQUIRED DUE TO DIFFERENCE BETWEEN SITE AND DRAWINGS. ANY SUCH DEVIATIONS IN LAYOUT SHALL BE WITHIN THE INTENT OF THE ORIGINAL DRAWINGS, AND WITHOUT ADDITIONAL COST TO THE OWNER. WHEN DIRECTED BY THE OWNER, THE LAYOUT SHALL BE APPROVED BEFORE INSTALLATION.

3.1.8. DO NOT WILLFULLY INSTALL THE IRRIGATION SYSTEM AS INDICATED ON THE DRAWING WHEN IT IS OBVIOUS IN THE FIELD THAT PREVIOUSLY UNKNOWN OBSTRUCTIONS OR GRADE DIFFERENCES EXIST, THAT MIGHT NOT HAVE BEEN CONSIDERED IN THE ENGINEERING. SUCH OBSTRUCTIONS OR DIFFERENCES SHOULD BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT.

3.1.9. WATER SUPPLY: THE CONTRACTOR SHALL CONNECT TO THE WATER SOURCE AS INDICATED ON THE DRAWINGS. THE CONTRACTOR SHALL VERIFY STATIC PRESSURE AS STATED ON THE PLANS PRIOR TO BEGINNING WORK. IF STATIC PRESSURE OR POINT OF CONNECTION DIFFER FROM THAT SHOWN ON THE PLANS, THE CONTRACTOR WILL PROMPTLY NOTIFY LANDSCAPE ARCHITECT BEFORE STARTING WORK.

3.1.10. WORKMANSHIP AND PROCEDURE: THE ROUTING OF THE PRESSURE SUPPLY LINES AS INDICATED ON THE DRAWINGS IS DIAGRAMMATIC. LOCATE ALL PRESSURE SUPPLY LINES IN PLANTING AREAS. CROSS PERPENDICULAR UNDER PAVEMENT IN A SLEEVE AS DESCRIBED IN THESE SPECIFICATIONS.

3.2 INSTALLATION:

3.2.1. GENERAL: UNLESS OTHERWISE INDICATED, COMPLY WITH REQUIREMENTS OF UNIFORM PLUMBING CODE.

3.2.1.1. EXCAVATION OF TRENCHES: EXCAVATE TRENCHES, PREPARE SUBGRADE, AND BACKFILL TO LINE AND GRADE WITH SUFFICIENT ROOM FOR PIPE FITTINGS, TESTING AND INSPECTING OPERATIONS. DO NOT BACKFILL UNTIL THE PIPE SYSTEM HAS BEEN SUBJECTED TO A HYDROSTATIC TEST AS SPECIFIED.

3.2.1.2. DEPTH OF TRENCH:

3.2.1.2.1. POLYVINYL CHLORIDE PRESSURE LINE 18" MIN.
3.2.1.2.2. POLYVINYL CHLORIDE NON-PRESSURE LINE 12" MIN.

3.2.1.2.3. POLYETHYLENE NON-PRESSURE LINE 8" MIN.

3.2.1.3. SUBSOIL SHALL BE FREE OF ALL ROCKS OVER ONE (1) INCH DIAMETER, DEBRIS, AND LITTER PRIOR TO USE AS BACKFILL.

3.2.1.4. REPAIR ANY LEAKS AND REPLACE ALL DEFECTIVE PIPE OR FITTINGS UNTIL LINES MEET TEST REQUIREMENTS. DO NOT COVER ANY LINES UNTIL THEY HAVE BEEN CHECKED AND APPROVED FOR TIGHTNESS, QUALITY OF WORKMANSHIP AND MATERIALS.

3.2.1.5. BACKFILL TRENCHES, AFTER APPROVAL OF PIPING, WITH SUITABLE AND APPROVED MATERIAL, TAMPING SOIL AROUND PIPE AND THOROUGHLY COMPACTING ALL TRENCH FILLS UNTIL 90% COMPACTION HAS BEEN ACHIEVED.

3.2.1.6. BACKFILL MATERIAL SHALL BE AN APPROVED SOIL, FREE FROM ROCKS AND CLODS. PROVIDE BACKFILL UNDER, AROUND AND ABOVE TOP OF PIPE FOR PVC PLASTIC PIPE AND BRASS PIPING.

3.2.1.7. PIPES INSTALLED IN COMMON TRENCH SHALL HAVE A 4" MINIMUM SPACE BETWEEN PIPES.

3.2.2. INSTALLATION OF POLYVINYL CHLORIDE PIPE:

3.2.2.1. BECAUSE OF THE NATURE OF PLASTIC PIPE AND FITTINGS, EXERCISE CAUTION IN HANDLING, LOADING AND STORING, TO AVOID DAMAGE.

3.2.2.2. THE PIPE AND FITTINGS SHALL BE STORED UNDER COVER UNTIL USING, AND SHALL BE TRANSPORTED IN A VEHICLE WITH A BED LONG ENOUGH TO ALLOW THE LENGTH OF PIPE TO LAY FLAT SO AS NOT BE SUBJECTED TO UNDUE BENDING OR CONCENTRATED EXTERNAL LOAD AT ANY POINT.

3.2.2.3. ANY PIPE THAT HAS BEEN DENTED OR DAMAGED SHALL BE DISCARDED UNLESS SUCH DENT OR DAMAGED SECTION IS CUT OUT AND PIPE REJOINED WITH A COUPLING.

3.2.2.4. TRENCH DEPTH SHALL BE AS SPECIFIED ABOVE FROM THE FINISH GRADE TO THE TOP OF THE PIPE. THE BOTTOM OF THE TRENCH SHALL BE FREE OF ROCKS, CLODS, AND OTHER SHARP-EDGED OBJECTS.

3.2.2.5. PIPE ENDS AND FITTINGS SHALL BE WIPED WITH "MEK" PRIMER, OR APPROVED EQUAL, BEFORE WELDING SOLVENT IS APPLIED. WELDED JOINTS SHALL BE GIVEN A MINIMUM OF 15 MINUTES TO SET BEFORE MOVING OR HANDLING. ALL FIELD CUTS SHALL BE BEVELED TO REMOVE BURRS AND EXCESS MATERIAL BEFORE FITTING AND GLUING TOGETHER.

3.2.2.6. PIPE SHALL BE SNAKED FROM SIDE-TO-SIDE OF TRENCH BOTTOM TO ALLOW FOR EXPANSION AND CONTRACTION.

3.2.2.7. CENTER LOAD PIPE WITH SMALL AMOUNT OF BACKFILL TO PREVENT ARCHING AND SLIPPING UNDER PRESSURE. LEAVE JOINTS EXPOSED FOR SITE OBSERVATION DURING TESTING.

3.2.2.8. NO WATER SHALL BE PERMITTED IN THE PIPE UNTIL SITE OBSERVATION HAS BEEN COMPLETED AND A PERIOD OF AT LEAST 24 HOURS HAS ELAPSED FOR SOLVENT WELD SETTING AND CURING.

3.2.2.9. PLASTIC TO METAL JOINTS SHALL BE MADE WITH PLASTIC MALE ADAPTERS, METAL NIPPLE HAND TIGHTENED, PLUS ONE TURN WITH A STRAP WRENCH.

3.2.2.10. ALL THREADED PLASTIC TO PLASTIC CONNECTIONS SHALL BE ASSEMBLED USING TEFLON TAPE.

3.2.2.11. SOLVENT-WELD JOINTS: ASSEMBLE PER MANUFACTURER'S RECOMMENDATIONS.

3.2.2.12. UVR-PVC PIPE SHALL INSTALLED AS DETAILED AND SHOWN ON PLANS.

3.2.2.13. PIPE SLEEVE UNDER EXISTING OR FUTURE PAVING SHALL BE INSTALLED PRIOR TO PAVING OR RE-PAVING AND SHALL EXTEND 12" BEYOND EACH SIDE OF PAVING EDGE. SLEEVE SHALL BE A MINIMUM OF TWO TIMES THAN PIPE OR WIRE BUNDLE IT ENCLOSES. INSTALL ONLY ONE PIPE PER SLEEVE.

3.2.3. INSTALLATION OF POLYETHYLENE PIPE:

3.2.3.1. BECAUSE OF THE NATURE OF PLASTIC PIPE AND FITTINGS, EXERCISE CAUTION IN HANDLING, LOADING AND STORING TO AVOID DAMAGE.

3.2.3.2. ANY PIPE THAT HAS BEEN DAMAGED SHALL BE DISCARDED UNLESS SUCH DENT OR DAMAGED SECTION IS CUT OUT AND PIPE REJOINED WITH A COUPLING.

3.2.3.3. TRENCH DEPTH SHALL BE AS SPECIFIED ABOVE FROM THE FINISH GRADE TO THE TOP OF THE PIPE. THE BOTTOM OF THE TRENCH SHALL BE FREE OF ROCKS, CLODS AND SHARP-EDGED OBJECTS.

3.2.4. INSTALLATION OF METAL PIPE:

3.2.4.1. CUT BRASS PIPING BY POWER HACKSAW, CIRCULAR CUTTING MACHINE USING AN ABRASIVE WHEEL, OR HAND HACKSAW. CUT NO PIPING WITH METALLIC WHEEL CUTTER OF ANY DESCRIPTION. REAM AND REMOVE ROUGH EDGES OF BURRS SO SMOOTH AND UNOBSTRUCTED FLOW IS OBTAINED.

3.2.4.2. CAREFULLY AND SMOOTHLY PLACE THREAD LUBRICANT ON MALE THREAD ONLY. TIGHTEN SCREWED JOINTS WITH TONGS OR WRENCHES. CAULKING IS NOT PERMITTED.

