LANDSCAPE LEGEND

ALL TREES TO MEET OR EXCEED A.N.A. SPECIFICATIONS
(U.O.N. - UNLESS OTHERWISE NOTED)
(TREE CALIPER SIZE TAKES PRECEDENCE OVER BOX SIZES)

TREES

Trees	Caliper	Size	Qty
Pithecellobium flexicaule / Mexican Ebony	3.5"	Multi Trunk 48" Box u.o.n.	8
Cercidium hybrid / Sonora Hybrid	3"	Standard 48" Box u.o.n. (Contract Grow @ V & P)	142
Salvaged tree Iron Site / Verify in on-site salvage yard	1.5"	Varies (48" Box min)	10
Acacia smallii / Sweet Acacia	1.5"	24" Box u.o.n. 36" Box	32
Carnegia gigantea / Saguaro		no holes or scars 8' spear u.o.n. see plans for sizes	13
Cercidium floridum / Blue Palo Verde	2.5"	Standard refer to plans for sizes salvaged specimens	50
Acacia stenophylla / Shoestring Acacia	2"	Standard 36" Box u.o.n.	17
Prosopis velutina / Native Mesquite	1.5"	multi 24" Box u.o.n.	2
Sophora secundaflora / Texas Mountain Laurel	1.5"	multi 36" Box u.o.n.	23
Caesalpinia mexicana / Mexican Bird of Paradise	1.5"	24" box	26

SHRUBS / ACCENTS

Shrubs / Accents	Size	Qty.
Buddleia marrubiifolia / Wooly Butterfly Bush	5 gallon	40
Calliandra eriophylla / Pink Fairy Duster	5 gallon	142
Justicia californica / Chuparosa	5 gallon	6
Cassia phyllodenia / Silver Cassia	5 gallon	74
Dalea frutescens species / Black Dalea	5 gallon	12
Leucophyllum laevigatum / Chihuahuan Sage	5 gallon	150
Salvia greggii " sierra linda" / "Sierra linda" autumn sage	5 gallon	8
Caesalpinia gilliesii / Yellow Bird of Paradise	5 gallon	60
Encelia farinosa / Brittlebush	1 gallon	81
Ruellia penninsularis / Ruellia	5 gallon	56
Leucophyllum frutescens 'Green Cloud' / Green Cloud Sage	5 gallon	246
Agave geminiflora / Twin - Flowered Agave	5 gallon	654
Bougainvillea 'La Jolla' / La Jolla Bougainvillea	5 gallon	2
Bougainvillea 'Barbara Karst' / Bougainvillea (staked. remove & espalier to W.I.)	15 gallon	6
Opuntia ficus-indica / Indian Fig	4' Tall 8 Pad min	5
Ambrosia deltoidea / Triangle Leaf Bursage	5 gallon	78

SHRUBS / ACCENTS

Shrubs / Accents	Size	Qty.
Dasylirion wheeleri / Desert Spoon	5 gallon	112
Viguiera deltoidea / Goldeneye	5 gallon	108
Dasylirion longissima / Mexican Grass Tree	5 gallon	230
Ferocactus species / Barrel Cactus	3' min	2
Hesperaloe parviflora / Red/Yellow Yucca	5 gallon	699
Agave fourcroydes / Agave sp. (requires L.A. Approval)	15 gallon	70
Yucca aloifolia / Spanish bayonett	15 gallon multi	36
Nerium oleander 'Petite Pink' / Petite Pink Oleander	5 gallon	33
Leucophyllum langmaniae 'Rio Bravo' / Rio Bravo Sage	5 gallon	417
Larrea tridentata / Creosote Bush	5 gallon	9
Agave Weberii / Weber's Agave (requires L.A. Approval)	5 gallon u.o.n.	245
Asclepias subulata / Desert Milkweed	5 gallon	143
Eremophila 'valentine' / 'Valentine' Eremophila	5 gallon	309
Yucca rostrata / Beaked Yucca	24" box	5

GROUNDCOVER / ACCENT

Groundcover / Accent	Size	Qty.
Penstemon sp. / Penstemon	1 gal.	175
Baileya multiradiata / Desert Marigold	1 gal.	211
Dalea Greggii / Trailing indigo bush	1 gal. 42" o.c.	41
Convolvulus cneorum / Bush Morning Glory	1 gal.	39
Acacia redolens 'Desert Carpet' / Desert Carpet Acacia	1 gal.	0
Lantana montevidensis / New Gold & Purple Trailing Lantana (All Lantana's located at buildings will be 5 Gallon material)	1 gal. 50/50 Mix	2413
Wedelia trilobata / Yellow Dots	1 gal.	98
Sphaeralcea ambigua / Globe Mallow	1 gal.	29
Euphorbia rigens / Gopher Plant	1 gal.	17
Cerus peruvianus - Twisted / Twisted Cerus	24" box	11
Echinocactus grusonii / Golden Barrel Cactus	12" dia	56

Turf - Mid Iron Sod
(Landscape Contractor will be responsible for providing overseed if rye season falls into required maintenance period)

Decomposed Granite - 1/2" minus 'Madison Gold' 2" min thickness in all landscape areas.

Surface Select Granite Boulders (bury 1/3 min. see detail)	50% 3'x3'x3' 2700 lbs min 50% 4'x4'x4' 4800 lbs min	37

L.C. TO PROVIDE AN ALLOWANCE OF 60 - 5 GALLON & 80 - 1 GALLON PLANT MATERIAL TO BE PLACED BY L.A. AT TIME OF INSTALLATION.

NOTES:

ALL LANDSCAPE AREAS & MATERIALS INCLUDING THOSE LOCATED IN THE R.O.W. ADJACENT TO THE PROJECT SITE SHALL BE MAINTAINED IN A HEALTHY, NEAT, CLEAN AND WEED FREE CONDITION. THIS SHALL BE THE RESPONSIBILITY OF PROPERTY OWNER.

AREA WITHIN THE SIGHT DISTANCE TRIANGLES IS TO BE CLEAR OF LANDSCAPE, SIGNS OR OTHER VISIBILITY OBSTRUCTIONS WITH A HEIGHT GREATER THAT 2 FEET. TREES WITHIN SAFETY TRIANGLES SHALL HAVE A CANOPY THAT BEGINS AT 7 FEET IN HEIGHT UPON INSTALLATION. ALL HEIGHTS ARE MEASURED FROM THE NEAREST STREET LINE ELEVATION.

SET BACK ALL SPRAY AND STREAM TYPE IRRIGATION HEADS 1' FROM BACK OF CURB OR SIDEWALK TO REDUCE OVERSPRAY.

SIGNS REQUIRE SEPERATE APPROVALS AND PERMITS

STORAGE OF GRAVEL, FERTILIZER AND OTHER MISCELLANEOUS MATERIALS SHALL BE CONTAINED WITHIN AND BELOW A 6' MASONRY WALL.

THOSE AREAS OF THE SITE IDENTIFIED FOR FUTURE DEVELOPMENT SHALL BE LEFT IN A NATURAL STATE. PLANT SALVAGE ON THOSE AREAS SHALL NOT TAKE PLACE UNTIL DEVELOPMENT OF THOSE PORTIONS OF THE SITE IS TO OCCUR.

NO LIGHTING IS APPROVED WITH THIS SUBMITTAL

ANY EXISTING LANDSCAPING DISTURBED OR DESTROYED DUE TO THIS CONSTRUCTION SHALL BE REPLACED WITH LIKE SIZE, TYPE AND QUANTITY. TO THE SATISFACTION OF THE INSPECTION SERVICE STAFF PRIOR TO THE C - OF - O.

AREAS IN D.G. W/O PLANT MATERIAL/ GROUNDCOVERS SHALL NOT EXCEED DIMENSIONS OF MORE THAN 7' IN ANY ONE DIRECTION' MEASURED FROM PLANT CANOPIES AND/OR COVERAGE.

PROVIDE 8% SLOPE AWAY FROM WALKS OR CURB FO 5' - 0" ALONG ALL STREETS.

SMALL CACTI WHICH ARE NECESARILY UPROOTED DUE TO CONSTRUCTION AND ARE SUITIBLE FOR TRANSPLANTING SHALL BE STOCKPILED DURING CONSTRUCTION AND REPLANTED IN AREAS IDENTIFIED FOR REVEGETATION, SUBJECT TO THE REQUUIREMENTS OF CASE

THE APPROVED CIVIL PLANS. ANY ALTERATION OF THE APPROVED DESIGN (ADDITIONAL FILL, BOULDERS, ETC.) SHALL REQUIRE ADDITIONAL FINAL PLANS STAFF REVIEW AND APPROVAL.

THE LANDSCAPE SPECIFICATION SECTION OF THESE PLANS HAVE NOT BEEN REVIEWED AND SHALL NOT BE PART OF THE CITY OF SCOTTSDALE'S APPROVAL.

ALL WATER FEATURES REQUIRE SEPERATE PERMIT APPROVALS

A MINIMUM OF 50 PERCENTAGE OF THE PROVIDED TREES SHALL BE MATURE TREES, PURSUANT TO THE CITY OF SCOTTSDALE'S ZONING ORDINANCE ARTICLE X, SECTION 10.301, AS DEFINED IN THE CITY OF SCOTTSDALE ZONING ORDINANCE ARTICLE III, SECTION 3.100.

A SINGLE TRUNK TREES CALIPER SIZE, THAT IS TOBE EQUAL TO OR LESS THAN 4" SHALL BE DETERMINED BY UTILIZING THE SMALLEST DIAMETER OF THE TRUNK 6 INCHES ABOVE FINISH GRADE ADJACENT TO THE TRUNK.

A TREES CALIPER SIZE, FOR SINGLE TRUNK TREES THAT ARE TO HAVE A DIAMETER GREATER THAN 4-INCHES, SHALL BE DETERMINED BY UTILIZING THE SMALLEST DIAMETER OF THE TRUNK 12-INCHES ABOVE FINISH GRADE ADJACENT TO THE TRUNK.

A MULTIPLE TRUNK TREE'S CALIPER SIZE IS MEASURED AT 6-INCHES ABOVE THE LOCATION THAT THE TRUNK SPLITS ORIGINATES, OR 6-INCHES ABOVE FINISH GRADE IF ALL TRUNKS ORIGINATE FROM THE SOIL.

ALL RIGHTS-OF-WAY ADJACENT TO THIS PROPERTY SHALL BE LANDSCAPED AND MAINTAINED BY THE PROPERTY OWNER.

THESE LANSCAPE PLANS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE FRANK LLOYD WRIGHT BLVD. DESIGN GUIDELINES

RETENTION/ DETENTION BASINS SHALL BE CONSTRUCTED SOLEY FROM THE APPROVED CIVIL PLANS. ANY ALTERATIONS OF THE APPROVED DESIGN (additional fill, boulders, etc.) SHALL REQUIRE ADDITIONAL FINAL STAFF REVIEW AND APPROVAL.

APPROVAL BLOCKS

LANDSCAPE PLAN
APPROVED
CITY OF SCOTTSDALE

82DR98 2A	(signature)	2-1-03
CASE NUMBER	APPROVED BY	DATE

CONSTRUCTION AND INSTALLATION SHALL BE IN ACCORDANCE WITH THIS PLAN AND ANY AND ALL DEVIATION WILL REQUIRE REAPPROVAL. LANDSCAPE INSTALLATION TO BE APPROVED BY CITY OF SCOTTSDALE INSPECTION SERVICES BEFORE CERTIFICATE OF OCCUPANCY IS ISSUED.

LANDSCAPE PLAN
REAPPROVAL
CITY OF SCOTTSDALE

REAPP. #	SHEET #'S REVISED	DESCRIPTION OF REVISION (S)
2	LA.03, LA.04, LA.[illegible]	re-landscaped frontage along Scottsdale Rd. & Frank LLoyd Wright due to new water line and other new utilities

CASE NUMBER	APPROVED BY	DATE
82DR98 2A	(signature)	4-25-04

CONSTRUCTION AND INSTALLATION SHALL BE IN ACCORDANCE WITH THIS PLAN AND ANY AND ALL DEVIATION WILL REQUIRE REAPPROVAL. LANDSCAPE INSTALLATION TO BE APPROVED BY CITY OF SCOTTSDALE INSPECTION SERVICES BEFORE CERTIFICATE OF OCCUPANCY IS ISSUED.

Turf Area Calcs

Pursuant to ordinance document

section 49-246, the area that can be credited toward the maximum

Allowable turf/water intensive landscaping calculation per parcel is

1 acre (43560 sqft) for sites large than 1acre:

The code states that you can use 10% for the first 9,000 s.f. of lot area.

This would give us 9,000 s.f x 10% = 900 s.f

We can the use 5% for the remaining 34,560 s.f (43560 - 9,000 = 34,560)

any additional lot area over 1 acre is non applicable

This gives us an additional 34,560 s.f x 5% = 1,728 s.f.

The total allowable turf area for each parcel would be

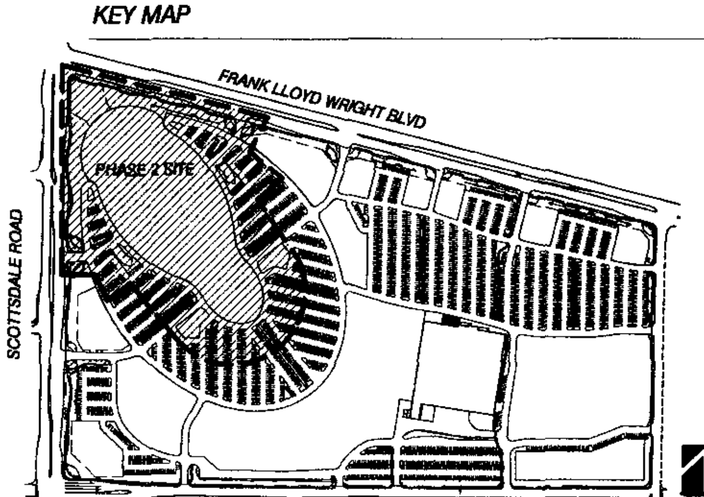
900 s.f. + 1,728 s.f = 2,628 s.f. per parcel.

~~2,628 x 3 = 7,884 s.f~~

We currently have a total of 5,879 s.f. of turf on phase II. Which is less then the maximum allowable turf area

SHEET INDEX

KEY MAP



LASKIN & ASSOCIATES, INC.
LANDSCAPE ARCHITECTS
5112 N. 40th Street
Suite 202
Phoenix, Arizona 85018
p (602) 840-7771
f (602) 840-8021
www.laskindesign.com

REGISTERED LANDSCAPE ARCHITECT CERTIFICATE NO. 20068 HARDY A. LASKIN ARIZONA U.S.A.