3.2.5. IDENTIFICATION TAPE:

3.2.5.1. IF PURPLE PIPE IMPRINTED WITH WARNING IS NOT INSTALLED WHERE RECYCLED WATER IS USED, PURPLE IDENTIFICATION TAPE WITH BLACK LETTERING STATING: "CAUTION: RECLAIMED WATER - DO NOT DRINK" IMPRINTED ON ONE SIDE AND 'PELIGRO: AQUA IMPURA - NO BEBER" SHALL BE FASTENED TO THE TOPE OF THE PRESSURE SUPPLY RECYCLED WATER PIPE. RECYCLED WATER WARNING TAPES SHALL BE INSTALLED 6 INCHES DIRECTLY ABOVE THE PIPE LONGITUDINALLY AND SHALL BE CENTERED. THE WARNING TAPE SHALL BE INSTALLED CONTINUOUSLY FOR THE ENTIRE LENGTH OF THE PRESSURE SUPPLY PIPE AND SHALL BE FASTENED TO EACH PIPE LENGTH BY PLASTIC TAPE BANDED AROUND THE PRESSURE SUPPLY PIPE WITH FASTENERS NO MORE THAN 5 FEET APART. TAPING ATTACHED TO THE SECTIONS OF PIPE BEFORE LAYING IN THE TRENCH SHALL HAVE FLAPS SUFFICIENT FOR CONTINUOUS COVERAGE.

3.2.5.2. A SEPARATE RECYCLED WATER WARNING TAPE SHALL BE INSTALLED TO RUN CONTINUOUSLY 6 INCHES ABOVE PRESSURE RECLAIMED WATER LINE.

3.2.5.3. ALL METHODS OF COLOR CODED IDENTIFICATION AND/OR TAPE DIFFERENTIATING THE PRESSURE SUPPLY RECYCLED WATER PIPING FROM OTHER UTILITY LINES SHALL BE CONSISTENT THROUGHOUT THE SERVICE AREA.

3.2.5.4. IDENTIFICATION TAPE FOR THE CONSTANT PRESSURE POTABLE WATER PIPE SHALL BE BLUE IN COLOR WITH WORDS "CAUTION BURIED WATERLINE BELOW" IMPRINTED IN MINIMUM 1 INCH HIGH LETTERS BLACK IN COLOR. IMPRINTING SHALL BE CONTINUOUS AND PERMANENT.

3.2.5.5. WHEN A POTABLE WATER LINE AND RECYCLED PRESSURE SUPPLY WATER LINE CROSS, THE PRESSURE SUPPLY RECYCLED LINE SHALL BE INSTALLED WITHIN A PROTECTIVE SLEEVE. THE SLEEVE SHALL EXTEND 10 FEET FROM EACH SIDE, FROM THE CENTER LINE OF POTABLE LINE, FOR A TOTAL OF 20 FEET.

3.2.6. REMOTE CONTROL WIRING:

3.2.6.1. DIRECT BURIAL CONTROL WIRE SIZES: AS SHOWN AND SPECIFIED HEREIN BEFORE.

3.2.6.2. PROVIDE ONE CONTROL WIRE AND ONE COMMON GROUND WIRE TO SERVICE EACH VALVE IN SYSTEM. PROVIDE 4 FOOT MINIMUM EXPANSION LOOP AT EACH VALVE TO PERMIT REMOVAL AND MAINTENANCE OF VALVES.

3.2.6.3. INSTALL CONTROL WIRES AT LEAST 12" BELOW FINISH GRADE AND MINIMUM OF 4" FROM ANY PIPE OR FITTINGS EXCEPT AT TERMINAL POINTS. ALL WIRE SHALL FOLLOW THE PRESSURE MAIN INSOFAR AS POSSIBLE.

3.2.6.4. INSTALL CONTROL WIRES AND IRRIGATION PIPING IN COMMON TRENCHES WHEREVER POSSIBLE.

3.2.6.5. IN CASE OF DAMAGE TO ANY COMMON OR CONTROL WIRE, CONTRACTOR IS TO RUN AN EXTRA COMMON AND CONTROL WIRE ON EACH LEG OF MAINLINE TO THE FARTHEST RCV BACK TO THE CONTROLLER.

3.2.6.6. CONTROL WIRE SPLICES: ALLOW ONLY ON RUNS OF MORE THAN 300-FEET, SPLICES AS FOLLOWS:

3.2.6.6.1. STRIP OFF MINIMUM OF 2-1/2" OF INSULATION FROM EACH WIRE.

3.2.6.6.2. TWIST ON SCOTCHLOK ELECTRICAL SPRING CONNECTOR, MINIMUM FOUR COMPLETE TURNS.

3.2.6.6.3. SEAL CONNECTOR IN EPOXY RESIN.

3.2.6.6.4. TAPE COMPLETED SPLICE WITH SCOTCH 33 ELECTRICAL TAPE.

3.2.6.7. NUMBERING AND TAGGING: IDENTIFY DIRECT BURIAL CONTROL WIRES FROM AUTOMATIC VALVES TO TERMINAL STRIPS OF CONTROLLER AT TERMINAL STRIP BY TAGGING WIRE WITH NUMBER OF CONNECTED VALVES.

3.2.7. AUTOMATIC IRRIGATION CONTROLLER:

3.2.7.1. AUTOMATIC CONTROLLER SHALL BE INSTALLED AS SHOWN AND AS DETAILED ON THE PLANS. CONTROLLER SHALL BE TESTED WITH COMPLETE ELECTRICAL CONNECTIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TEMPORARY POWER TO THE CONTROLLER FOR OPERATION AND TESTING PURPOSES.

3.2.7.2. CONNECTIONS TO CONTROL WIRING SHALL BE MADE WITHIN AUTOMATIC CONTROLLER ENCLOSURE.

3.2.7.3. ELECTRICAL WIRING SHALL BE ON A RIGID PVC PLASTIC CONDUIT FROM CONTROLLER TO ELECTRICAL OUTLET. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ALL WIRING TO THE SUB-PANELS, CLOCKS, OR ELSEWHERE AS REQUIRED, IN ORDER TO COMPLETE THIS INSTALLATION.

3.2.7.4. CONTRACTOR SHALL SUPPLY AND INSTALL BATTERY IN CONTROLLER TO PREVENT LOSS OF PROGRAM.

3.2.7.5. IRRIGATION CONTROLLER ENCLOSURE SHALL BE INSTALLED AS SHOWN ON PLANS AND PER THE MANUFACTURER'S REQUIREMENTS.

3.2.7.6. IRRIGATION CONTROLLER ASSEMBLY SHALL BE INSTALLED AS SHOWN ON PLANS AND PER THE MANUFACTURER'S REQUIREMENTS.

3.2.8. REMOTE CONTROL VALVES:

3.2.8.1. INSTALL REMOTE CONTROL VALVES IN LOCATIONS APPROXIMATELY AS SHOWN ON THE DRAWINGS, WITH A COVER OF 8 INCHES MINIMUM OVER TOP OF FLOW CONTROL STEM. FIT WITH PLASTIC VALVE BOX AND COVER.

3.2.9. RECYCLED WATER IDENTIFICATION TAG:

3.2.9.1. RECYCLED IRRIGATION WATER VALVES OF ALL TYPES SHALL BE TAGGED WITH IDENTIFICATION TAGS.

3.2.9.2. ONE TAG SHALL BE ATTACHED TO EACH VALVE STEM DIRECTLY OR WITH PLASTIC TIE-WRAP.

3.2.10. VALVE BOX:

3.2.10.1. INSTALL VALVE BOXES AS SHOWN ON DETAIL. INSTALL NO MORE THAN ONE VALVE PER BOX. VALVE BOXES SHALL BE LOCATED IN SHRUBS AREAS WHEREVER POSSIBLE.

3.2.11. QUICK COUPLER ASSEMBLY:

3.2.11.1. INSTALL ALL QUICK COUPLERS AS INDICATED ON DRAWINGS. SET ALL VALVES PLUMB AND TRUE TO FINISH GRADE AND A MAXIMUM OF 12 INCHES FROM PAVING, WALKS, HEADERS OR CURBS, AND AS SHOWN ON PLANS AND AS DIRECTED.

3.2.11.2. THE QUICK COUPLING VALVE SHALL BE OPERATED ONLY WITH A SPECIAL COUPLER KEY WITH AN ACME THREAD FOR OPENING AND CLOSING THE VALVE, IN ORDER TO PREVENT UNAUTHORIZED USE.

3.2.11.3. THE QUICK COUPLING VALVE COVER SHALL BE A LOCKING TYPE AND SHALL BE PERMANENTLY ATTACHED TO THE QUICK COUPLER VALVE. IT SHOULD BE PURPLE RUBBER OR VINYL.

3.2.12. BALL AND GATE VALVES:

3.2.12.1. INSTALL APPROXIMATELY WHERE SHOWN AND AS DETAILED. FIT WITH PLASTIC VALVE BOX AND COVER.

3.2.12.2. INSTALL DRIP VALVE ASSEMBLY AS DETAIL AND SHOWN ON PLANS.

3.2.13. BACKFLOW PREVENTER:

3.2.13.1. BACKFLOW PREVENTER ASSEMBLY SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS, LOCATED AND AS DIRECTED ON DRAWINGS, AND SHALL CONFORM TO ALL APPLICABLE CODE AND ORDINANCE REQUIREMENTS.

3.2.13.2. EXACT LOCATION AND POSITIONING SHALL BE VERIFIED ON THE SITE.

3.2.14. THRUST BLOCKS AND FOOTINGS:

3.2.14.1. THRUST BLOCKS AND FOOTINGS SHALL BE PLACED ON NINETY-PERCENT (90%) MINIMUM COMPACTED OR UNDISTURBED SUBGRADE. CONSTRUCT TO SHAPES SPECIFIED AND PARALLEL TO WALKWAYS. TOOL FINISH EXPOSED SURFACE.

3.2.15. DRIP IRRIGATION EMITTERS:

3.2.15.1. INSTALL DRIP IRRIGATION EMITTER AS DETAILED AND SHOWN ON PLANS.

3.3 FLUSHING AND TESTING OF SYSTEMS:

3.3.1. AFTER PIPING AND RISERS ARE IN PLACE, BUT PRIOR TO THE INSTALLATION OF THE SPRINKLER HEADS, A FULL HEAD OF WATER SHALL BE USED TO FLUSH OUT THE SYSTEM. AFTER SYSTEM IS THOROUGHLY FLUSHED, CAP ALL RISERS:

3.3.2. TESTING:

3.3.2.1. GENERAL: NOTIFY LANDSCAPE ARCHITECT IN WRITING WHEN TESTING WILL BE CONDUCTED. CONDUCT TESTS IN PRESENCE OF LANDSCAPE ARCHITECT.

3.3.3. PRESSURE TEST:

3.3.3.1. ALL PRESSURE LINES SHALL BE TESTED UNDER HYDROSTATIC PRESSURE OF 125 LBS. PER SQUARE INCH AND ALL NON-PRESSURE LINES SHALL BE TESTED UNDER THE EXISTING STATIC PRESSURE AND BOTH BE PROVEN WATERTIGHT. (CONTRACTOR TO SUPPLY ALL EQUIPMENT NEEDED FOR TESTING.) .

3.3.3.2. PRESSURE SHALL BE SUSTAINED IN THE LINES FOR NOT LESS THAN FOUR HOURS. IF LEAKS DEVELOP, THE JOINTS SHALL BE REPLACED AND THE TEST REPEATED UNTIL THE ENTIRE SYSTEM IS PROVEN WATERTIGHT.

3.3.3.3. TESTS SHALL BE OBSERVED AND APPROVED BY THE LANDSCAPE ARCHITECT AND/OR OWNER PRIOR TO BACKFILL. BACKFILLING TRENCHES PRIOR TO INSPECTION WILL NOT BE ALLOWED AND ALL PREMATURELY FILLED TRENCHES SHALL BE SUBJECT TO REOPENING AS DIRECTED BY THE LANDSCAPE ARCHITECT.

3.3.4. COVERAGE TESTING: PERFORM OPERATIONAL TESTING AFTER HYDROSTATIC TESTING IS COMPLETED, BACKFILL IS IN PLACE, AND SPRINKLER HEADS ADJUSTED TO FINAL POSITION:

3.4 SITE OBSERVATION VISITS BY THE ARCHITECT:

3.4.1. IN ALL CASES WHERE SITE OBSERVATION VISITS OF THE IRRIGATION SYSTEM WORK IS REQUIRED AND/OR WHERE PORTIONS OF THE WORK ARE SPECIFIED TO BE PERFORMED UNDER THE DIRECTION AND/OR SITE OBSERVATION OF THE ARCHITECT OR HIS REPRESENTATIVE, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT AT LEAST THREE (3) WORKING DAYS IN ADVANCE OF THE TIME SUCH SITE OBSERVATION AND/OR DIRECTION IS REQUIRED:

3.4.2. SITE OBSERVATION WILL BE REQUIRED FOR THE FOLLOWING PARTS OF THE WORK:

3.4.2.1. UPON INSTALLATION AND TESTING OF MAIN LINES AND LATERAL LINES; WHEN PIPES ARE LAID AND ARE TO BE SUBMITTED TO PRESSURE TESTS. DO NOT COVER ANY LINES UNTIL THEY HAVE BEEN CHECKED AND APPROVED.

3.4.2.2. UPON INSTALLATION AND TESTING OF VALVES, QUICK COUPLERS, DEVICES, AUTOMATIC CONTROLLERS, AND CONTROL VALVES AND WIRES.

3.4.2.3. WHEN THE IRRIGATION SYSTEM IS COMPLETED PRIOR TO PLANTING, THE CONTRACTOR, IN THE PRESENCE OF THE ARCHITECT, SHALL PERFORM A COVERAGE TEST TO DETERMINE IF THE COVERAGE OF WATER AFFORDED THE LAWN AND PLANTING AREAS IS COMPLETE AND ADEQUATE. THE CONTRACTOR SHALL FURNISH ALL MATERIALS AND PERFORM ALL WORK REQUIRED TO CORRECT ANY INADEQUACIES.

3.4.2.4. FINAL SITE OBSERVATION VISIT BY THE ARCHITECT AND PERFORMANCE TEST SHALL BE AT THE SAME TIME AS THE FINAL SITE OBSERVATION OF THE SPECIFIED LANDSCAPE MAINTENANCE PERIOD WORK.

3.5 RECORD DRAWINGS:

3.5.1. BEFORE FINAL ACCEPTANCE OF WORK, THE CONTRACTOR SHALL PROVIDE A "REDLINE" RECORD SET OF DRAWINGS SHOWING THE IRRIGATION SYSTEM WORK:

3.5.2. ANY CHANGES IN LOCATION OF ITEMS OR TYPE OF INSTALLATIONS FROM THAT SHOWN ON DRAWINGS SHALL BE SO INDICATED ON THE RECORD DRAWINGS:

3.5.3. VALVES SHALL BE NUMBERED AND CORRESPONDING NUMBERS SHALL BE SHOWN ON THE RECORD DRAWINGS:

3.5.4. ALL REMOTE CONTROL VALVES, SHUT-OFF VALVES, QUICK COUPLER VALVES SHALL BE LOCATED BY MEASURED DIMENSIONS. DIMENSIONS SHALL BE GIVEN TO PERMANENT OBJECTS AND SHALL BE TO THE NEAREST ONE-HALF FOOT:

3.5.5. ON THE INSIDE SURFACE OF THE COVER OF EACH AUTOMATIC CONTROLLER, PREPARE AND MOUNT A COLOR-CODED CHART SHOWING THE VALVES, MAINLINE, AND SPRINKLER HEADS SERVICED BY THAT PARTICULAR CONTROLLER. ALL VALVES SHALL BE NUMBERED TO MATCH THE OPERATION SCHEDULE AND THE DRAWINGS. ONLY THOSE AREAS CONTROLLED BY THAT CONTROLLER SHALL BE SHOWN. THIS CHART SHALL BE A PLOT PLAN, ENTIRE OR PARTIAL, SHOWING BUILDING, WALKS, ROADS AND WALLS. A PHOTOSTATIC PRINT OF THIS PLAN, REDUCED AS NECESSARY AND LEGIBLE IN ALL DETAILS, SHALL BE MADE TO A SIZE THAT WILL FIT INTO THE CONTROLLER COVER. THIS PRINT SHALL BE APPROVED BY THE LANDSCAPE ARCHITECT AND SHALL BE HERMETICALLY SEALED BY PLASTIC. THIS PLAN SHALL THEN BE SECURED TO THE BACK OF THE ENCLOSURE DOOR:

3.5.6. IMMEDIATELY UPON THE INSTALLATION OF ANY BURIED PIPE OR EQUIPMENT, THE CONTRACTOR SHALL INDICATE ON THE DRAWINGS THE LOCATIONS OF SAID EQUIPMENT. DIMENSIONS SHALL BE GIVEN FROM PERMANENT OBJECTS SUCH AS BUILDINGS, SIDEWALKS, CURBS AND DRIVEWAYS:

END OF SECTION 02810

NO.	BY	DATE	REVISION

REGISTERED LANDSCAPE ARCHITECT
CERTIFICATE NO.
36734
MARK E. FELLINGER
Date 7/24/19
Signed
ARIZONA USA

M. Fellinger

JN 36681

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	DATE:	CHECKED BY:
DESIGNED: MEF	DATE: 7/19	APPROVED BY:
DRAWN: MEF	DATE: 7/19	

WASH RESTORATION PLANS PREPARED FOR:
MASTER SUBMITTAL

MILLER RANCH

BEING A PORTION OF THE SOUTHEAST QUARTER OF SECTION 34, TOWNSHIP 11 SOUTH, RANGE 13 EAST GILA & SALT RIVER MERIDIAN, PIMA COUNTY, ARIZONA

OV1802195
REFERENCE:
OV914-006, OV1113-003, OV114-020, OV1208-07, OV1208-7A, OV904-02, OV1800713, OV1702695, (O)18-09, (R)14-10

WS-02

SCALE : N/A

SHEET 12 OF 14

LANDSCAPE SPECIFICATIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

1.1.1 DRAWINGS AND GENERAL PROVISIONS OF CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND DIVISION 1 SPECIFICATION SECTIONS, APPLY TO THIS SECTION.

1.2. **SUMMARY**
1.2.1. THIS SECTION INCLUDES PROVISIONS FOR THE FOLLOWING ITEMS:

1.2.1.1. TREES
1.2.1.2. SHRUBS
1.2.1.3. GROUNDCOVER
1.2.1.4. HYDROSEEDING
1.2.1.5. SOIL AMENDMENTS
1.2.1.6. FINISH GRADING
1.2.1.7. MAINTENANCE PERIOD

1.2.2. RELATED SECTIONS AND REFERENCE DOCUMENTS: THE FOLLOWING SECTIONS AND REFERENCE DOCUMENTS CONTAIN REQUIREMENTS THAT RELATE TO THIS SECTION.

1.2.3. UNDERGROUND IRRIGATION SYSTEM IS SPECIFIED IN DIVISION 2 SECTION 02810, "IRRIGATION SYSTEM."

1.2.4. REFERENCE DOCUMENTS:

1.2.4.1. AMERICAN JOINT COMMITTEE ON HORTICULTURE NOMENCLATURE (AJCHN), STANDARDIZED PLANT NAMES, LATEST EDITION.

1.2.4.2. AMERICAN ASSOCIATION OF NURSERYMEN, INC. (AAN), AMERICAN STANDARD FOR NURSERY STOCK, LATEST EDITION.

1.2.4.3. STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.

1.3. **QUALITY ASSURANCE**

1.3.1. SUBCONTRACT LANDSCAPE WORK TO A SINGLE FIRM SPECIALIZING IN LANDSCAPE WORK. THE CONTRACTOR SHALL POSSESS ALL LICENSES AND PERMITS REQUIRED TO PERFORM THE WORK INCLUDING A A-21 LANDSCAPING LICENSE.