Pederson

Promenade phase 2
S.E.C. of Scottsdale Road and Frank Lloyd Wright Blvd
Scottsdale, Arizona
Landscape Cover Sheet

DRAWN: FJS
CHECKED: HAL
SHEET SCALE: scale
DATE: 2.12.2003
REVISIONS:
5.22.2003 C.O.S. COMMENTS
6.27.2003 C.O.S. COMMENTS
12.11.2003 COORD
2.09.2004 COORD
3.05.2004 COORD
CITY NUMBERS

SHEET NUMBER: LA.01

82-DR-98 #2A CDS 371-99-~~[illegible]~~ 2*02* NATIVE PLANT PERMIT # 75683 CDS 371-99-293

General Landscape Notes

1. The Landscape Architect, or his representative, reserve the right to refuse any plant materials he deems unacceptable. (See specifications)
2. For clarification of discrepancies between the drawings and the site, it should be brought to the attention of the Landscape Architect prior to beginning work.
3. The Landscape Architect is to approve any and all substitutions.
4. Plant Qty's provided for contractor's convenience only. Plans take precedence.
5. Double stake all 15 gallon, 24", and 36" box trees as required.
6. Sprinkler Contractor must guarantee 100 % coverage in all landscape areas.
7. Exposed soil in planters shall be raked and free from rocks, roots, weeds, etc.
8. Finished grade in groundcover, granite and lawn areas shall be 1" below adjacent header, paving, curbing, etc.
9. Plants shall be quality material having a growth habit which is normal for the species and be sound, vigorous, healthy, and free from insects and injury.
10. Groundcover and/or decomposed granite shall extend under shrubs unless noted.
11. After all work is completed, the contractor shall remove all materials not incorporated in the Scope of Work from the job site.
12. Grading shall include all excavation, settlement, handling, import, distribution, transportation, and disposal necessary to bring ground to finish grade as shown on the plan. (once general contractor has provided finish grade within 1/10 of 1')
13. All earthwork is to be done so that all water drains away from all structures.
14. A pre-emergent herbicide is to be applied to all granite areas after the granite has been laid. Include all river rock areas, if applicable.
15. All underground conduits are to be located before digging. If doubt exists call Blue Stake at (602) 263-1100.
16. All material to be guaranteed for a period of one (1) year after final acceptance.
17. Landscape contractor shall provide arbor guards to all trees located in turf areas.
18. Contractor is responsible for all required sleeving whether it is shown on on the plans or not.
19. Landscape Architect to approve all mounding and grades prior to planting.
20. Landscape Architect to approve placement of all trees, salvaged material and boulders prior to installation.
21. Site verify all conditions prior to bidding and start of construction. Any discrepancies are to be brought to the attention of the L.A. in writing immediately.
22. General contractor is to provide all rough grades for berms and mounds. The Landscape contractor shall be responsible for all finished grading of berms, per the Landscape Architects direction.

Existing Landscape & Irrigation Notes:

1. Site verify all existing conditions prior to bidding. Any discrepancies are to be brought to the Landscape Architect immediately.
2. All plant material designated as "existing to remain" shall be protected during all phases of construction. Any tree that dies due to lack of water, lack of maintenance or care, neglect or vandalism shall be replaced by a like type tree, (minimum 48" box). At no additional cost to owner. Palms that die shall be replaced with like type, height and size. All shrubs and groundcover shall be replace with 5 gallon plants.
3. Landscape areas disturbed by new construction shall be repaired with sod in turf areas and new decomposed granite matching existing. Blend all disturbed areas with undisturbed so there is smooth transition between all edges. Replace all disturbed, broken or damaged headers with matching type.
4. All existing plant material and adjacent plant material shall have uninterrupted watering during all phases of construction. This shall include but not be limited to; hand watering, temporary above ground irrigation, existing system ,.. etc.
5. The existing irrigation system shall be protected, maintained and repaired during all phases of construction. The existing system is tied in adjacent properties. All equipment such as mainline, wires, lateral heads and etc. shall be repaired and replaced to maintain continuous water.
6. Provide new schedule 40 sleeves at all new drives. (See sleeve schedule for size.) Any existing irrigation system is to be maintained at all times during construction and guarantee 100% coverage.
7. All existing trees to remain, shall be selectively pruned per Landscape Architects direction.
8. All existing shrubs within the sight distance lines and sight visibility triangles shall be selectively pruned to a maximum height of 30".
9. All trees shall be lifted to clear height of 7'.

Irrigation Notes

Irrigation plan is diagrammatic.
Locate all irrigation equipment in landscape areas.

EMITTER SCHEDULE:

1 Gallon	1 GPH
5 Gallon	1 GPH
15 Gallon	3 GPH
24" Box	4 GPH
30" Box	5 GPH
36" Box	6 GPH
42" Box	6 GPH
48" Box	8 GPH
60" Box & over	12 GPH

Bowsmith Single Outlet Emitters To Be Spaced On Uphill Side Of Rootball And Evenly Spaced Around Drip Line Of Trees.
(approximately 12" – 18" from trunk)

Soil Preperation Notes For Turf Areas

1. Uniformly mix to top 8 inches an application of finely ground gypsum at a rate of fifty pounds per 1000 square feet and commercial fertilizer at a rate of thirty-three pounds per 1000 square feet, and elemental sulfur at a rate of 30 pounds per 1000, 1 inch layer of clean sand.
2. After topsoil has been prepared, the area shall be raked to remove additional stones, roots, lumps or any other foreign material. The finished surface shall be loose, smooth and pulverized, and shall conform to lines and grades designated.
3. Bring lawn areas to finish grade after soil prepping which shall be 1" minimum below paving, curbs and lawn areas shall slope from walk, curb or buildings at 1 inch in 10 feet. Special attention shall be given to maintaining continuous and even flow lines, drainage away from structures, and providing positive drainage to inlets and outlets.

Grading & Mounding Notes:

1. Landscape Architect to approve all mounding and grades prior to planting.
2. Elevations and locations of mounding are approximate and may be adjusted in the field at the Landscape Architect's request prior to installation.
3. Grading shall include all excavation, settlement, handling, import, distribution, transportation, and disposal necessary to bring ground to finish grade as shown on the plan. (once general contractor has provided finish grade within 1/10 of 1')
4. Finished grade in groundcover, granite and lawn areas shall be 1" below adjacent header, paving, curbing, etc.
5. General contractor is to provide all rough grades for berms and mounds. The Landscape contractor shall be responsible for all finished grading of berms, to establish variations in elevations and convey a natural aesthetic appearance.

Pot Planting Notes

THE LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR PURCHASING ALL POTS, PLACEMENT OF POTS, IRRIGATION TO POTS, WATER PROOFING SLEEVING, PRE-PIPING AND PLANT MATERIAL SPECIFIED FOR EACH POT.

POTS ARE TO BE SUPPLIED BY THE SPECIFIED MANUFACTURER, NO SUBSTITUTIONS WILL BE PERMITTED WITHOUT WRITTEN APPROVAL FROM THE OWNER OR THE LANDSCAPE ARCHITECT.

REFER TO THE POT PLANTING SCHEDULE FOR PLANT TYPES, SIZES AND QUANTITIES FOR EACH SPECIFIED POT LOCATION

THERE ARE TO BE NO DIVIATIONS FROM THE SPECIFIED PLANT MATERIAL OR SPECIFIED SIZES WITHOUT WRITTEN APPROVAL FROM THE LANDSCAPE ARCHITECT AND THE CITY OF SCOTTSDALE

REFER TO THE PLANTER POT DETAIL FOR SET UP INSTRUCTIONS.

POT LEGEND

CONTRACTOR SHALL VERIFY ALL PLANTER POT ORDERS W/ LANDSCAPE ARCHITECT PRIOR TO ORDERING.

P1 33" X 27" CONRETE POT BY KORNEGAY DESIGN (480) 967.6787
SPECIFY / ORDER NO: RS - 27
COLOR: SLATE GREEN

P2 48" X 30" ESCALANTE CONCRETE POT BY DURA ART STONE
SPECIFY / ORDER NO: MODEL 310 CUSTOM

P3 33" X 24" ESCALANTE CONCRETE POT BY DURA ART STONE
SPECIFY / ORDER NO: MODEL 310

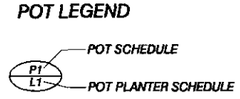
P4 33" X 27" CONRETE POT BY KORNEGAY DESIGN (480) 967.6787
SPECIFY / ORDER NO: RS - 27
COLOR: PALO VERDE

P5 WOK SERIES PLANTER BY DESIGN CAST
SPECIFY / ORDER NO: WS6020
COLOR: SAND

P6 WOK SERIES PLANTER BY DESIGN CAST
SPECIFY / ORDER NO: WS3913
COLOR: SAND

P7 28" X 12" CONRETE POT BY KORNEGAY DESIGN (480) 967.6787
SPECIFY / ORDER NO: RS - 12
COLOR: SLATE GREEN

POT LEGEND



POT PLANTING SCHEDULE

TAG	BOTANICAL NAME	SIZE	QTY
L1	YUCCA ROSTRATA	15 GALLON	1
	WEDELIA TRILOBATA	1 GALLON	6
L2	DASYLIRON LONGISSIMUM	15 GALLON	1
	WEDELIA TRILOBATA	1 GALLON	6
L3	PEDIALANTHIS MACROCARPA	15 GALLON	1
	LANTANA MONTMIDENSIS	1 GALLON	4
L4	CERUS PERUVIANA	15 GALLON	1
	3 TRUNK MIN.	9 L.F. MIN (EX. 3- 3' ARMS)	
L5	AGAVE DESMETTIANA	15 GALLON	1
	VERBENA RIGIDA	1 GALLON	10
L6	DASYLIRON LONGISSIMUM	15 GALLON	1
	GAZANIA RIGENS	1 GALLON	6

NOTE:
THESE QUANTITIES ARE NOT INCLUDED IN PLANT TOTALS ON SHEET LA.01.
THESE QUANTITIES ARE PER POT LOCATION.

CITY OF SCOTTSDALE WATER FEATURE NOTES

Sec. 49-242. Limitation on new water fountains.

(a) No person shall place into operation after February 1, 1991, any fountain that higher sprays water into the air in a fine mist of sprays or drops water into the air in excess of six (6) feet in vertical height.
(b) Fountains and other water features shall be.

(1) Any person installing a fountain must provide a fountain plan to the city, for approval prior to obtaining a permit before commencing construction.
(2) Outside of city right-of-way, not visible from the street unless approved by the water conservation office.
(3) Designed with a potable water make up. This make up supply shall include a reduced pressure principle backflow prevention assembly installed as per the current standard detail adopted by the City of Scottsdale Standards and Specification Committee. No water shall be used to supply any fountain or water feature from a landscape irrigation system.
(4) Designed with catch basins that will maximize the amount of water recycled and minimize make up water. Outdoor features that may over-spray shall be equipped with wind shut-off valves.
(5) Designed using equipment that will minimize leakage throughout the life of the water feature.
(6) Equipped with a recirculating pump. Filtered backwash shall be reused in a beneficial manner to surrounding plant material and landscaped areas. Discharge of water into streets and alleys is prohibited.
(7) Any fountain using more than one thousand (1,000) gallons of water per day shall be separately metered.
(8) In addition to the provisions above, nonresidential fountains and other water features shall be:
a. Operational only during normal business hours.
b. Sited to allow significant environmental enhancement to on-site users and sued to cool surrounding area and mask objectionable noises, Allowable examples: courtyards and restaurant seating areas not visible from the street.

(c) Exclusions.

(1) Any system that injects or drops water into the air solely for the purpose of cooling a confined air space.
(2) Water parks.

(Ord. No. 2318, SS 2, 12-17-90; Ord. No. 3161, SS 5, 6-15-98; Ord. No. 3409, 11-26-01)

Sec. 49-246. Limitation on water intensive landscape/turf acreage for new commercial users, new industrial users and common areas of residential developments.

(a) All new commercial users and new industrial users shall limit water intensive landscape/turf area to the following percentage of the total lot area:

(1) If the area of the lot is nine thousand (9,000) square feet or less, the water intensive landscape/turf acreage shall be limited to an area equal to ten (10) percent of the total lot area.
(2) If the area of the lot is larger that nine thousand (9,000) square feet but less than or equal to fort-three thousand five hundred sixty (43,560) square feet (one acre), the water-intensive landscape/turf area shall be limited to an area equal to ten percent of the first nine thousand (9,000) square feet and five (5) percent of the remainder of the lot area. If the total lot area exceeds forty-three thousand five hundred sixty (43,560) square feet, no additional water-intensive landscape/turf acreage shall be permitted.

(b) For residential common areas, the water intensive landscape/turf area shall be limited to ten (10) percent of the first nine thousand (9,000) square feet and five (5) percent of the remainder of the lot area. If the total lot area exceeds two hundred seventeen thousand eight hundred (217,800) square feet or five (5) acres, no additional water intensive landscape/turf area shall be permitted. Excludes from this calculation shall be areas used for active recreational areas.
(c) All plant material used (excluding those in the water intensive landscape/turf area) must be low water-use plants listed on the Arizona Department of Water Resources (ADWR) most current low water use plant list.
(d) No water intensive landscape/turf shall be permitted in the right-of-way.

(Ord. No. 2318,SS2, 2-19-90; Ord. No. 3161, SS3, 6-15-98; Ord. No. 3409, 11-26-01)

WATER FEATURES REQUIRE SEPERATE SOURCE LINES AND BACKFLOW PREVENTORS CONNECTED DIRECTLY TO THE LANDSCAPE WATER METER. WATER FEATURE SHALL NOT BE CONNECTED TO THE IRRIGATION SYSTEM. NO OTHER SYSTEM SHALL BE CONNECTED TO THE WATER FEATURE SOURCE LINE.