1.3.2. SOURCE QUALITY CONTROL:

1.3.2.1. GENERAL: SHIP LANDSCAPE MATERIALS WITH CERTIFICATES OF INSPECTION REQUIRED BY GOVERNING AUTHORITIES. COMPLY WITH REGULATIONS APPLICABLE TO LANDSCAPE MATERIALS.

1.3.2.2. DO NOT MAKE SUBSTITUTIONS. IF SPECIFIED LANDSCAPE MATERIAL IS NOT OBTAINABLE, SUBMIT PROOF OF NON-AVAILABILITY TO LANDSCAPE ARCHITECT, TOGETHER WITH PROPOSAL FOR USE OF EQUIVALENT MATERIAL.

1.3.2.3. ANALYSIS AND STANDARDS: PACKAGE STANDARD PRODUCTS WITH MANUFACTURER'S CERTIFIED ANALYSIS. FOR OTHER MATERIALS, PROVIDE ANALYSIS BY RECOGNIZED LABORATORY MADE IN ACCORDANCE WITH METHODS ESTABLISHED BY THE ASSOCIATION OF OFFICIAL AGRICULTURE CHEMISTS, WHEREVER APPLICABLE.

1.3.2.4. TREES, SHRUBS, AND PLANTS: PROVIDE TREES, SHRUBS, AND PLANTS OF QUANTITY, SIZE, GENUS, SPECIES, AND VARIETY SHOWN AND SCHEDULED FOR LANDSCAPE WORK AND COMPLYING WITH RECOMMENDATIONS AND REQUIREMENTS OF ANSI Z60.1 "AMERICAN STANDARD FOR NURSERY STOCK". PROVIDE HEALTHY, VIGOROUS STOCK, GROWN IN RECOGNIZED NURSERY CONTAINER SIZES, IN ACCORDANCE WITH GOOD HORTICULTURAL PRACTICE AND FREE OF DISEASE, INSECTS, EGGS, LARVAE, AND DEFECTS SUCH AS KNOTS, SUN-SCALD, INJURIES, ABRASIONS, OR DISFIGUREMENT.

1.3.2.5. LABEL EACH TREE AND SHRUB WITH SECURELY ATTACHED WATERPROOF TAG BEARING LEGIBLE DESIGNATION OF BOTANICAL AND COMMON NAME.

1.3.2.6. WHERE FORMAL ARRANGEMENTS OR CONSECUTIVE ORDER OF TREES OR SHRUBS ARE SHOWN, SELECT STOCK FOR UNIFORM HEIGHT AND SPREAD, AND LABEL WITH NUMBER TO ASSURE SYMMETRY IN PLANTING.

1.3.2.7. SELECTION: THE LANDSCAPE ARCHITECT MAY CHECK TREES AND SHRUBS EITHER AT PLACE OF GROWTH OR AT SITE BEFORE PLANTING, FOR COMPLIANCE WITH REQUIREMENTS FOR GENUS, SPECIES, VARIETY, SIZE, AND QUALITY. THE CONTRACTOR SHALL SUBMIT PHOTOGRAPHS TO LANDSCAPE ARCHITECT OF TYPICAL TREES (15 GAL. AND LARGER CONTAINER SIZES) FOR LANDSCAPE WORK. LANDSCAPE ARCHITECT RETAINS RIGHT TO FURTHER CHECK TREES AND SHRUBS FOR SIZE AND CONDITION OF ROOT BALL ROOT SYSTEMS, INSECTS, INJURIES AND LATENT DEFECTS, AND TO REJECT UNSATISFACTORY OR DEFECTIVE MATERIAL AT ANY TIME DURING PROGRESS OF WORK. CONTRACTOR SHALL REMOVE REJECTED TREES OR SHRUBS IMMEDIATELY FROM PROJECT SITE UPON REQUEST.

1.4. **SUBMITTALS**

1.4.1. GENERAL: SUBMIT THE FOLLOWING IN ACCORDANCE WITH CONDITIONS OF CONTRACT AND DIVISION 1 SPECIFICATION SECTIONS.

1.4.2. PLANT AND MATERIAL CERTIFICATIONS:

1.4.2.1. CERTIFICATES OF INSPECTION AS REQUIRED BY LOCAL MUNICIPALITY AND/OR GOVERNMENTAL AUTHORITIES.

1.4.2.2. MANUFACTURER'S OR VENDOR'S CERTIFIED ANALYSIS FOR SOIL AMENDMENTS AND FERTILIZER MATERIALS.

1.4.2.3. LABEL DATA SUBSTANTIATING THAT PLANTS, TREES, SHRUBS AND PLANTING MATERIALS COMPLY WITH SPECIFIED REQUIREMENTS.

1.4.2.4. SEED VENDOR'S CERTIFIED STATEMENT FOR EACH SEED MIXTURES REQUIRED, STATING BOTANICAL AND COMMON NAME, PERCENTAGES BY WEIGHT, AND PERCENTAGES OF PURITY, GERMINATION, AND WEED SEED FOR EACH SEED SPECIES.

1.5. **DELIVERY, STORAGE AND HANDLING**

1.5.1. PACKAGED MATERIALS: DELIVER PACKAGED MATERIALS IN CONTAINERS SHOWING WEIGHT, ANALYSIS, AND NAME OF MANUFACTURER. PROTECT MATERIALS FROM DETERIORATION DURING DELIVERY AND WHILE STORED AT SITE.

1.5.2. TREES AND SHRUBS: DO NOT PRUNE PRIOR TO DELIVERY UNLESS OTHERWISE APPROVED BY LANDSCAPE ARCHITECT. DO NOT BEND OR BIND-TIE TREES OR SHRUBS IN SUCH MANNER AS TO DAMAGE BARK, BREAK BRANCHES, OR DESTROY NATURAL SHAPE. PROVIDE PROTECTIVE COVERING DURING DELIVERY.

1.5.3. DO NOT REMOVE CONTAINER-GROWN STOCK FROM CONTAINERS UNTIL PLANTING TIME.

1.5.4. CONTRACTOR SHALL PROVIDE COMPLETE CARE TO ALL ON-SITE STORAGE OF CONTAINER-GROWN STOCK. ALL CONTAINER-GROWN STOCK FOUND TO BE DAMAGE DURING STORAGE SHALL BE REMOVED AND REPLACED AT NO ADDITIONAL COST.

1.6. **JOB CONDITIONS**

1.6.1. UTILITIES: DETERMINE LOCATION OF UNDERGROUND UTILITIES AND PERFORM WORK IN A MANNER, WHICH WILL AVOID POSSIBLE DAMAGE. HAND EXCAVATE, AS REQUIRED. MAINTAIN GRADE STAKES SET BY OTHERS UNTIL REMOVAL IS MUTUALLY AGREED UPON BY PARTIES CONCERNED.

1.6.2. EXCAVATION: WHEN CONDITIONS DETRIMENTAL TO PLANT GROWTH ARE ENCOUNTERED, SUCH AS RUBBLE FILL, ADVERSE DRAINAGE CONDITIONS, OR OBSTRUCTIONS, NOTIFY LANDSCAPE ARCHITECT BEFORE PLANTING.

1.7. **SEQUENCING AND SCHEDULING**

1.7.1. PLANTING TIME: PROCEED WITH, AND COMPLETE LANDSCAPE WORK AS RAPIDLY AS PORTIONS OF SITE BECOME AVAILABLE, AND SHALL BE PERFORMED DURING THOSE PERIODS WHEN WEATHER AND SOIL CONDITIONS ARE SUITABLE IN ACCORDANCE WITH LOCALLY ACCEPTED HORTICULTURAL PRACTICE.

1.8. **SPECIAL PROJECT WARRANTY**

1.8.1. WARRANTY SHRUBS FOR A PERIOD OF 90 DAYS AFTER DATE OF FINAL ACCEPTANCE.

1.8.2. WARRANTY TREES, FOR A PERIOD OF ONE YEAR AFTER DATE OF FINAL ACCEPTANCE AGAINST DEFECTS, INCLUDING DEATH, EXCEPT FOR DEFECTS RESULTING FROM NEGLECT BY OWNER, ABUSE OR DAMAGE BY OTHERS, OR UNUSUAL PHENOMENA OR INCIDENTS, WHICH ARE BEYOND LANDSCAPE INSTALLER'S CONTROL.

1.8.3. CONTRACTOR SHALL REMOVE AND REPLACE TREES, SHRUBS, OR OTHER PLANTS FOUND TO BE DEAD OR IN AN UNHEALTHY CONDITION DURING WARRANTY PERIOD. MAKE REPLACEMENTS WITHIN 14 CALENDAR DAYS. REPLACE TREES AND SHRUBS, WHICH ARE IN DOUBTFUL CONDITION AT END OF WARRANTY PERIOD; UNLESS, IN OPINION OF LANDSCAPE ARCHITECT, IT IS ADVISABLE TO EXTEND WARRANTY PERIOD FOR A FULL GROWING SEASON.

1.8.4. ANOTHER WARRANTY SITE OBSERVATION VISIT WILL BE CONDUCTED AT END OF EXTENDED WARRANTY PERIOD, IF ANY, TO DETERMINE ACCEPTANCE OR REJECTION. REPLACEMENT SHALL BE THE PLANTS USED FOR SAME KIND AND SIZE AS SPECIFIED FOR LANDSCAPE WORK. REPLACEMENTS SHALL BE FURNISHED, AND PLANTED AS ORIGINALLY SPECIFIED BY THE CONTRACTOR.