IRRIGATION LEGEND

- W — 2" Water Meter (see Civil Plans for location)
- Febco 2" 825-YA Reduced Pressure Back flow Preventor (place in a locking cage)
- Hardie 700 Control Valve (Size As Shown)
- Nibco Brass Gate Valve (Size To Line)
- RainBird 44RC quick coupler
- Bowsmith S-10-L Single Outlet Emitters (See Emitter Schedule)
- Bowsmith M-10-L Multi Outlet Emitters (See Emitter Schedule)
- Rainbird 1804-mpr-12U - 4" pop-up lawn spray (Nozzle as required)
- Rainbird PSI-M30X Pressure Regulator With Rainbird RBY-100-200 MX "Y" Filter
- Class 200 PVC Lateral Line To Emitters (Size Per Pipe Table)
- Class 200 PVC Spray Lateral
- Sch 40 2.5" Mainline
- Class 200-1" Sub-Main (From Valve To Regulator and quick couplers)
- Agricultural Products Self Flushing End Cap
- Sch 40 PVC Sleeve (Size Per Sleeving Schedule)
- Controller A - TUCOR 50 station controller coordinate power w/ electrical (see details)
- 1/1" — Station Number / Valve Size

SLEEVING SCHEDULE:

Contractor is responsible for all sleeving whether shown or not.

Mainline Sleeves	4"
Drip Lateral Sleeves	2"
Lateral From Valve To Regulators	3"
Wires	2"

For graphic clarity no emitters have been shown, verify emitter count with emitter detail and plant counts.
See Emitter Detail for irrigation system.

IRRIGATION NOTES

Irrigation plan is diagrammatic.
Locate all irrigation equipment in landscape areas.

EMITTER SCHEDULE:

1 Gallon	1 GPH
5 Gallon	1 GPH
15 Gallon	3 GPH
24" Box	4 GPH
30" Box	5 GPH
36" Box	6 GPH
42" Box	6 GPH
48" Box	8 GPH
60" Box & over	12 GPH

Bowsmith Single Outlet Emitters To Be Spaced On Uphill Side Of Rootball And Evenly Spaced Around Drip Line Of Trees.
(approximately 12" – 18" from trunk)

263-1100

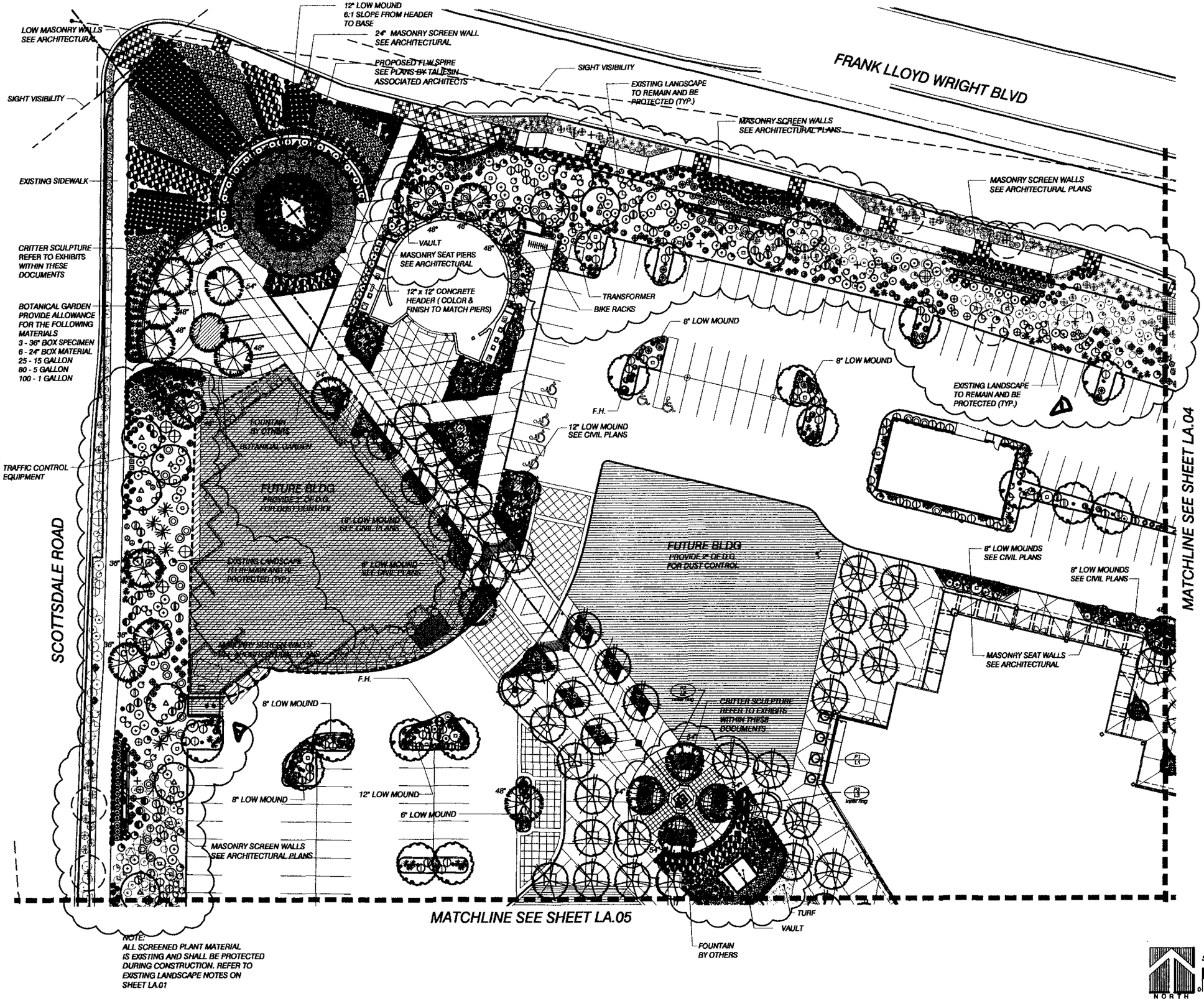
LASKIN & ASSOCIATES, INC.
LANDSCAPE ARCHITECTS
5112 N. 40th Street
Suite 202
Phoenix, Arizona 85018
P (602) 840-7771
F (602) 840-8021
www.laskindesign.com

Preliminary

Promenade phase 2
S.E.C. of Scottsdale Road and Frank Lloyd Wright Blvd
Scottsdale, Arizona
Landscape Cover Sheet B

DRAWN: FJS
CHECKED: HAL
SHEET SCALE: scale
DATE: 2.12.2003
REVISIONS:
5.22.2003 C.O.S. COMMENTS
6.27.2003 C.O.S. COMMENTS
2.09.2004 COORD
3.05.2004 COORD
CITY NUMBERS:
SHEET NUMBER: LA.02
2 of 20

82-DR-98 #2A CDS 371-99-~~2002~~-2S NATIVE PLANT PERMIT# 75683



NOTE:
ALL SCREENED PLANT MATERIAL IS EXISTING AND SHALL BE PROTECTED DURING CONSTRUCTION. REFER TO EXISTING LANDSCAPE NOTES ON SHEET LA.01

NO TREES, BUSHES, OR WALLS WITHIN 5' - 0" RADIUS OF FIRE HYDRANTS OR F.D.C.'S

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LANDSCAPE ARCHITECTS
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f (602) 840-8821
www.laskindesign.com

REGISTERED LANDSCAPE ARCHITECT
20088
HARDY A. LASKIN
ARIZONA, USA

Pedcor

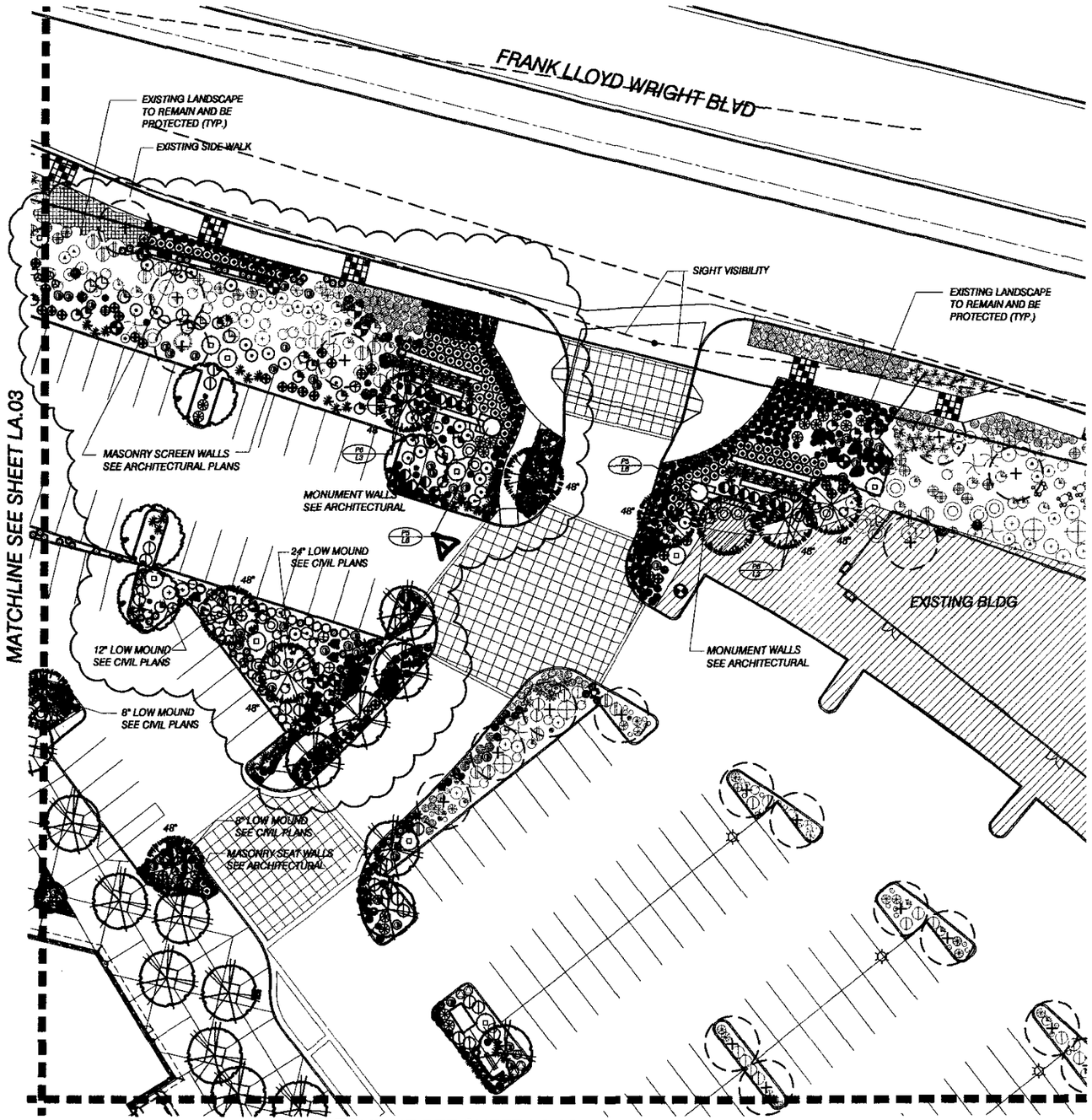
Promenade phase 2
S.E.C. of Scottsdale Road and Frank Lloyd Wright Blvd
Scottsdale, Arizona
Landscape Plan

DRAWN: FJS
CHECKED: HAL
SHEET SCALE: 1" = 20'
DATE: 2.12.2003
REVISIONS:
5.22.2003 C.O.S. COMMENTS
6.27.2003 C.O.S. COMMENTS
12.11.2003 COORD
2.09.2004 COORD
3.05.2004 COORD
CITY NUMBERS:

SHEET NUMBER
LA.03
3 of 20

82-DR-98 #2A CDS 371-99-202 NATIVE PLANT PERMIT# 75683

Call Before You Dig
263-1100



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NORTH

Scale: 1" = 20'

0 10' 20' 40'

263-1100

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f (602) 840-8021
www.laskindesign.com

ARIZONA LANDSCAPE ARCHITECT
CERTIFICATE NO.
20088
HARDY A. LASKIN, JR.
REGISTERED
ARIZONA, U.S.A.

Pedestrian

Promenade phase 2

S.E.C. of Scottsdale Road and Frank Lloyd Wright Blvd
Scottsdale, Arizona
Landscape Plan

DRAWN: FJS
CHECKED: HAL
SHEET SCALE: 1" =20'
DATE: 2.12.2003

REVISIONS:
5.22.2003 C.O.S. COMMENTS
6.27.2003 C.O.S. COMMENTS
12.11.2003 COORD
2.09.2004 COORD
3.05.2004 COORD

CITY NUMBERS:
82-DR-98 #2A CDS 371-99-~~2A~~ NATIVE PLANT PERMIT# 75683

SHEET NUMBER
LA.04
4
of
20

MATCHLINE SEE SHEET LA.03

SCOTTSDALE ROAD

EXISTING LANDSCAPE TO REMAIN AND BE PROTECTED (TYP.)

6" LOW MOUND SEE CIVIL PLANS

6" LOW MOUND SEE CIVIL PLANS

6" LOW MOUND SEE CIVIL PLANS

MASONRY SCREEN WALLS SEE ARCHITECTURAL PLANS

24" LOW MOUND SEE CIVIL PLANS

MONUMENT WALLS SEE ARCHITECTURAL

MONUMENT WALLS SEE ARCHITECTURAL

6" LOW MOUND SEE CIVIL PLANS

6" LOW MOUND SEE CIVIL PLANS

NO TREES, BUSHES, OR WALLS WITHIN 5' - 0 " RADIUS OF FIRE HYDRANTS OR F.D.C.'S

FUTURE BLDG
PROVIDE 2" OF D.G. FOR DUST CONTROL

TURF

CRITTER SCULPTURE REFER TO EXHIBITS WITHIN THESE DOCUMENTS

METAL BENCH (TYPICAL)

METAL BENCH (TYPICAL)

TURF

TURF

TURF

TURF

MASONRY SCREEN WALLS SEE ARCHITECTURAL PLANS

BIKE RACK

MASONRY SCREEN WALLS SEE ARCHITECTURAL PLANS

MASONRY SCREEN WALLS SEE ARCHITECTURAL PLANS

TRANSFORMERS

MASONRY SEAT WALLS SEE ARCHITECTURAL

6" LOW MOUND SEE CIVIL PLANS

MATCHLINE SEE SHEET LA.06

MATCHLINE SEE SHEET LA.07

NORTH

Scale: 1" = 20'

0 10' 20' 40'

263-1100

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20068
HARDY A. LASKIN
REGISTERED LANDSCAPE ARCHITECT
ARIZONA, USA

Promenade phase 2

S.E.C. of Scottsdale Road and Frank Lloyd Wright Blvd
Scottsdale, Arizona
Landscape Plan

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3.05.2004 COORD

CITY NUMBERS:

SHEET NUMBER: LA.05

5 of 20

82-DR-98 #2A CDS 371-99-2 NATIVE PLANT PERMIT# 75683

MATCHLINE SEE SHEET LA.04

CRITTER SCULPTURE
REFER TO EXHIBITS
WITHIN THESE
DOCUMENTS

8" LOW MOUND
SEE CIVIL PLANS

8" LOW MOUND
SEE CIVIL PLANS

MASONRY SEAT WALLS
SEE ARCHITECTURAL

54"

48"

48"

8" LOW MOUND
SEE CIVIL PLANS

MASONRY SEAT WALLS
SEE ARCHITECTURAL

TRASH ENCLOSURES

TRANSFORMERS

MATCHLINE SEE SHEET LA.05

TRANSFORMERS

MASONRY SCREEN WALLS
SEE ARCHITECTURAL PLANS

VAN

VAN

MASONRY SEAT WALLS
SEE ARCHITECTURAL

8" LOW MOUND
SEE CIVIL PLANS

12" LOW MOUND
SEE CIVIL PLANS

45"

MASONRY SEAT WALLS
SEE ARCHITECTURAL

TRASH ENCLOSURES

MASONRY SEAT WALLS
SEE ARCHITECTURAL

MATCHLINE SEE SHEET LA.08

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NO TREES, BUSHES, OR WALLS WITHIN
5' - 0" RADIUS OF FIRE HYDRANTS OR
F.D.C.'S

NORTH

Scale: 1" = 20'

0 10' 20' 40'

263-1100

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HARDY A. LASKIN
20088
EXPIRES 6-30-04
ARIZONA, USA

Promenade phase 2
S.E.C. of Scottsdale Road and Frank Lloyd Wright Blvd
Scottsdale, Arizona
Landscape Plan

DRAWN: FJS
CHECKED: HAL
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DATE: 2.12.2003

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3.05.2004 COORD

CITY NUMBERS:

SHEET NUMBER: LA.06

6 of 20

82-DR-98 #2A CDS 371-99-2002 NATIVE PLANT PERMIT# 75683

MATCHLINE SEE SHEET LA.05

MATCHLINE SEE SHEET LA.08

EXISTING B of A

EXISTING LANDSCAPE TO REMAIN AND BE PROTECTED (TYP.)

EXISTING LANDSCAPE TO REMAIN AND BE PROTECTED (TYP.)

6" LOW MOUND SEE CIVIL PLANS

TRANSFORMER

TRANSFORMER

TRASH ENCLOSURE

MASONRY SEAT WALLS SEE ARCHITECTURAL

MASONRY SEAT WALLS SEE ARCHITECTURAL

6" LOW MOUND SEE CIVIL PLANS

MASONRY SEAT WALLS SEE ARCHITECTURAL

MASONRY SEAT WALLS SEE ARCHITECTURAL

18" LOW MOUND SEE CIVIL PLANS

8" LOW MOUND SEE CIVIL PLANS

TRASH ENCLOSURE

TRANSFORMER

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NORTH

Scale: 1" = 20'

0 10' 20' 40'

263-1100

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20088
HARDY A. LASKIN
Registered
ARIZONA, USA

Petersen

Promenade phase 2

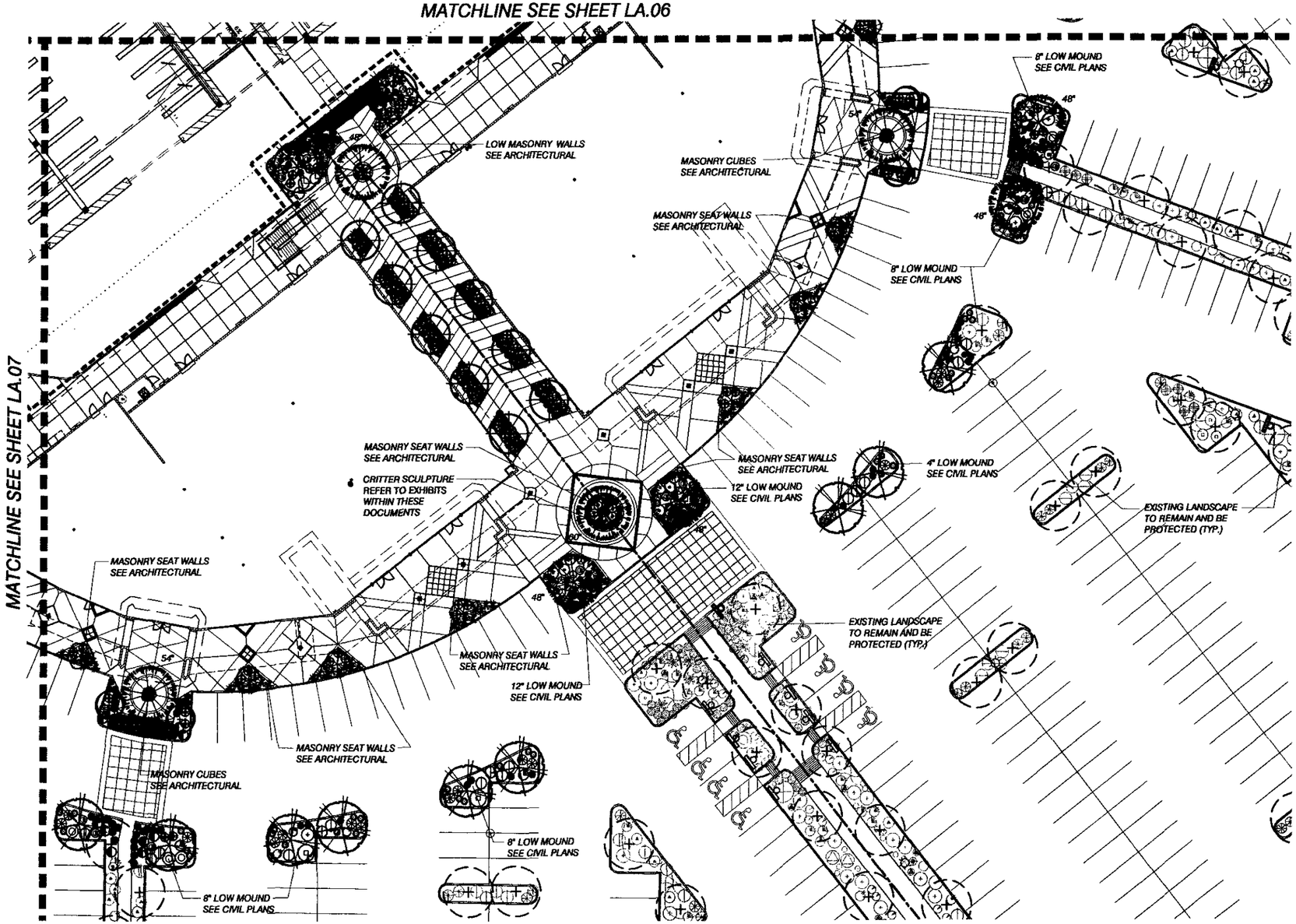
S.E.C. of Scottsdale Road and Frank Lloyd Wright Blvd
Scottsdale, Arizona
Landscape Plan

DRAWN: FJS
CHECKED: HAL
SHEET SCALE: 1" = 20'
DATE: 2.12.2003

REVISIONS:
5.22.2003 C.O.S. COMMENTS
6.27.2003 C.O.S. COMMENTS
12.11.2003 COORD
2.09.2004 COORD
3.05.2004 COORD

CITY NUMBERS:
82-DR-98 #2A CDS 371-99-[illegible] NATIVE PLANT PERMIT # 75683

SHEET NUMBER
LA.07
7
of
20



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NORTH

Scale: 1" = 20'

0 10' 20' 40'

263-1100

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REGISTERED LANDSCAPE ARCHITECT
20088
HARDY A. LASKIN
ARIZONA, USA

Pedersen

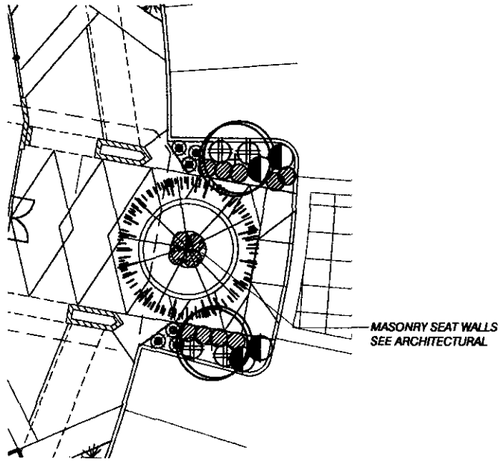
Promenade phase 2
S.E.C. of Scottsdale Road and Frank Lloyd Wright Blvd
Scottsdale, Arizona
Landscape Plan

DRAWN: FJS
CHECKED: HAL
SHEET SCALE: 1" = 20'
DATE: 2.12.2003
REVISIONS:
5.22.2003 C.O.S. COMMENTS
6.27.2003 C.O.S. COMMENTS
12.11.2003 COORD
2.09.2004 COORD
3.05.2004 COORD
CITY NUMBERS:

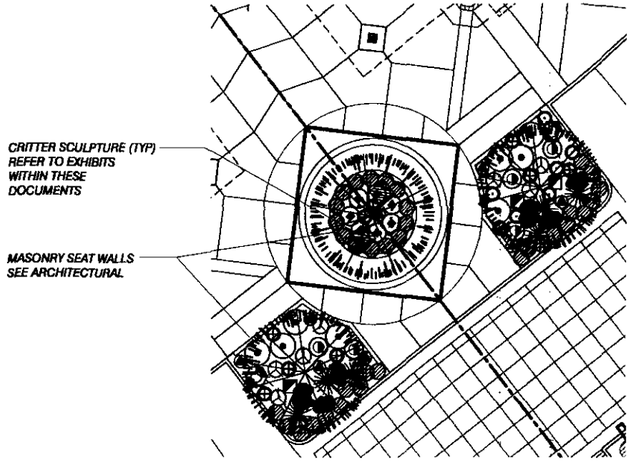
SHEET NUMBER
LA.08
8
of
20

82-DR-98 #2A CDS 371-99-2S NATIVE PLANT PERMIT# 75683

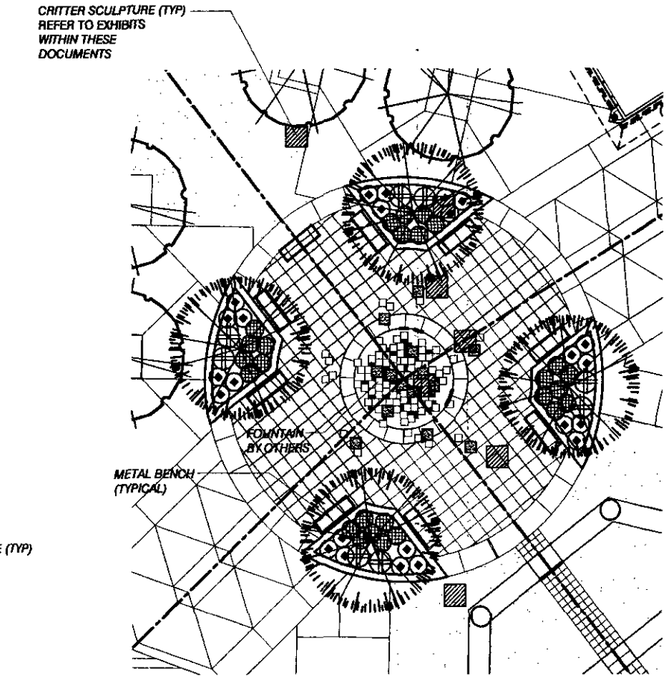
NO TREES, BUSHES, OR WALLS WITHIN 5' - 0" RADIUS OF FIRE HYDRANTS OR F.D.C.'S



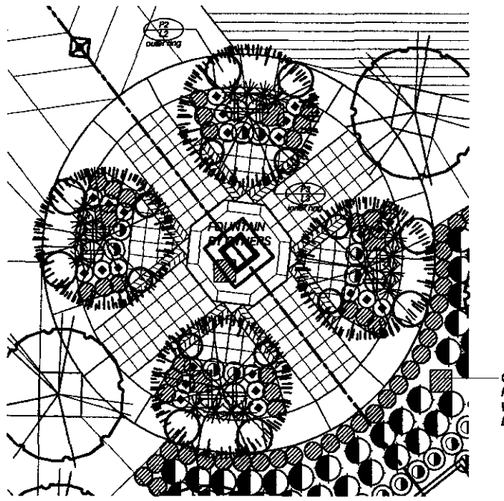
ENLARGEMENT A



ENLARGEMENT B



COYOTE FOUNTAIN PLAZA



BIRD FOUNTAIN PLAZA

ALL WATER FEATURES REQUIRE SEPERATE PERMIT APPROVALS

WATER FEATURES REQUIRE SEPERATE SOURCE LINES AND BACKFLOW PREVENTORS CONNECTED DIRECTLY TO THE LANDSCAPE WATER METER. WATER FEATURE SHALL NOT BE CONNECTED TO THE IRRIGATION SYSTEM. NO OTHER SYSTEM SHALL BE CONNECTED TO THE WATER FEATURE SOURCE LINE.

NORTH

Scale: 1" = 10'

0 5' 10' 20'

263-1100

LASKIN & ASSOCIATES, INC.
LANDSCAPE ARCHITECTS
5111 N. 40th Street
Suite 203
Phoenix, Arizona 85018
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20088
HARDY A. LASKIN
4-14-04
ARIZONA, U.S.A.