PART 2 - PRODUCTS

2.1 SOIL AMENDMENTS

2.2.1. COMMERCIAL FERTILIZER: COMPLETE FERTILIZER OF NEUTRAL CHARACTER, WITH SOME ELEMENTS DERIVED FROM ORGANIC SOURCES AND CONTAINING THE FOLLOWING PERCENTAGES OF AVAILABLE PLANT NUTRIENTS:

2.2.1.1. PRE-PLANT FERTILIZER: PROVIDE FERTILIZER WITH NOT MORE THAN 6 PERCENT TOTAL NITROGEN; AND NOT LESS THAN 20 PERCENT AVAILABLE PHOSPHORIC ACID AND 20 PERCENT SOLUBLE POTASH.

2.2.1.2. POST-PLANT FERTILIZER: PROVIDE FERTILIZER WITH PERCENTAGE OF NITROGEN REQUIRED TO PROVIDE NOT LESS THAN 6 POUNDS OF ACTUAL NITROGEN, 2 PERCENT PHOSPHORIC ACID, 4 PERCENT POTASSIUM, 5 PERCENT SULFUR, 20% HUMIC ACIDS (FROM LEONARDARDITE) AND 75% HUMATE (MINERALS/ORGANIC MATTER/CARBON). POST-PLANT FERTILIZER SHALL BE TRI-C 6-2-4 OR APPROVED EQUAL.

2.2.1.3. PLANT TABLETS, AGRIFORM (20-10-5-) BLUE CHIP TABLETS 21 GRAM.

2.2.2. SOIL SULPHUR, SHALL BE ELEMENTAL SULPHUR (99.5%) COMMERCIALLY MANUFACTURED SO THAT A PURE SULPHUR PRODUCT IS USED.

2.2.3. ORGANIC SOIL CONDITIONER, SHALL BE A PRODUCT THAT AIDS THE STRUCTURE OF THE SOIL CONSISTING OF RAPIDLY DECAYING SLOWLY DECAYING, AND NON-DECAYING MATERIAL. NITROGEN (ORGANIC OR AMMONIC) 0.5% TO 0.8%, PH BETWEEN 5.5 TO 6.5 SALINITY (ECE X 103 AT 25° C) = 2.5, ORGANIC MATTER MORE THAN 87% (DRY WEIGHT BASIS). THE COMMERCIAL GRADE PRODUCT USED SHALL BE NUMEX LIF, LOAMEX, OR FOREST HUMUS OR APPROVED EQUAL BY LANDSCAPE ARCHITECT.

2.2.4. SOIL CONDITIONER, GRANULAR, TRI-C HUMATE PLUS, SHALL CONTAIN 25% HUMIC ACIDS. IT SHALL BE FREE FLOWING, SUITABLE FOR APPLICATION WITH APPROVED EQUIPMENT AND SHALL CONTAIN THE MINIMUM AVAILABLE PERCENTAGES OF 7% CALCIUM AND 5% SULPHUR.

2.2.5. PLANTING BACKFILL, SHALL BE A THOROUGHLY BLENDED MIXTURE OF EXCAVATED SOIL FROM THE PITS AND SOIL AMENDMENTS AT THE FOLLOWING MIXTURE SOIL CONDITIONER:

2.2.5.1. ORGANIC SOIL CONDITIONER 1/3
2.2.5.2. ON SITE SOIL 2/3
2.2.5.3. SOIL CONDITIONER 8 LBS PER CUBIC YARD MIX
2.2.5.4. PRE-PLANT FERTILIZER 2 LBS PER CUBIC YARD MIX

2.3. **PLANT MATERIALS**

2.3.1. QUALITY: PROVIDE TREES, SHRUBS, AND OTHER PLANTS OF SIZE, GENUS, SPECIES, AND VARIETY SHOWN AND SCHEDULED FOR LANDSCAPE WORK AND COMPLYING WITH RECOMMENDATIONS AND REQUIREMENTS OF ANSI Z60.1 "AMERICAN STANDARD FOR NURSERY STOCK."

2.3.2. CONTAINER STOCK (1 GAL., 5 GAL., 15 GAL., BOXES) SHALL HAVE BEEN GROWN IN CONTAINER FOR AT LEAST SIX MONTHS, BUT NOT OVER TWO YEARS. NO CONTAINER PLANTS THAT HAVE CRACKED OR BROKEN BALLS OF EARTH WHEN TAKEN FROM THE CONTAINER SHALL BE PLANTED, EXPECT UPON SPECIAL APPROVAL. NO TREES WITH DAMAGED ROOTS OR BROKEN BALLS SHALL BE PLANTED.

2.3.3. TREES: PROVIDE TREES OF HEIGHT AND WIDTH SCHEDULED OR SHOWN AND WITH BRANCHING CONFIGURATION RECOMMENDED BY ANSI Z60.1 FOR TYPE AND SPECIES REQUIRED, UNLESS OTHERWISE SPECIFIED QUANTITIES SHALL BE FURNISHED AS NEEDED TO COMPLETE WORK SHOWN ON DRAWINGS. PROVIDE SINGLE STEM TREES EXCEPT WHERE SPECIAL FORMS ARE SHOWN OR LISTED.

2.3.4. SHRUBS: PROVIDE SHRUBS OF THE HEIGHT AND WIDTH SHOWN OR LISTED AS REQUIRED BY ANSI Z60.1 FOR TYPE AND HEIGHT OF SHRUB REQUIRED.

2.4. **GROUNDCOVER MATERIALS**

2.4.1. SEED: PROVIDE FRESH, CLEAN, NEW-CROP SEED COMPLYING WITH TOLERANCE FOR PURITY AND GERMINATION ESTABLISHED BY OFFICIAL SEED ANALYSTS OF NORTH AMERICA. PROVIDE SEED MIXTURE COMPOSED OF SEED SPECIES, PROPORTIONS AND MINIMUM PERCENTAGES OF PURITY, GERMINATION, AND MAXIMUM PERCENTAGE OF WEED SEED, AS SPECIFIED.

2.4.1.1. "SCHEDULE OF SEED MIXTURES" AS INDICATED ON PLANS.

2.5. **HYDROSEED COMPONENTS AND ADDITIVES**

2.5.1. MATERIALS: ALL MATERIALS SHALL BE STANDARD, APPROVED, FIRST GRADE QUALITY AND IN PRIME CONDITION WHEN INSTALLED. ALL COMMERCIAL PROCESS OR PACKAGING MATERIAL SHALL BE DELIVERED TO THE SITE IN THE ORIGINAL UNOPENED CONTAINERS BEARING THE MANUFACTURER'S GUARANTEED ANALYSIS.

2.5.2. WOOD FIBER MULCH --MULCH FIBER PROFILE PRODUCTS OR EQUAL.
2.5.3. SEED MIX - AS INDICATED ON DRAWINGS.
2.5.4. SOIL CONDITIONER - TRI-C HUMATE
2.5.5. MYCORRHIZAE - TRI-C ENDO 120

2.6. MISCELLANEOUS LANDSCAPE MATERIALS

2.6.1. STAKING MATERIAL: STAKES SHALL BE OF LODGEPOLE PINE. THESE SHALL BE STRAIGHT SHAFTS, SHAVED AND CUT CLEAN AND BARE OF BRANCHES AND STUBS, OF UNIFORM THICKNESS WITH A MINIMUM DIAMETER OF 2 INCHES, FREE OF LOOSE KNOTS, SPLITS OR BENDS. STAKES SHALL BE NO LESS THAN TEN (10) FEET IN LENGTH. TREE TIES SHALL BE V.I.T. CINCH-TIE OR APPROVED EQUAL.

2.7. WEED CONTROL

2.7.1. PRE-PLANTING HERBICIDE: ROUNDUP OR EQUAL

2.7.2. PRE-EMERGENT WEED CONTROL: RONSTAR-G, TREFLAN, EPTAM, VEGITEX, OR EQUAL, AS RECOMMENDED BY LICENSED PEST CONTROL APPLICATOR.

PART 3 - EXECUTION

3.1 PREPARATION - GENERAL

3.1.1 LAY OUT PLANTING AREAS SHALL MEAN ALL AREAS TO BE PLANTED WITH TREES, SHRUBS, GROUNDCOVERS AND AREAS FOR MULTIPLE PLANTINGS. STAKE LOCATIONS AND OUTLINE AREAS AND SECURE LANDSCAPE ARCHITECT'S ACCEPTANCE BEFORE START OF PLANTING WORK. MAKE MINOR ADJUSTMENTS AS MAY BE REQUIRED.

3.1.2 ALL ROCK AND OTHER GROWTH OR DEBRIS ACCUMULATED DURING THE DURATION OF THE PROJECT SHALL BE REMOVED FROM THE SITE. UPON COMPLETION OF ALL GRADING OPERATIONS, SOIL SAMPLES (3 LOCATIONS MIN.) WITH IDENTIFY REFERENCE SHALL BE TAKEN BY THE CONTRACTOR AND ANALYZED BY A SOIL LABORATORY. THE RESULTS OF THESE TESTS ARE TO BE REVIEWED BY THE LANDSCAPE ARCHITECT FOR ANY REQUIRED MODIFICATIONS TO SPECIFIED SOIL PREPARATION.

3.1.3 GRADING AND SOIL PREPARATION WORK SHALL BE PERFORMED ONLY DURING THE PERIOD WHEN BENEFICIAL AND OPTIMUM RESULTS MAY BE OBTAINED. IF THE MOISTURE CONTENT OF THE SOIL SHOULD REACH SUCH A LEVEL THAT WORKING IT WOULD DESTROY SOIL STRUCTURE, SPREADING AND GRADING OPERATIONS SHALL BE SUSPENDED UNTIL THE MOISTURE CONTENT IS INCREASED OR REDUCED TO ACCEPTABLE LEVELS AND THE DESIRED RESULTS ARE LIKELY TO BE OBTAINED.

3.1.4 ALL SCALED DIMENSIONS ARE APPROXIMATE. BEFORE PROCEEDING WITH ANY WORK, CAREFULLY CHECK AND VERIFY ALL DIMENSIONS AND IMMEDIATELY INFORM THE LANDSCAPE ARCHITECT OF ANY DISCREPANCY BETWEEN THE DRAWINGS AND/OR SPECIFICATIONS AND ACTUAL CONDITIONS.