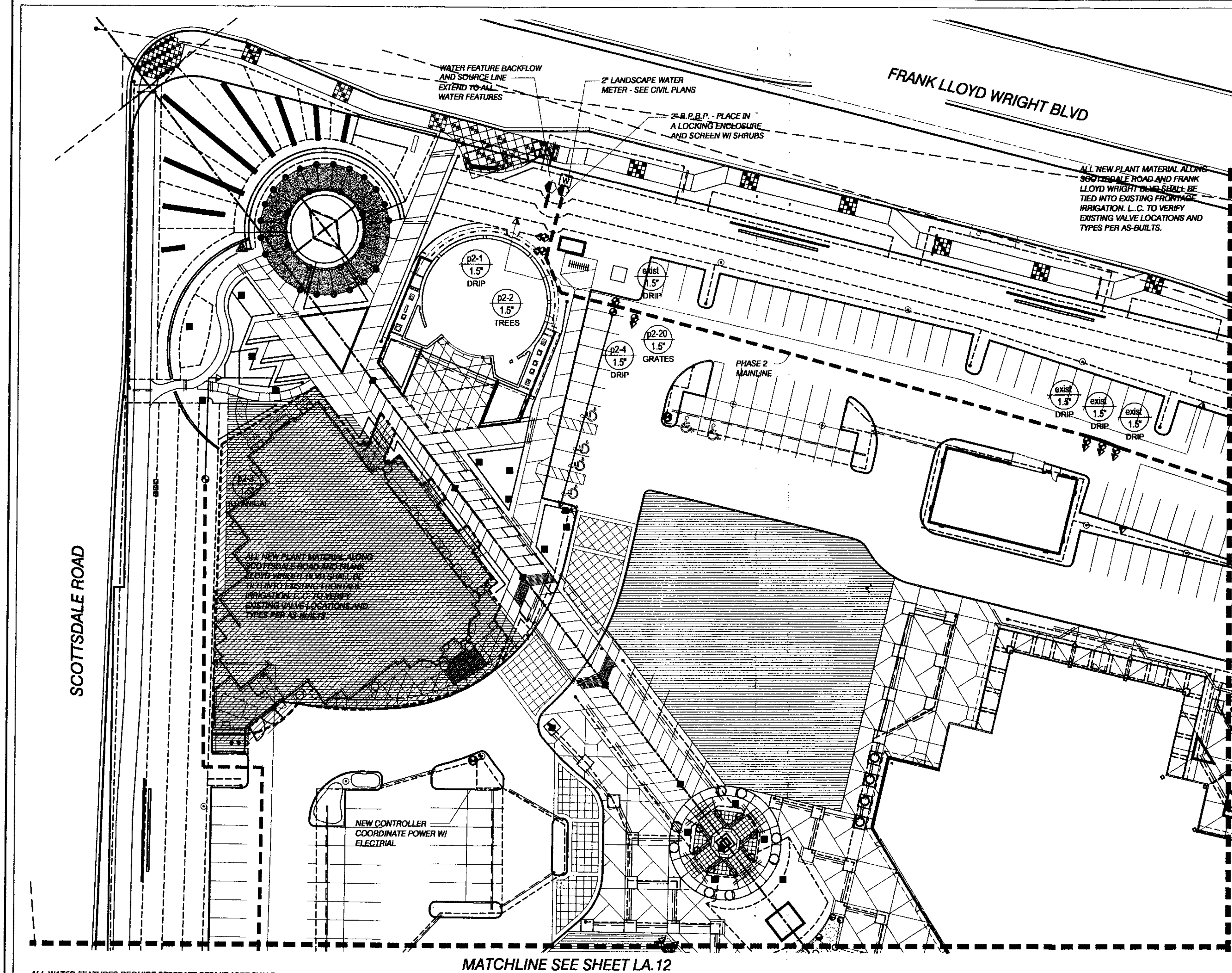
Pedestrian

Promenade phase 2
S.E.C. of Scottsdale Road and Frank Lloyd Wright Blvd
Scottsdale, Arizona
Landscape Enlargements

DRAWN: FJS
CHECKED: HAL
SHEET SCALE: 1" = 20'
DATE: 2.12.2003
REVISIONS:
5.22.2003 C.O.S. COMMENTS
6.27.2003 C.O.S. COMMENTS
2.09.2004 COORD
3.05.2004 COORD
CITY NUMBERS:

SHEET NUMBER
LA.09
9
of
20

82-DR-98 #2A CDS 371-99-~~PA~~ NATIVE PLANT PERMIT# 75683



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Scale: 1" = 20'

NORTH

263-1100

IRRIGATION LEGEND

- W — 2" Water Meter (see Civil Plans for location)
- Febco 2" 825-YA Reduced Pressure Back flow Preventor (place in a locking cage)
- Hardie 700 Control Valve (Size As Shown)
- Nibco Brass Gate Valve (Size To Line)
- RainBird 44RC quick coupler
- Bowsmith S-10-L Single Outlet Emitters (See Emitter Schedule)
- Bowsmith M-10-L Multi Outlet Emitters (See Emitter Schedule)
- Rainbird 1804-mpr-12U - 4" pop-up lawn spray (Nozzle as required)
- Rainbird PSI-M30X Pressure Regulator With Rainbird RBY-100-200 MX "Y" Filter
- Class 200 PVC Lateral Line To Emitters (Size Per Pipe Table)
- Class 200 PVC Spray Lateral
- Sch 40 2.5" Mainline
- Class 200-1" Sub-Main (From Valve To Regulator and quick couplers)
- Agricultural Products Self Flushing End Cap
- Sch 40 PVC Sleeve (Size Per Sleeving Schedule)
- Controller A - tucor 50 station controller coordinate power w/ electrical (see detail)
- Station Number / Valve Size

SLEEVING SCHEDULE:

Contractor is responsible for all sleeving whether shown or not.

Mainline Sleeves	4"
Drip Lateral Sleeves	2"
Lateral From Valve To Regulators	3"
Wires	2"

For graphic clarity no emitters have been shown, verify emitter count with emitter detail and plant counts.

See Emitter Detail for irrigation system.

IRRIGATION NOTES

Irrigation plan is diagrammatic.
Locate all irrigation equipment in landscape areas.

EMITTER SCHEDULE:

1 Gallon	1 GPH
5 Gallon	1 GPH
15 Gallon	3 GPH
24" Box	4 GPH
30" Box	5 GPH
36" Box	6 GPH
42" Box	6 GPH
48" Box	8 GPH
60" Box & over	12 GPH

Bowsmith Single Outlet Emitters To Be Spaced On Uphill Side Of Rootball And Evenly Spaced Around Drip Line Of Trees.
(approximately 12" - 18" from trunk)

LASKIN & ASSOCIATES, INC.
LANDSCAPE ARCHITECTS
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www.laskindesign.com

REGISTERED LANDSCAPE ARCHITECT CERTIFICATE NO. 20068 HARDY A. LASKIN ARIZONA USA

Promenade phase 2

S.E.C. of Scottsdale Road and Frank Lloyd Wright Blvd
Scottsdale, Arizona
Irrigation Plan

DRAWN: FJS
CHECKED: HAL
SHEET SCALE: 1" = 20'
DATE: 2.12.2003
REVISIONS:
5.22.2003 C.O.S. COMMENTS
6.27.2003 C.O.S. COMMENTS
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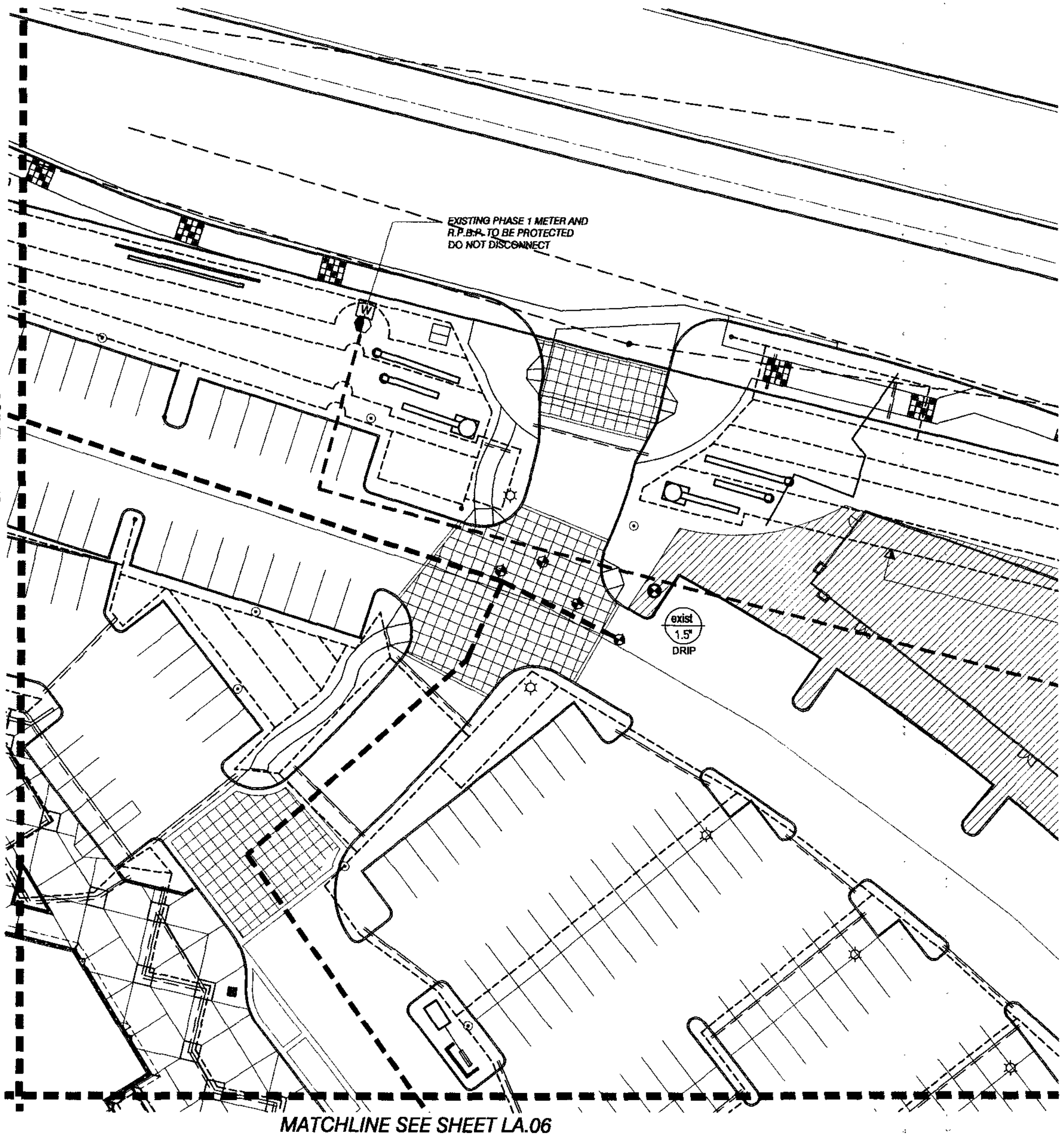
CITY NUMBERS
SHEET NUMBER: LA.10

82-DR-98 #2A CDS 371-99- NATIVE PLANT PERMIT # 75683



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- Sch 40 PVC Sleeve (Size Per Sleeving Schedule)
- Controller A - Tucor 50 station controller coordinate power w/ electrical (see detail)
- Station Number / Valve Size (1 / 1")

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(approximately 12" – 18" from trunk)

NORTH

Scale: 1" = 20'

0 10' 20' 40'

263-1100

LASKIN & ASSOCIATES, INC.
LANDSCAPE ARCHITECTS

Promenade phase 2
S.E.C. of Scottsdale Road and Frank Lloyd Wright Blvd
Scottsdale, Arizona
Irrigation Plan

DRAWN: FJS
CHECKED: HAL
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CITY NUMBERS

SHEET NUMBER
LA.11

82-DR-98 #2A CDS 371-99-[illegible] NATIVE PLANT PERMIT # 75683

MATCHLINE SEE SHEET LA.03

SCOTTSDALE ROAD

exist 1.5" DRIP

p2-16 1.5" grates

p2-15 1.5" TURF

p2-12 1.5" TURF

p2-13 1.5" TURF

p2-11 1.5" bldg pots

p2-14 1.5" TURF

p2-8 1.5" drip

p2-10 1.5" planter drip

p2-9 1.5" planter trees

p2-17 1" plaza pots

p2-21 1.5" drip

p2-7 1.5" TURF

p2-6 1.5" TURF

ALL WATER FEATURES REQUIRE SEPERATE PERMIT APPROVALS

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exist 1.5" DRIP

exist 1.5" POTS

exist 1.5" TREES

p2-5 1.5" DRIP

EXISTING PHASE 1 METER AND R.P.B.P. TO BE PROTECTED DO NOT DISCONNECT

MATCHLINE SEE SHEET LA.13

MATCHLINE SEE SHEET LA.14

VAN

Scale: 1" = 20'

NORTH

263-1100

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AZ USA

Promenade phase 2

S.E.C. of Scottsdale Road and Frank Lloyd Wright Blvd
Scottsdale, Arizona
Irrigation Plan

DRAWN: FJS
CHECKED: HAL
SHEET SCALE: 1" = 20'
DATE: 2.12.2003
REVISIONS:
5.22.2003 C.O.S. COMMENTS
6.27.2003 C.O.S. COMMENTS
2.09.2004 COORD
3.05.2004 COORD
CITY NUMBERS:

SHEET NUMBER
LA.12
12 of 18

82-DR-98 #2A CDS 371-99-~~2A~~2A NATIVE PLANT PERMIT# 75683

MATCHLINE SEE SHEET LA.11

MATCHLINE SEE SHEET LA.12

TIE ALL NEW ISLAND LANDSCAPE ONTO EXISTING IRRIGATION SYSTEM. L.C. TO REPAIR AND REROUTE EXISTING IRRIGATION AS REQUIRED.

TIE ALL NEW ISLAND LANDSCAPE ONTO EXISTING IRRIGATION SYSTEM. L.C. TO REPAIR AND REROUTE EXISTING IRRIGATION AS REQUIRED.

MATCHLINE SEE SHEET LA.15

IRRIGATION LEGEND

- W — 2" Water Meter (see Civil Plans for location)
- Febco 2" 825-YA Reduced Pressure Back flow Preventor (place in a locking cage)
- Hardie 700 Control Valve (Size As Shown)
- Nibco Brass Gate Valve (Size To Line)
- RainBird 44RC quick coupler
- Bowsmith S-10-L Single Outlet Emitters (See Emitter Schedule)
- Bowsmith M-10-L Multi Outlet Emitters (See Emitter Schedule)
- Rainbird 1804-mpr-12U - 4" pop-up lawn spray (Nozzle as required)
- Rainbird PSI-M30X Pressure Regulator With Rainbird RBY-100-200 MX "Y" Filter
- Class 200 PVC Lateral Line To Emitters (Size Per Pipe Table)
- Class 200 PVC Spray Lateral
- Sch 40 2.5" Mainline
- Class 200-1" Sub-Main (From Valve To Regulator and quick couplers)
- Agricultural Products Self Flushing End Cap
- Sch 40 PVC Sleeve (Size Per Sleeving Schedule)
- Controller A - Tucor 50 station controller coordinate power w/ electrical (see detail)
- 1 / 1" — Station Number / Valve Size

SLEEVING SCHEDULE:

Contractor is responsible for all sleeving whether shown or not.

Mainline Sleeves	4" Sch 40
Drip Lateral Sleeves	2" Sch 40
Lateral From Valve To Regulators	4" Sch 40
Wires	2" Sch 40

For graphic clarity no emitters have been shown, verify emitter count with emitter detail and plant counts.

See Emitter Detail for irrigation system.

IRRIGATION NOTES

Irrigation plan is diagrammatic.
Locate all irrigation equipment in landscape areas.

EMITTER SCHEDULE:

1 Gallon	1 GPH
5 Gallon	1 GPH
15 Gallon	3 GPH
24" Box	4 GPH
30" Box	5 GPH
36" Box	6 GPH
42" Box	6 GPH
48" Box	8 GPH
60" Box & over	12 GPH

Bowsmith Single Outlet Emitters To Be Spaced On Uphill Side Of Rootball And Evenly Spaced Around Drip Line Of Trees.
(approximately 12" – 18" from trunk)

NORTH

Scale: 1" = 20'

0 10' 20' 40'

263-1100

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5112 N. 40th Street
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f (602) 840-8021
www.laskinlandscape.com

20068
HARDY A. LASKIN
REGISTERED LANDSCAPE ARCHITECT
ARIZONA, U.S.A.

Promenade phase 2

S.E.C. of Scottsdale Road and Frank Lloyd Wright Blvd
Scottsdale, Arizona
Irrigation Plan

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5.22.2003 C.O.S. COMMENTS
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2.09.2004 COORD
3.05.2004 COORD
CITY NUMBERS:

SHEET NUMBER: LA.13
13 of 17

82-DR-98 #2A CDS 371-99-263 NATIVE PLANT PERMIT# 75683

MATCHLINE SEE SHEET LA.12

MATCHLINE SEE SHEET LA.15

exist 1.5" DRIP

exist 1.5" DRIP

exist 1.5" DRIP

exist 1.5" DRIP

TIE ALL NEW ISLAND LANDSCAPE ONTO EXISTING IRRIGATION SYSTEM. L.C. TO REPAIR AND REROUTE EXISTING IRRIGATION AS REQUIRED.

ALL NEW PLANT MATERIAL ALONG SCOTTSDALE ROAD AND FRANK LLOYD WRIGHT BLVD SHALL BE TIED INTO EXISTING FRONTAGE IRRIGATION. L..C. TO VERIFY EXISTING VALVE LOCATIONS AND TYPES PER AS-BUILTS.

TIE ALL NEW ISLAND LANDSCAPE ONTO EXISTING IRRIGATION SYSTEM. L.C. TO REPAIR AND REROUTE EXISTING IRRIGATION AS REQUIRED.

NORTH

Scale: 1" = 20'

0 10' 20' 40'

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HARDY A. LASKIN
ARIZONA, USA

Promenade phase 2

S.E.C. of Scottsdale Road and Frank Lloyd Wright Blvd
Scottsdale, Arizona
Irrigation Plan

DRAWN
FJS

CHECKED
HAL

SHEET SCALE
1" = 20'

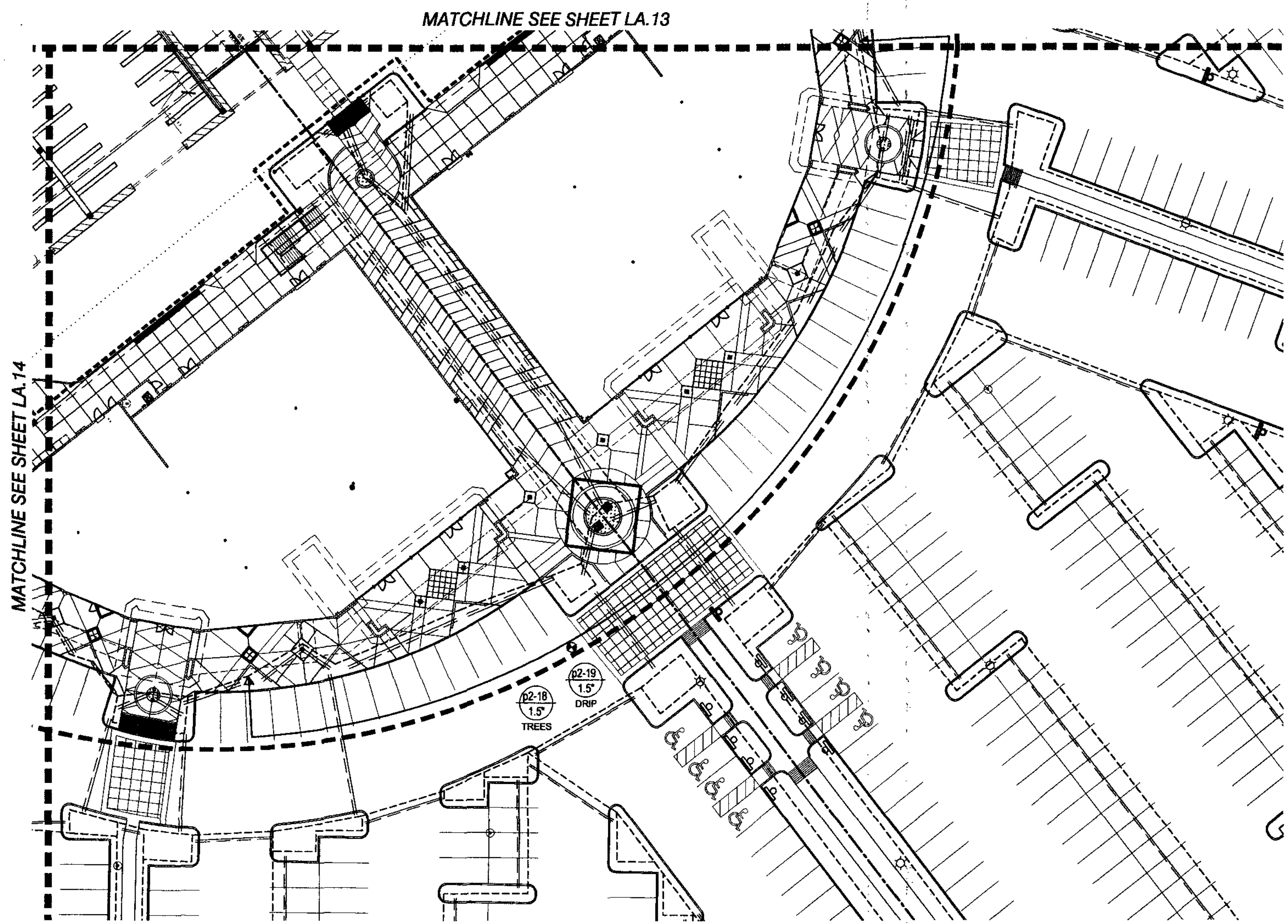
DATE
2.12.2003

REVISIONS
5.22.2003 C.O.S. COMMENTS
6.27.2003 C.O.S. COMMENTS
2.09.2004 COORD
3.05.2004 COORD

CITY NUMBERS

SHEET NUMBER
LA.14
14
of
20

82-DR-98 #2A CDS 371-99-[redacted] NATIVE PLANT PERMIT# 75683



TIE ALL NEW ISLAND LANDSCAPE ONTO EXISTING IRRIGATION SYSTEM. L.C. TO REPAIR AND REROUTE EXISTING IRRIGATION AS REQUIRED.

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Wires	2"

For graphic clarity no emitters have been shown, verify emitter count with emitter detail and plant counts.

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60" Box & over	12 GPH

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(approximately 12" - 18" from trunk)

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NORTH

Scale: 1" = 20'
0 10' 20' 40'

263-1100

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REGISTERED LANDSCAPE ARCHITECT CERTIFICATE NO. 20088 HARDY A. LASKIN ARIZONA, USA

Promenade phase 2
S.E.C. of Scottsdale Road and Frank Lloyd Wright Blvd
Scottsdale, Arizona
Irrigation Plan

DRAWN	FJS
CHECKED	HAL
SHEET SCALE	1" = 20'
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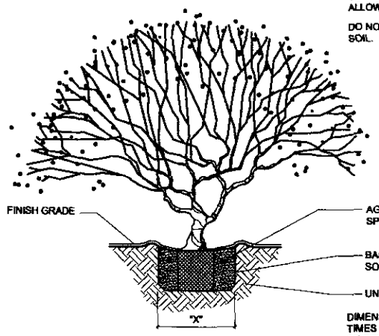
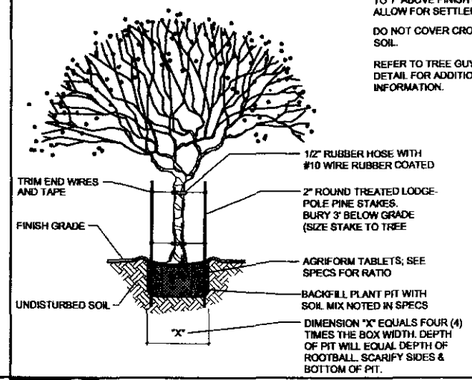
CITY NUMBERS	
SHEET NUMBER	LA.15

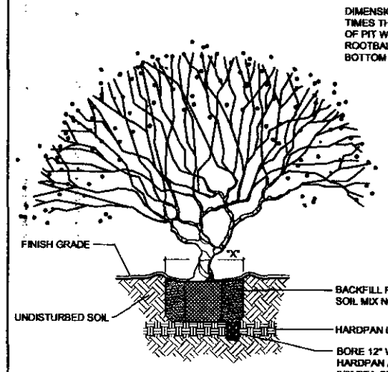
82-DR-98 #2A CDS 371-99-[illegible] NATIVE PLANT PERMIT # 75683



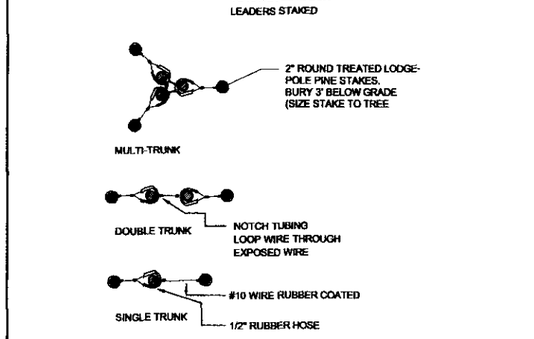
P1 TREE PLANTING DETAIL
(36" BOX AND LARGER)
NTS



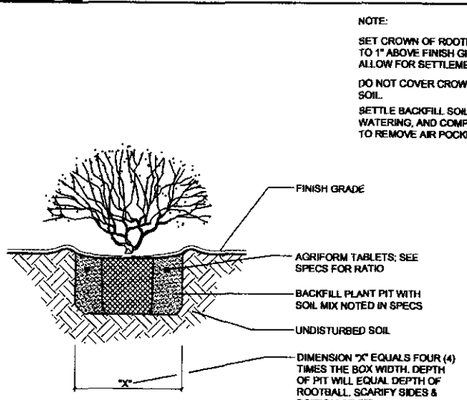
P2 TREE PLANTING DETAIL
(15 GALLON TO 36" BOX)
NTS



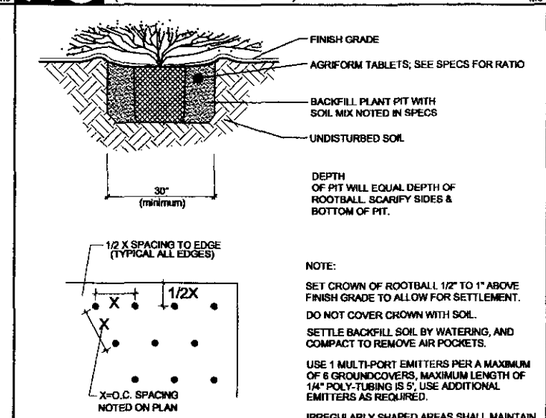
P3 HARDPAN PLANTING DETAIL
NTS



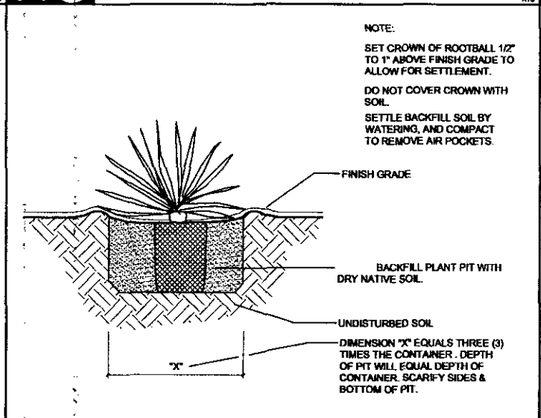
P4 TREE GUYING DETAIL
NTS



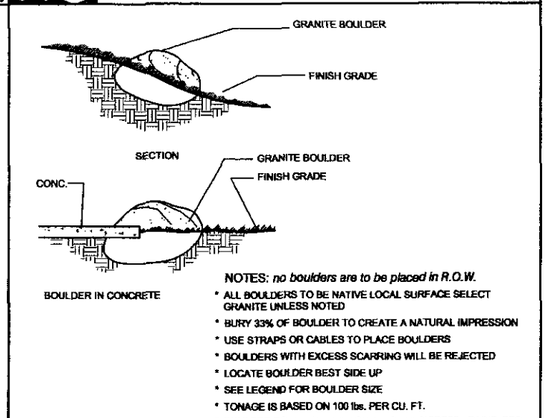
P5 SHRUB PLANTING DETAIL
(1 GALLON TO 15 GALLON)
NTS