3.1.5 QUANTITIES FOR PLANT MATERIALS ARE SHOWN FOR CONVENIENCE ONLY, AND NOT GUARANTEED. CHECK AND VERIFY COUNT AND SUPPLY SUFFICIENT NUMBER TO FULFILL INTENT OF DRAWINGS. CERTIFY ANY CLARIFICATIONS WITH THE LANDSCAPE ARCHITECT. ADEQUATELY STAKE, BARRICADE, AND PROTECT ALL IRRIGATION EQUIPMENT, MANHOLES, UTILITY LINES, AND OTHER EXISTING PROPERTY DURING ALL PHASES OF THE SOIL AMENDING PLANTING AND GRADING OPERATIONS.

3.1.6 UPON DELIVERY OF MATERIAL AND/OR COMPLETION OF ALL SOIL CONDITIONING AND GRADING BUT PRIOR TO INITIATING PLANTING OPERATIONS, THE LANDSCAPE ARCHITECT WITH THE HERETOFORE SPECIFIED SIGNED COPIES OF REQUIRED CERTIFICATES, TRIP SLIPS, AND INVOICES FOR SOIL PREPARATION MATERIALS, SHALL INVOICE SUCH MATERIAL, COMPARING THE TOTAL QUANTITIES OF EACH MATERIAL FURNISHED AGAINST THE TOTAL AREA TO EACH OPERATION. IF THE MINIMUM RATES OF APPLICATION HAVE NOT BEEN MET, THE LANDSCAPE ARCHITECT WILL REQUIRE THE DISTRIBUTION OF ADDITIONAL QUANTITIES OF THESE MATERIALS TO FULFILL THE MINIMUM APPLICATION REQUIREMENTS SPECIFIED AT NO COST TO OWNER.

3.2 FINISH GRADING

3.2.1 FINISH GRADING: FINISH GRADES SHALL BE AS INDICATED ON THE CIVIL ENGINEER'S DRAWINGS AND LANDSCAPE DRAWINGS.

3.2.2 FINISH GRADES SHALL BE MEASURED AS THE FINAL WATER COMPACTED AND SETTLED SURFACE GRADES; AND SHALL BE WITHIN PLUS OR MINUS 0.1 FOOT OF THE SPOT ELEVATIONS AND GRADE LINES INDICATED ON THE DRAWING.

3.2.3 FINISH GRADES SHALL BE MEASURED AT THE TOP SURFACE OF SURFACE MATERIALS.

3.2.4 MOLDING AND ROUNDING OF THE GRADES SHALL BE PROVIDED AT ALL CHANGES IN SLOPE.

3.2.5 ALL UNDULATIONS AND IRREGULARITIES IN THE PLANTING SURFACES RESULTING FROM TILLAGE, ROTOTILLING AND ALL OTHER OPERATIONS SHALL BE LEVELED AND FLOATED OUT BEFORE PLANTING OPERATIONS ARE INITIATED.

3.2.6 THE CONTRACTOR SHALL TAKE EVERY PRECAUTION TO PROTECT AND AVOID DAMAGE TO SPRINKLER HEADS, IRRIGATION LINES, AND OTHER UNDERGROUND UTILITIES DURING HIS GRADING AND CONDITIONING OPERATIONS.

3.2.7 FINAL FINISH GRADES SHALL INSURE POSITIVE DRAINAGE OF THE SITE WITH ALL SURFACE DRAINAGE AWAY FROM BUILDINGS, WALLS, AND TOWARD ROADWAYS, DRAINS AND CATCH BASINS.

3.2.8 FINAL GRADES SHALL BE ACCEPTABLE TO THE LANDSCAPE ARCHITECT BEFORE PLANTING OPERATIONS WILL BE ALLOWED TO BEGIN.

3.2.9 PLANTING SURFACES SHALL BE GRADED WITH NO LESS THAN 2 PERCENT SURFACE SLOPE FOR POSITIVE DRAINAGE UNLESS OTHERWISE NOTED ON PLANS.

3.3 DEEP WATERING AND WEED CONTROL:

3.3.1 AFTER COMPLETE INSTALLATION AND TESTING OF THE IRRIGATION SYSTEM AND PREPARATION OF PLANTING AREAS, ALL PLANTING AREAS SHALL BE DEEP WATERED AND COMPACTED AND SETTLED BY CONTINUOUS APPLICATION OF IRRIGATION WATER UNTIL THE SOIL IS MOIST TO A MINIMUM DEPTH OF 8".

3.3.2 CARE SHALL BE TAKEN THAT THE RATE OF APPLICATION OF WATER DOES NOT CAUSE EROSION OR SLOUGHING OF SOILS.

3.3.3 ALL DEPRESSIONS, VOIDS, EROSION SCARS AND SETTLED TRENCHES GENERATED BY THE DEEP WATERING SHALL BE FILLED WITH CONDITIONED TOPSOIL AND BROUGHT TO FINISH GRADE.

3.3.4 WEED CONTROL:

3.3.4.1 MANUALLY REMOVE ALL EXISTING WEEDS AND GRASSES AND REMOVE FROM SITE.

3.3.4.2 APPLY 200 LBS/ACRE COMMERCIAL FERTILIZER TO ALL PLANTING AREAS. IRRIGATE 4 TIMES PER DAY DURING THE SUMMER SEASON AND 2 TIMES PER DAY DURING OTHER SEASONS FOR 3 WEEKS TO GERMINATE SEEDS.

3.3.4.3 DISCONTINUE IRRIGATION FOR 2 DAYS AND APPLY A NON-SELECTIVE CONTACT HERBICIDE, PER MANUFACTURER'S DIRECTION, TO ERADICATE GERMINATED WEEDS AND GRASSES. ALLOW HERBICIDE TO KILL WEEDS AND GRASSES. MANUALLY REMOVE WEEDS AND GRASSES FROM SITE. MINIMIZE SOIL DISTURBANCE ON SLOPED AREAS OF THE SITE.

NO.	BY	DATE	REVISION

REGISTERED LANDSCAPE ARCHITECT
CERTIFICATE NO.
36734
MARK E. FELLINGER
Date 7/24/19
Signed
ARIZONA USA

M. Fellinger

JN 36681

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	DATE:	CHECKED BY:	DATE:
DESIGNED: MEF	DATE: 7/19	APPROVED BY:	DATE:
DRAWN: MEF	DATE: 7/19		

WASH RESTORATION PLANS PREPARED FOR:
MASTER SUBMITTAL
MILLER RANCH
BEING A PORTION OF THE SOUTHEAST QUARTER OF SECTION 34, TOWNSHIP 11 SOUTH, RANGE 13 EAST GILA & SALT RIVER MERIDIAN, PIMA COUNTY, ARIZONA

OV1802195
REFERENCE:
OV914-006, OV1113-003, OV114-020, OV1208-07, OV1208-7A, OV904-02, OV1800713, OV1702695, (O)18-09, (R)14-10

WS-03

SCALE : N/A

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LANDSCAPE SPECIFICATIONS

3.3.4.4 IF WEEDS AND GRASSES STILL EXIST, IRRIGATE 2 OR 4 TIMES PER DAY, AS ABOVE, FOR 2 WEEKS OR UNTIL NEW GROWTH APPEARS. REAPPLY HERBICIDE PER MANUFACTURER'S DIRECTION. ALLOW HERBICIDE TO KILL WEEDS AND GRASSES. MANUALLY REMOVE WEEDS AND GRASSES FROM THE SITE.

3.3.4.5 NO PRE-EMERGENT HERBICIDE SHALL BE USED IN LANDSCAPE AREAS TO BE SEEDED.

3.3.4.6 CONTRACTOR SHALL OBTAIN APPROVAL BY THE OWNER TO APPLY ANY HERBICIDE, INSECTICIDE, FUNGICIDE, OR OTHER CHEMICALS TO BE USED ONSITE. CONTRACTOR SHALL ABIDE BY ALL APPLICABLE GOVERNMENTAL STANDARDS REGULATING THE APPLICATION OF ANY CHEMICALS, AND SHALL FOLLOW ALL MANUFACTURER'S RECOMMENDATIONS. ALL WORKERS APPLYING SUCH CHEMICALS SHALL BE LICENSED IF REQUIRED BY LAW.

3.4 EXCAVATION FOR TREES AND SHRUBS

3.4.1 CONTAINER GROWN STOCK IN CANS SHALL BE CUT ON TWO SIDES WITH AN APPROVED CAN CUTTER. STOCK GROWN IN BOXES SHALL HAVE BOTTOMS REMOVED. ALL USED CONTAINERS SHALL BE REMOVED TO THE STORAGE AREAS OR FROM THE SITE. EACH TREE AND SHRUB SHALL BE PLACED IN THE CENTER OF THE HOLE AND SHALL BE SET PLUMB, REMOVE SIDES OF BOXES WHERE REQUIRED, AND HELD RIGIDLY IN POSITION UNTIL THE PLANTING BACKFILL HAS BEEN TAMPED FROM AROUND EACH ROOT BALL.

3.4.1.1 FOR CONTAINER GROWN STOCK, EXCAVATE AS SPECIFIED FOR SIZE OF CONTAINER WIDTH AND DEPTH.

3.4.1.2 DISPOSE OF EXCESS SUBSOIL REMOVED FROM PLANTING EXCAVATIONS.

3.4.1.3 FILL EXCAVATIONS FOR TREES AND SHRUBS WITH WATER AND ALLOW WATER TO PERCOLATE OUT PRIOR TO PLANTING.

3.5 PLANTING TREES AND SHRUBS

3.5.1 SET CONTAINER GROWN STOCK AS SPECIFIED, CUT CANS ON 2 SIDES WITH AN APPROVED CAN CUTTER; REMOVE BOTTOMS OF WOODEN BOXES AFTER PARTIAL BACKFILLING SO AS NOT TO DAMAGE ROOT BALLS. ALL USED CONTAINERS SHALL BE REMOVED TO THE STORAGE AREAS OR FROM THE SITE. EACH TREE AND SHRUB SHALL BE PLACED IN THE CENTER OF THE HOLE AND SHALL BE SET PLUMB AND HELD RIGIDLY IN POSITION UNTIL THE PLANTING BACKFILL HAS BEEN TAMPED FROM AROUND EACH ROOT BALL.