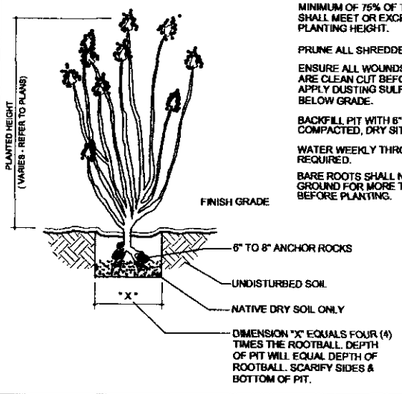
P6 GROUNDCOVER PLANTING DETAIL
NTS



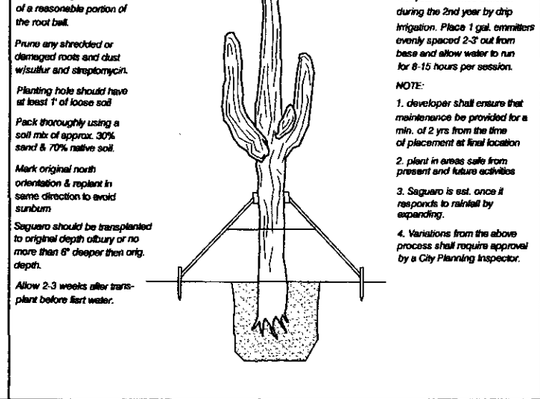
P7 AGAVE / YUCCA PLANTING DETAIL
NTS



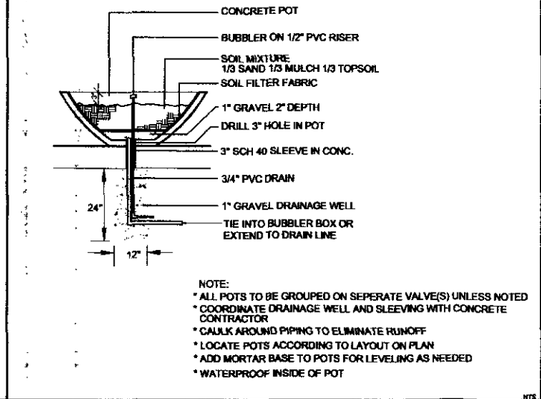
D8 BOULDER DETAIL
NTS



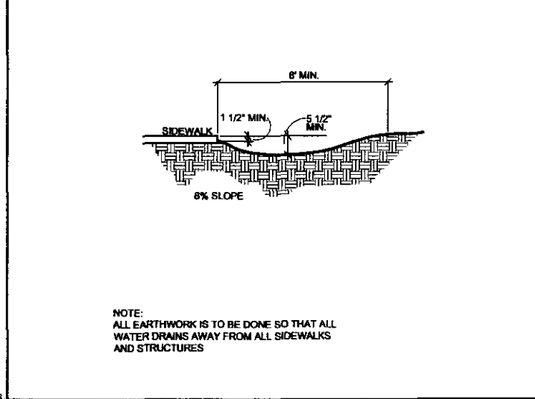
P9 OCOTILLO PLANTING DETAIL
NTS



P10 SAGUARO PLANTING DETAIL
NTS



P11 PLANTER POT PLANTING DETAIL
(AT GRADE POT - DRAIN TO BUBBLER BOX OR DAYLIGHT)
NTS



P12 SWALE DETAIL
NTS

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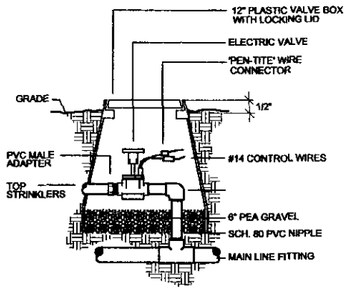
REGISTERED LANDSCAPE ARCHITECT
20088
HARDY A. LASKIN
AZ
ARIZONA U.S.A.

Promenade phase 2
S.E.C. of Scottsdale Road and Frank Lloyd Wright Blvd
Scottsdale, Arizona
Landscape Planting Details

DRAWN: FJS
CHECKED: HAL
SHEET SCALE: scale
DATE: 2.12.2003
REVISIONS:
5.22.2003 C.O.S. COMMENTS
6.27.2003 C.O.S. COMMENTS
2.09.2004 COORD
3.05.2004 COORD
CITY NUMBERS:
SHEET NUMBER: LA.16
16 of 20

82-DR-98 #2A CDS 371-99-2 NATIVE PLANT PERMIT# 75683

NOTE:
MAXIMUM 2 VALVES PER VALVE BOX



I1 IRRIGATION CONTROL VALVE DETAIL

NTS

EMITTER SCHEDULE

(1) BOWSMITH S-10-L SINGLE OUTLET EMITTER PER SHRUB

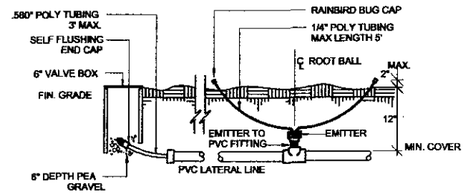
(1) BOWSMITH M-10-L MULTI-OUTLET EMITTER PER TREE

FOR 15 GAL. TREES

4 OUTLETS OPERATING WITH TUBING TO OPPOSITE SIDES OF TREE PIT 8"-10" FROM TRUNK

FOR BOX TREES

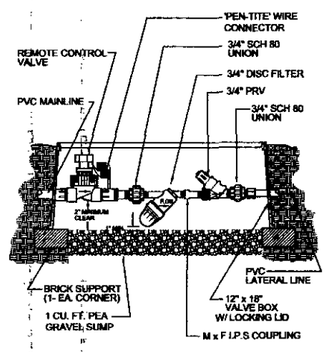
6 OUTLETS OPERATING WITH TUBING TO OPPOSITE SIDES OF TREE TRUNK



I2 DRIP EMITTER DETAIL

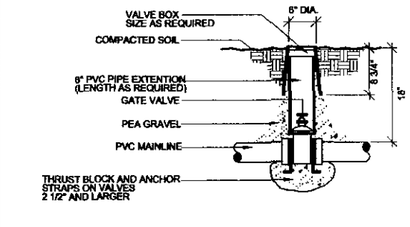
NTS

NOTE:
MAXIMUM 2 VALVES PER VALVE BOX



I3 DRIP CONTROL VALVE DETAIL

NTS

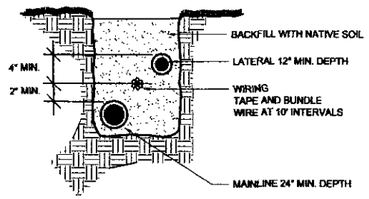


NOTE: SIZE GATE VALVE TO MAINLINE UNLESS NOTED

I4 GATE VALVE DETAIL

NTS

NOTE:
WATER SETTLE AND COMPACT ALL TRENCHES



I5 IRRIGATION TRENCHING DETAIL

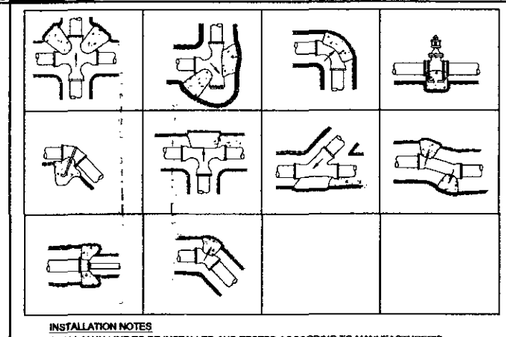
NTS

PIPE SIZE	FLOW (GPM)
1/2"	0–5
3/4"	5–10
1"	10–15
1-1/4"	15–25
1-1/2"	25–35
2"	35–60
2-1/2'	60–80
3"	80–120
4"	120 – 200

- ALL MAINLINE PIPE TO BE MINIMUM CLASS 200
- ALL VALVE BOXES TO BE AMTEK, CARSON OF EQUAL
- ALL 1/2" LATERAL PIPE TO BE CLASS 315
- ALL LATERAL PIPE ABOVE 1/2" TO BE MINIMUM CLASS 200

I6 PIPE SIZE SCHEDULE

NTS

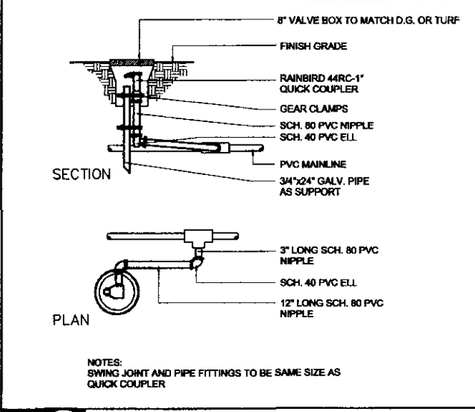


INSTALLATION NOTES

1. ALL MAIN LINE TO BE INSTALLED AND TESTED ACCORDING TO MANUFACTURER'S INSTALLATION INSTRUCTIONS WHICH SHALL BE A PART OF THE INSTALLATION SPECIFICATIONS.
2. ALL TRENCH DEPTH AND WIDTH SHALL BE AS SHOWN ON THE IRRIGATION PLANS.
3. THE SUCCESSFUL CONTRACTOR SHALL ARRANGE FOR THE SERVICE OF THE MANUFACTURER'S QUALIFIED INSTRUCTOR.

I7 TYPICAL THRUST BLOCK DETAILS (BELL AND RING PIPE (PVC))

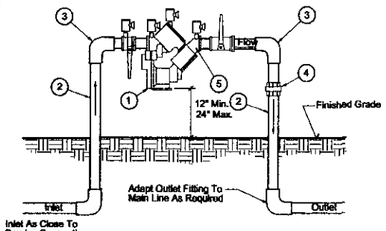
NTS



NOTES:
SWING JOINT AND PIPE FITTINGS TO BE SAME SIZE AS QUICK COUPLER

I8 QUICK COUPLER DETAIL

NTS



LIST OF MATERIALS

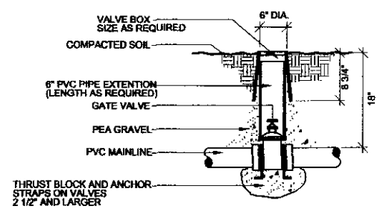
1. APPROVED REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY, BALL VALVES INCLUDED.
2. PIPE SPOOL, TYPE "L" HARD COPPER, 3/4" THRU 2 1/2".
3. 90 ELL, COPPER, 3/4" THRU 2 1/2".
4. PIPE UNION, BRASS OR COPPER.
5. TEST COCKS WITH BRASS PLUGS

GENERAL NOTES

2. CONTACT THE CITY OF SCOTTSDALE WATER & WASTEWATER OPERATIONS, BACKFLOW PREVENTION 391-5868, FOR THE LATEST LIST OF APPROVED BACK-FLOW PREVENTION ASSEMBLIES OR CERTIFIED TESTERS.
2. BACKFLOW PREVENTERS MUST BE TESTED BY A CERTIFIED TESTER BEFORE FINAL APPROVAL IS ISSUED.
3. COPPER FITTINGS SHALL BE CONNECTED WITH LEAD FREE SOLDER JOINTS.
4. FINISHED GRADE UNDERNEATH THE BACKFLOW PRE-VENTER SHALL BE AT 95 % COMPACTION.
5. ALL NIPPLES TO BE COPPER OR BRASS.
6. PIPING UNDER THE CITY RIGHT OF WAY MUST BE TYPE "K" COPPER.
7. CALL FOR UNDERGROUND INSPECTION BEFORE BACKFILLING TRENCH.

I9 REDUCED BACKFLOW PREVENTOR (CITY OF SCOTTSDALE DTL # 2354)

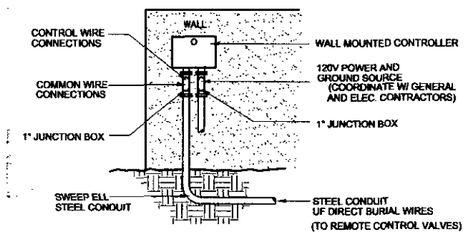
NTS



NOTE: SIZE GATE VALVE TO MAINLINE UNLESS NOTED

I10 GATE VALVE DETAIL

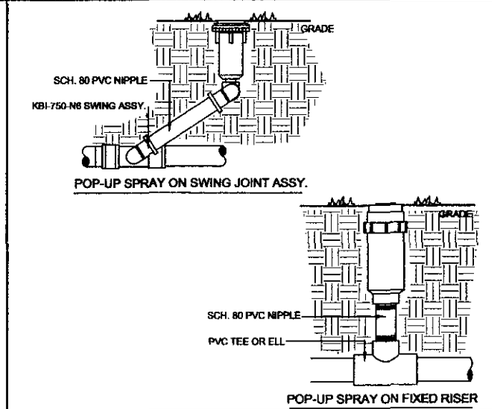
NTS



- PAINT TO MATCH WALL
- ALL WIRING TO BE INSTALLED PER LOCAL CODES
- SEE MANUFACTURERS MANUAL FOR MOUNTING INSTRUCTIONS

I11 WALL MOUNTED IRRIGATION CONTROLLER (IRRITROL MC PLUS)

NTS



I12 POP-UP SPRAY RISER DETAIL

NTS

263-1100

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HARDY A. LASKIN
4.11.04
REGISTERED LANDSCAPE ARCHITECT
ARIZONA, U.S.A.

Professional Seal

Promenade phase 2
S.E.C. of Scottsdale Road and Frank Lloyd Wright Blvd
Scottsdale, Arizona
Landscape Irrigation Details

DRAWN: FJS
CHECKED: HAL
SHEET SCALE: scale
DATE: 2.12.2003
REVISIONS:
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CITY NUMBERS:

SHEET NUMBER
LA.17
17
of
20

82-DR-98 #2A CDS 371-99-~~02~~-05 NATIVE PLANT PERMIT# 75683

LANDSCAPE SPECIFICATIONS

Section 02800

PART 1 – GENERAL

1.01 WORK INCLUDED

A. The work included under these specifications shall consist of the furnishing of all labor, material, permits, tools, and equipment necessary for the complete installation of the landscaping materials as shown on the drawings and as described in the following specifications.

1.02 QUALITY ASSURANCE

A. For standard products, the manufacturer's analysis will be acceptable. For all other materials, analysis shall be by a recognized laboratory.

B. Analysis shall be made in accordance with the current methods of the Association of Official Agricultural Chemists.

C. Soils shall be analyzed for their composition and fertility in sustaining plant growth and health.

D. All plants furnished under this specification shall be from nursery grown stock, and they shall meet the ARIZONA NURSERY ASSOCIATION of the American Association of Nurserymen, Inc. requirements as to sizing, grading, and quality. Plant materials specified shall conform with the nomenclature of STANDARDIZED PLANT NAMES, Second Edition. The Landscape Architect reserves the right to refuse all plant material based on overall appearance and quality regardless of specifications.