3.5.2 ALL PLANTS SHALL BE SET AT SUCH A LEVEL THAT AFTER SETTLING, THEY BEAR THE SAME RELATIONSHIP TO THE SURROUNDING FINISH GRADE AS THEY BORE TO THE SOIL LINE GRADE IN THE CONTAINER.

3.5.3 PLANTING TABLETS SHALL BE PLACED IN EACH TREE PLANTING HOLE AT THE FOLLOWING RATE:

3.5.3.1 1-21 GRAM TABLET PER 1 GALLON CONTAINER.
3.5.3.2 3-21 GRAM TABLETS PER 5 GALLON CONTAINER.
3.5.3.3 4-21 GRAM TABLETS PER 15 GALLON CONTAINER.
3.5.3.4 1-21 GRAM TABLET PER EACH 4 INCH OF BOX SIZE

3.5.4 NO PLANT WILL BE ACCEPTED IF THE ROOT BALL IS BROKEN OR CRACKED; EITHER BEFORE, DURING OR AFTER THE PROCESS OF INSTALLATION.

3.5.5 WATER BASIN SHALL BE FORMED AROUND EACH TREE AND SHRUB PER DETAIL. ALL PLANTS SHALL BE THOROUGHLY WATERED INTO THE FULL DEPTH OF EACH PLANT HOLE IMMEDIATELY AFTER PLANTING.

3.5.6 PRUNE, THIN OUT, AND SHAPE TREES AND SHRUBS IN ACCORDANCE WITH STANDARD HORTICULTURAL PRACTICE. PRUNE TREES TO RETAIN REQUIRED HEIGHT AND SPREAD. UNLESS OTHERWISE DIRECTED BY LANDSCAPE ARCHITECT, DO NOT CUT TREE LEADERS, AND REMOVE ONLY INJURED OR DEAD BRANCHES FROM FLOWERING TREES, IF ANY. PRUNE TREES AND SHRUBS TO RETAIN NATURAL CHARACTER.

3.5.7 REMOVE AND REPLACE EXCESSIVELY PRUNED OR MALFORMED STOCK RESULTING FROM IMPROPER PRUNING.

3.5.8 GUY AND STAKE TREES IMMEDIATELY AFTER PLANTING, AS INDICATED. ALL TREES, 36" BOX AND SMALLER SHALL BE STAKED (OR GUYED) AS INDICATED ON DRAWINGS. THE STAKES SHALL BE DRIVEN IN PLUMB AND SECURE. SPECIAL CARE SHALL BE TAKEN THAT THE DRIVING IN OF THE STAKE DOES NOT DAMAGE THE TREE ROOTS OR ROOT BALL. TREE TIES SHALL BE FASTENED PER DETAIL.

3.6 HYDROSEEDING

3.6.1 INSPECTION OF CONDITIONS: BEFORE PROCEEDING WITH ANY WORK, THE HYDROSEEDING LANDSCAPE CONTRACTOR SHALL CAREFULLY CHECK PLANTING AREA CONDITIONS AND SHALL IMMEDIATELY INFORM THE LANDSCAPE ARCHITECT OF ANY DISCREPANCIES BETWEEN THE DRAWINGS AND ACTUAL CONDITIONS. NO WORK SHALL BE DONE ON ANY AREA WHERE THERE ARE SUCH DISCREPANCIES OR WHERE CONDITIONS ARE UNSUITABLE FOR SUCCESSFUL PLANT MATERIAL ESTABLISHMENT UNTIL APPROVAL HAS BEEN GIVEN BY THE LANDSCAPE ARCHITECT.

3.6.2 QUALITY OF WORK: THE HYDROSEEDING WORK SHALL BE PERFORMED BY A COMPETENTLY TRAINED INDIVIDUAL OR HYDROSEEDING COMPANY IN ACCORDANCE WITH THE BEST STANDARDS AND PRACTICES RELATED TO THE TRADE.

3.6.3 SOIL PREPARATION: WATER ALL PLANTING AREAS THOROUGHLY AND CONTINUOUSLY FOR THREE (3) CONSECUTIVE DAYS TO SATURATE UPPER LAYERS OF SOIL PRIOR TO HYDROSEEDING OPERATION. ALLOW PLANTING AREA SOIL SURFACE TO DRY OUT FOR ONE DAY ONLY PRIOR TO THE HYDROSEEDING APPLICATION. CARE MUST BE TAKEN TO NOT ALLOW THE SOIL SURFACE TO BE SUPER SATURATED WITH WATER PRIOR TO THE HYDROSEEDING INSTALLATION AT THE SAME TIME THE SOIL SURFACE SHOULD NOT BE BONE DRY. THERE SHOULD BE SOME RESIDUAL MOISTURE WITHIN THE FIRST 1/4 INCH OF SOIL SURFACE.

3.6.4 BEGIN THE HYDROSEEDING OPERATION ON ALL AREAS AS SPECIFIED HEREIN.

3.6.4.1 HYDROMULCHING APPLICATION AND PLANTING SCHEDULE: THE HYDROMULCHING SHALL BE APPLIED IN THE FORM OF A FLURRY CONSISTING OF ORGANIC SOIL AMENDMENTS, COMMERCIAL FERTILIZER, AND OTHER CHEMICALS CALLED FOR. WHEN HYDRAULICALLY SPRAYED ONTO THE SOIL, THE MULCH SHALL NOT FORM A BLOTTER LIKE MATERIAL. THE SPRAY OPERATION MUST BE SO DIRECTED THAT THE SLURRY SPRAY WILL ALSO PENETRATE THE SOIL SURFACE AS TO DRILL AND MIX THE SLURRY COMPONENTS INTO THE SOIL, THUS ENSURING MAXIMUM IMPREGNATION AND COVERAGE.

3.6.4.2 PREPARATION OF HYDROSEEDING MIXTURE: THE SLURRY SHALL BE PREPARED AT THE SITE AND ITS COMPONENTS SHALL BE MIXED TO SUPPLY THE RATES OF APPLICATION AS PER SPECIFICATIONS.

3.6.4.3 SLURRY PREPARATION SHALL BEGIN BY ADDING WATER TO THE LINK WHEN THE ENGINE IS AT ONE-HALF THROTTLE. WHEN THE WATER LEVEL HAS REACHED THE HEIGHT OF THE AGITATOR SHAFT AND GOOD RE-CIRCULATION HAS BEEN ESTABLISHED, THE FERTILIZERS SHALL BE ADDED TO THE MIXTURE (THE TANK SHALL BE AT LEAST 1/3 FILLED WITH WATER AT THIS TIME).

3.6.4.4 THE ENGINE THROTTLE SHALL BE OPEN TO FULL SPEED WHEN THE TANK IS 1/2 FILLED WITH WATER. ALL ORGANIC AMENDMENTS, FIBER, AND CHEMICALS SHALL THEN BE ADDED BY THE TIME THE TANK IS 2-1/3 TO 3/4 FULL. AT THIS TIME THE SEED MIX SHALL ALSO BE ADDED.

3.6.4.5 SPRAYING SHALL COMMENCE IMMEDIATELY WHEN THE TANK IS FULL AND THE SLURRY IS MIXED.

3.6.5 APPLICATION: THE OPERATOR SHALL SPRAY THE AREA WITH A UNIFORM VISIBLE COAT USING THE DARK COLOR OF THE CELLULOSE FIBER OR ORGANIC AMENDMENT AS A VISUAL GUIDE. THE SLURRY SHALL BE APPLIED IN A DOWNWARD DRILLING MOTION VIA A FAN STREAM NOZZLE.

3.6.6 TIME LIMIT: THE HYDROMULCHING SLURRY COMPONENTS ARE NOT TO BE LEFT IN THE HYDROMULCH MACHINE FOR MORE THAN TWO HOURS. IF SLURRY COMPONENTS ARE LEFT FOR MORE THAN TWO HOURS IN THE MACHINE, THE CONTRACTOR SHALL ADD 50% MORE OF THE ORIGINALLY SPECIFIED SEEDMIX TO ANY SLURRY MIX WHICH HAS NOT BEEN APPLIED WITHIN THE TWO HOURS AFTER MIXING. THE CONTRACTOR SHALL ADD 75% MORE OF THE ORIGINAL SEEDMIX TO ANY SLURRY MIXTURE WHICH HAS NOT BEEN APPLIED EIGHT HOURS AFTER MIXING. ANY MIXTURE NOT APPLIED AFTER EIGHT HOURS SHALL BE REJECTED AND DISPOSED OF OFF-SITE AT CONTRACTOR'S EXPENSE.

3.6.7 PROTECTION: SPECIAL CARE IS TO BE EXERCISED BY THE CONTRACTOR TO PREVENT ANY OF THE SLURRY FROM BEING SPRAYED ONTO ANY ADJACENT PROPERTY, ETC. ANY SLURRY SPRAYED ONTO THESE AREAS SHALL BE CLEANED OFF AT THE CONTRACTOR'S EXPENSE.

3.6.8 HYDROMULCHING SCHEDULE: AS AN ADDED PRECAUTION, THE HYDROSEEDED AREA SHALL BE PRESOAKED WITH WATER BY THE IRRIGATION SYSTEM TO A DEPTH OF THREE (3) INCHES 48 HOURS PRIOR TO THE HYDROSEEDING INSTALLATION.

3.6.9 APPLICATION RATES:
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3.6.9.1 WOOD FIBER - 2,500 LBS/ACRE
3.6.9.2 SEED MIX - AS INDICATED ON PLANS
3.6.9.3 TRI-C HUMATE - 500 LBS PER ACRE
3.6.9.4 TRI-C ENDO 120 - 60 LBS PER ACRE

3.6.10 HYDROSEEDING EQUIPMENT: THE SPECIFIED COMPONENTS SHALL BE MIXED TOGETHER IN A HYDROSEEDING MACHINE DESCRIBED AS FOLLOWS:

3.6.10.1 THE HYDROMULCHING EQUIPMENT SHALL MEET THE MINIMUM REQUIREMENTS OF A SLURRY DISTRIBUTION LINE LARGE ENOUGH TO PREVENT CLOSING AND CONTINUOUS NON-FLUCTUATING DISCHARGE OF AT LEAST 25 PSI AT THE END OF THE SPRAY NOZZLE. THE SLURRY TANK SHALL HAVE A MINIMUM CAPACITY OF 2000 GALLONS AND SHALL BE MOUNTED ON A TRAVELING UNIT EITHER SELF-PROPELLED OR DRAWN BY A SEPARATE UNIT.

3.6.10.2 THE EQUIPMENT SHALL HAVE A BUILT-IN AGITATION SYSTEM UNDER OPERATING CAPACITY SUFFICIENT TO AGITATE, SUSPEND AND HOMOGENEOUSLY MIX A SLURRY CONTAINING NOT LESS THAN 20 KILOS (44 LBS.) OF ORGANIC MULCHING AMENDMENT PLUS FERTILIZER CHEMICAL ADDITIVES AND SOLIDS FOR EACH 100 GALLONS OF WATER.

3.7 POST FERTILIZATION

3.7.1 POST FERTILIZATION FOR ALL LAWN AND GROUND COVER AREAS (TRI-C 6-2-4) SHALL OCCUR 45 DAYS AFTER PLANTING AT A RATE OF 10 LBS. PER 1,000 SQ. FT.

3.7.2 POST FERTILIZATION FOR ALL SHRUBS AND TREES (TRI-C 6-2-4) SHALL OCCUR 45 DAYS AFTER PLANTING AT A RATE OF 10 LBS. PER 1,000 SQ. FT.:

3.7.2.1 SHRUBS: SPRINKLE ¼ CUP EVENLY AROUND DRIPLINE AND WORK INTO TOP 1 INCH OF SOIL.

3.7.2.2 TRESS: APPLY ½ LB. PER 1 INCH OF TRUNK DIAMETER. DISTRIBUTE EVENLY UNDER BRANCHES OUT TO DRIPLINE.

3.8 MAINTENANCE PERIOD

3.8.1 THE MAINTENANCE PERIOD BEGINS ON THE FIRST DAY AFTER ALL LANDSCAPE AND IRRIGATION WORK AND ALL OTHER INDICATED OR SPECIFIED WORK ON THIS PROJECT IS COMPLETE, CHECKED, ACCEPTED AND WRITTEN APPROVAL FROM THE LANDSCAPE ARCHITECT IS GIVEN TO BEGIN THE MAINTENANCE PERIOD.

3.8.2 THE CONTRACTOR SHALL CONTINUOUSLY MAINTAIN ALL INVOLVED AREAS OF THE CONTRACT DURING THE PROGRESS OF THE WORK AND DURING THE MAINTENANCE PERIOD UNTIL THE FINAL ACCEPTANCE OF THE WORK.

3.8.3 REGULAR PLANTING MAINTENANCE OPERATIONS SHALL BEGIN IMMEDIATELY AFTER EACH PLANT OR LAWN IS PLANTED. PLANTS AND LAWNS SHALL BE KEPT IN A HEALTHY, GROWING CONDITION AND IN A VISUALLY PLEASING APPEARANCE BY WATERING, PRUNING, MOWING, ROLLING, TRIMMING, EDGING, FERTILIZING, RE-STAKING, PEST AND DISEASE CONTROL, SPRAYING, WEEDING, CLEANING-UP AND ANY OTHER NECESSARY OPERATION.

3.8.4 THE MAINTENANCE PERIOD SHALL CONTINUE UNTIL FINAL ACCEPTANCE, BUT UNDER NO CIRCUMSTANCES LESS THAN FOLLOWING PERIOD:

3.8.4.1 60 DAYS AFTER SUBSTANTIAL COMPLETION OF PLANTING.

3.8.5 THE CONTRACT COMPLETION DATE OF THE CONTRACT MAINTENANCE PERIOD WILL BE EXTENDED WHEN IN THE OPINION OF THE LANDSCAPE ARCHITECT, IMPROPER MAINTENANCE AND/OR POSSIBLE POOR OR UNHEALTHY CONDITION OF PLANTED MATERIAL OR UNESTABLISHED, NON-COVERING LAWNS ARE EVIDENT AT THE TERMINATION OF THE SCHEDULED MAINTENANCE PERIOD. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADDITIONAL MAINTENANCE OF THE WORK AT NO CHANGE IN CONTRACT PRICE UNTIL ALL OF THE WORK IS COMPLETED AND ACCEPTABLE.

3.8.6 THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ADEQUATE PROTECTION OF THE AREAS. DAMAGED AREAS SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.

3.8.7 MAINTAIN TREES, SHRUBS, AND OTHER PLANTS BY PRUNING, CULTIVATING, AND WEEDING AS REQUIRED FOR HEALTHY GROWTH. RESTORE PLANTING WATER BASINS. TIGHTEN AND REPAIR STAKE AND GUY SUPPORTS AND RESET TREES AND SHRUBS TO PROPER GRADES OR VERTICAL POSITION AS REQUIRED. SPRAY AS REQUIRED TO KEEP TREES AND SHRUBS FREE OF INSECTS AND DISEASE.

3.8.8 PERMANENT POST CONSTRUCTION BMP DEVICES SHALL NOT BE REMOVED OR MODIFIED WITHOUT THE APPROVAL OF THE LANDSCAPE ARCHITECT.

3.9 CLEANUP AND PROTECTION

3.9.1 DURING LANDSCAPE WORK, KEEP PAVEMENTS CLEAN AND WORK AREA IN AN ORDERLY CONDITION.

3.9.2 PROTECT LANDSCAPE WORK AND MATERIALS FROM DAMAGE DUE TO LANDSCAPE OPERATIONS, OPERATIONS BY OTHER CONTRACTORS AND TRADES, AND TRESPASSERS. MAINTAIN PROTECTION DURING INSTALLATION AND MAINTENANCE PERIODS. TREAT, REPAIR, OR REPLACE DAMAGED LANDSCAPE WORK AS DIRECTED.

3.9.3 CONTRACTOR SHALL PROVIDE AND INCORPORATED ALL BEST MANAGEMENT PRACTICES (BMP), STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND EROSION AND SEDIMENT CONTROL AS DESCRIBED IN THE PROJECT CONDITIONS OR REQUIRED BY LOCAL AND STATE REQUIREMENT.

3.10 SITE OBSERVATION VISITS:

3.10.1 SITE OBSERVATION VISITS HEREIN SPECIFIED SHALL BE MADE BY THE LANDSCAPE ARCHITECT. THE CONTRACTOR SHALL REQUEST SITE OBSERVATION A MINIMUM OF 24 HOURS IN ADVANCE.

3.10.2 SITE OBSERVATION WILL BE REQUIRED FOR THE FOLLOWING PARTS OF THE WORK:

3.10.2.1 INCORPORATION OF SOIL CONDITIONER AND FERTILIZER INTO THE SOIL

3.10.2.2 UPON COMPLETION OF FINISH GRADING PRIOR TO PLANTING

3.10.2.3 APPROVAL OF PLANT MATERIALS

3.10.2.4 WHEN TREES AND SHRUBS ARE SPOTTED IN PLACE FOR PLANTING, BUT BEFORE PLANTING HOLES ARE EXCAVATED.

3.10.2.5 WHEN PLANTING, AND ALL OTHER INDICATED OR SPECIFIED WORK, EXCEPT THE MAINTENANCE PERIOD, HAS BEEN COMPLETED. ACCEPTANCE AND WRITTEN APPROVAL SHALL ESTABLISH BEGINNING OF THE MAINTENANCE PERIOD.

3.10.2.6 FINAL SITE OBSERVATION VISIT AT THE COMPLETION OF THE MAINTENANCE PERIOD. THIS SITE OBSERVATION VISIT SHALL ESTABLISH THE BEGINNING DATE FOR THE WARRANTY PERIOD OF PLANT MATERIAL.

3.10.3 ACCEPTANCE: UPON COMPLETION OF THE FINAL SITE OBSERVATION VISIT AND THE WORK OF THIS SECTION, THE CONTRACTOR WILL BE NOTIFIED IN WRITING (1) WHETHER THE WORK IS ACCEPTABLE; (2) OF ANY REQUIREMENTS NECESSARY FOR COMPLETION AND ACCEPTANCE.

3.10.4 THIS CONTRACTOR OR HIS AUTHORIZED REPRESENTATIVE SHALL BE ONSITE AT THE TIME OF EACH SITE OBSERVATION VISIT BY THE LANDSCAPE ARCHITECT.

END OF SECTION 02900

NO.	BY	DATE	REVISION

REGISTERED LANDSCAPE ARCHITECT
CERTIFICATE NO.
36734
MARK E. FELLINGER
Date 7/24/19
Signed
ARIZONA USA

M. Fellinger

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DESIGNED:	MEF	DATE: 7/19
DRAWN:	MEF	DATE: 7/19
CHECKED BY:		DATE:
APPROVED BY:		DATE:

WASH RESTORATION PLANS PREPARED FOR:
MASTER SUBMITTAL

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BEING A PORTION OF THE SOUTHEAST QUARTER OF SECTION 34, TOWNSHIP 11 SOUTH, RANGE 13 EAST GILA & SALT RIVER MERIDIAN, PIMA COUNTY, ARIZONA

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WS-04

SCALE : N/A

SHEET 14 OF 14