E. Plants of the species specified shall be furnished in the variety, size, grade, and quality indicated. Specifications and planting plans shall be strictly adhered to and no changes or substitutions will be allowed prior to bidding without written permission of the Landscape Architect, Owner, or Owner's Representative.

F. By submitting a proposal and accepting award of the Contract, the Contractor acknowledges that he has investigated the supply of planting stock available and has obtained firm commitments from his suppliers assuring delivery of the specific plant materials as required for completion of the project.

G. All plant materials shall be grown in accordance with good horticulture practices and shall bear evidence of proper nursery care during growth under climate conditions similar to those in the locality of the project for at least two (2) years. They shall have been previously transplanted or root pruned according to standard nursery practice and inspected by State Control Agencies.

H. All plants shall be freshly dug. No heeled in plant or plants from cold storage will be accepted. Plants shall be typical of their species or variety and have normal habits of growth, be healthy and vigorous, well branched, and have dense foliage when in leaf. All plants, including root systems, shall be free of disease, disfiguring knots, sunscald, insect pests, eggs or larvae, dead or broken branches, bark abrasions, and have healthy well developed root systems. The root systems of container grown plants shall be sufficiently developed to hold the earth intact upon removal from the container.

I. Planting, sodding, and seeding shall be performed by personnel familiar with planting procedures and under the supervision of a qualified planting foreman.

1.03 SUBMITTALS

A. Submit a soil fertility test of the planting soil for approval by the Landscape Architect prior to delivery of soil to the project site. Test reports shall indicate the location of the source for soil.

B. Upon completion of the work, submit a schedule satisfactory to the Landscape Architect for the maintenance of all plant material.

PART 2 – PRODUCTS

2.01 SOD

A. Approved nursery grade cultivated grass sod; species and cultivar as indicated on the drawings with strong, fibrous root system; free from stones and burned or bare spots.

2.02 PLANTING SOIL FOR PLANT PITS AND BEDS

A. Fertile, friable, natural loam containing a liberal amount of humus, capable of sustaining vigorous plant growth. The pH value of the planting soil shall not be higher than 7.5 or lower than 5.5. It shall be free of any admixture of subsoil, stones, lumps, clods of hard earth, plants, or their roots, sticks, and other extraneous matter. Do not use planting soil for planting operations while in a frozen or muddy condition.

2.03 PEAT

A. Acceptable peat moss consisting of at least 73% organic content of natural occurrence. It shall be brown, clean, low in content of mineral and woody materials, mildly acid, and granulated or shredded.

2.04 FERTILIZER

A. Commercial Fertilizer: A complete fertilizer, conforming to FS 0–F–241, Type I. Grade A, part of the elements of which are derived from organic sources containing the following percentages by weight:

10% nitrogen 5% nitrogen
10% phosphoric acid –or– 10% phosphoric acid
10% potash 5% potash

B. Organic Fertilizer: An organic activated fertilizer containing a minimum of five percent (5%) nitrogen, three percent (3%) phosphoric acid, and other basic elements by weight.

C. Deliver fertilizer mixed as specified in standard size bags, showing weights, analysis, and name of manufacturer. Store in weatherproof storage place in such manner that it will be kept dry and its effectiveness not impaired.

D. The Landscape Architect reserves the right to vary the percentages of the components of the fertilizers subject to the results of the soil fertility tests.

2.05 WATER

A. Shall be furnished by the General Contractor. The Contractor shall furnish all necessary hose, equipment, attachments, and accessories for the adequate irrigation of all planted areas as may be required to complete the work as specified.

2.06 PLANT MATERIAL

A. All old abrasions and cuts shall be completely calloused over. All shrubs shall be measured when their branches are in their normal position. Height and spread dimensions specified refer to the main body of the plant and not from branch or root tip to tip.

B. Shrubs shall be matched specimens from single block source.

C. Evergreen trees not fully branched from top to bottom will be rejected, and those with terminal leaders exceeding twelve (12") inches in length will also be rejected. During the spring planting seasons, any evergreen plant delivered with new growth in an advanced stage of candling out will be rejected.

D. Plants shall not be pruned before delivery. Trees which have damaged or crooked leaders, or multiple leaders, unless specified, will be rejected. Trees with bark abrasions, sunscalds, disfiguring knots, or fresh cuts of limbs over one and a quarter inches (1¼") which have not completely calloused will be rejected. Plants shall be freshly dug or container grown. Heeled in plants or plants from cold storage will not be accepted.

E. Plants shall be true to species and variety, and shall conform to measurements specified on the Drawings. Plants larger than specified may be used if approved by the Landscape Architect. Use of such plants shall not increase contract price. If larger plants are approved, the ball of earth shall be increased proportionally with the size of plant.

F. Substitutions of plant materials will not be permitted unless authorized in writing by the Landscape Architect. Proof must be submitted that use of nearest equivalent size of variety with corresponding adjustment of Contract Price. Such proof shall be substantiated and submitted in writing.

G. It shall be the responsibility of the Contractor to determine required quantities of plants, as no compensation will be made for error in plant quantities. If plant counts occur on plant legend, it is for the convenience of the contractor only. Verify plant counts with plan. In case of discrepancy, plan shall govern.

H. Each plant shall be properly identified with legible waterproof tags securely fastened. Tags shall remain on the plants until after final acceptance and then be promptly removed by the Contractor.

PART 3 – INSTALLATION

3.01 INSPECTION OF PLANT MATERIAL

A. Plants shall be subject to inspection and approval by Landscape Architect at place of growth and upon delivery. Written request for inspection of plant materials at place of growth shall be submitted to Landscape Architect at least ten (10) calendar days prior to delivery. This written request shall state place of growth and quantity of plants to be inspected. Landscape Architect reserves the right to waive inspection. Such approval shall not impair the right of inspection and rejection upon delivery at the project site or during the progress of the work for size and condition of balls or roots, diseases, insects, and latent defects or injuries. Rejected plants must be immediately removed from the project site.

B. Certificates of inspection of plant materials as may be required by Federal, State or other authorities to accompany shipments and be furnished to Owner upon completion of project.

3.02 DIGGING AND HANDLING

A. Digging shall be done the same season of planting and shall be done by hand as to not injure plants and to meet size requirements. No plant other than the required samples shall be dug or delivered to the site until the required inspections have been made and the plants or samples approved.

B. Dig balled and burlapped (BB) plants with firm, unbroken natural balls of earth, of sufficient diameter and depth to include the fibrous and feeding roots. No synthetic or mudded in balls will be accepted. No plants moved with a ball will be accepted if the ball is cracked or broken before or during planting operations.

C. Roots or ball of all plants shall be adequately protected at all times from excessive exposure to wind, sun, rain, hail, etc. Balled and burlapped plants that cannot be planted immediately on delivery shall be set on the ground and well protected with soil, wet moss or other acceptable material. Bare rooted plants shall be planted or heeled in immediately upon delivery.

D. All plant material shall be handled carefully to prevent injury to rootballs, trunks, or branches. Any plant suffering damage sufficient to impair its health and/or natural form will be rejected. No plant shall be bound with wire or rope at any time so as to damage the bark or break branches.

3.03 FERTILIZING SOD SUBSOIL

A. Apply fertilizer at a rate recommended by manufacturer. Apply after line grading and prior to compaction. Mix thoroughly into upper two (2") inches of topsoil.

B. Lightly water to aid the breakdown of fertilizer.

C. Apply fertilizer within forty-eight (48) hours.

3.04 LAYING SOD

A. Lay sod as soon possible after delivery to prevent deterioration.

B. Lay sod closely knit together with no open joints visible, and pieces not overlapped. Lay smooth and flush with adjoining grass areas. Finish grade to be one and a half inches (1½") below paving and top of surface curbs.

C. Immediately water sodded areas after installation. Water in sufficient amount to saturate sod and upper four inches (4") of soil.

D. After sod and soil has dried sufficiently to prevent damage, roll sodded areas to ensure good bond between sod and soil and to remove minor depressions and irregularities. Ensure rolling equipment weight not over 250 lbs. or less than 150 lbs.

3.05 TIME OF PLANTING

A. The contractor shall notify the Landscape Architect in writing when other divisions of the work have progressed sufficiently to commence landscape work, including placing of topsoil to finish grade. Thereafter, conduct planting operations under favorable weather conditions.

B. Any plant material installed during typical off seasons (hot summer months or freezing winter months) shall be done at the Contractor's own risk and the Contractor shall be held responsible for replacement of any plant material damaged due to these adverse conditions.

3.06 PLANTING OPERATIONS

A. General

1. The Contractor shall coordinate all aspects of the landscape operations with all aspects of the site construction. The work shall proceed as the indicated portions of the site become available, consistent with the seasonal limitations for landscape planting.
2. The Contractor shall be responsible for any damage to utilities construction, sitework construction, and underground sprinkler systems and shall bear the full cost to repair the damage. Accomplishment of repairs shall be equal to the original installation prior to damage. Any damage shall be immediately reported to the Landscape Architect and repairs shall be approved by him before it is buried.
3. Maintain all trench or grade stakes for work under other Sections until their removal is approved by the Landscape Architect.
4. The Contractor shall stake plant location, shrub pits, and other planting areas and secure the Landscape Architect's approval before starting excavation of same, making adjustments as necessary.
5. Unless otherwise directed by Landscape Architect, indication of plant on drawings is to be interpreted as including digging of hole, furnishing plant of specified size, work of planting, mulching, guying, staking, wrapping, and watering.

B. Plant Pits and Beds

1. Plant pits shall be excavated with vertical sides, large enough to allow twelve (12") inches of space around the ball in all directions. Adjust depth as necessary to permit a minimum of twelve (12") inches planting soil under the ball when the plant is set at the proper depth.
2. Planting pit backfill for all trees and shrubs shall be as follows:

   1. 2/3 parts by volume on site soil.
   2. 1/3 parts by volume forest mulch.
   3. One pound 13–20–0 per cubic yard of mix.

3. Planting pits shall be backfilled with prepared backfill and be water settled to a grade sufficient that in the setting of plant, the finish grade level after settlement will be the same as that at which plants were grown. Agriform tablets to be used with each planting (six (6) for 36" box, three (3) for 15 gallon, two (2) for 5 gallon, and one (1) for 1 gallon).

C. Installations

1. Set plants in center of pits, plumb and straight and at such a level that after settlement the crown of the plant shall be two (2") inches below finish grade and forming a shallow trough directly over the ball of earth and slightly smaller that the pit to facilitate watering. Space all plants as shown.
2. Set balled and burlapped plants upon a well tamped layer of planting soil. Backfill around ball with planting soil in six to eight (6" – 8") inch lifts, each thoroughly tamped and puddled to top of pit. Avoid air pockets. Remove all ropes and wires from tops and sides of balls. No burlap shall be pulled out from under the balls.
3. Plants supplied in containers shall be installed immediately upon being removed from their containers. Removal of plants from containers shall be in a manner that will not disturb the root system or the soil in which they were planted. Under no conditions shall the plant be removed from the containers by pulling on the main stem or plant growth. No plants shall be installed with their containers remaining attached, except as noted on the drawings.
4. Before installing bare root plants, planting soil shall be placed and compacted to a depth of twelve (12") inches in the bottom of the plant pit. The plants shall be installed with their roots evenly distributed and spread in their natural position, with the planting soil being carefully placed and compacted around the roots so as to leave no air space.

D. Pruning, Wrapping, Mulching, Staking, and Spraying

1. Pruning
a. Plants shall not be pruned prior to delivery unless Landscape Architect gives written permission. Pruning will occur only at time of planting and according to standard horticultural practice and at the direction of the Landscape Architect. Amount of pruning shall be limited and is not to exceed thirty-three (33%) percent of total plant as necessary to remove dead or injured twigs and branches and to compensate for root loss resulting from transplanting. Do not cut leaders.
b. Remove all dead wood, suckers, and broken or badly bruised branches.
c. Pruning shall be done with clean, sharp tools according to standard horticultural practices. Cuts shall be made flush leaving no splits.
d. Cuts over ½" inch diameter shall be painted over with approved tree paint. Paint shall cover all exposed cambium as well as other exposed living tissue. Injured cambium and bruises and scars shall be tracked back to living tissue and removed. Smooth and shave wounds so as not to retain water. Treat wound with paint.
2. Staking and Guying
a. Stake or guy all trees per detail. Trees which blow down, sway excessively, or are otherwise injured because of improper bracing shall be replaced at Contractor's expense.
3. Spraying
a. All groundcover and non-lawn areas shall be treated with pre-emergent.
4. Decomposed Granite
a. Prior to placing, the area shall be totally free of weeds using chemical control. Apply a pre-emergence control (Surflan or prior approved equivalent) according to manufacturer's recommendations. The decomposed granite shall be evenly distributed at the designated areas to a depth of two (2") inches. After placing and grading, lightly water to remove fine materials from the surface and water settle or roll to an extent satisfactory to the Landscape Architect. Apply second application of pre-emergence control according to manufacturer's recommendations.
b. Decomposed granite shall match size and color on plans, shall be free from lumps or balls of clay and shall not contain calcareous coating, caliche, organic matter or deleterious substances. Color and source of decomposed granite shall be approved by the Landscape Architect. All material shall be from a single production source and shall present a uniform appearance. Material containing clumps which will not disintegrate with a shovel blow shall be rejected.
5. Workmanship – Decomposed Granite
a. Install rock to a depth as indicated on the plans (typically two (2") inches thick).
6. Workmanship – Berms
a. Earth berms (mounding) shall take the form indicated on the plans. The Landscape Architect shall inspect and approve all finished grades prior to any planting.
7. Cleaning Up
a. Keep all areas of this project in a clean, neat, and orderly condition at all times. Trash burning and disposal shall not be done on the site. Prior to acceptance put all areas of the work in a finished condition acceptable to the Landscape Architect.

3.07 OBSTRUCTIONS BELOW GROUND

A. In the event that rock or underground construction work or obstructions are encountered in the excavation of plant pits, alternate locations may be selected by the Landscape Architect. Where locations cannot be changed, remove the obstructions (but not new construction work) to a depth of not less than six (6") inches below the required pit depth.

B. Proper drainage of plant pits is necessary. Bring subsoil conditions permitting the retention of water in planting pits for more than twenty-four (24) hours to the attention of the Landscape Architect, the changes required will not increase the contract price.

C. The Contractor is responsible for any damage to underground utilities resulting from landscape operations and bear the full cost to repair the damage. Accomplishments of repairs shall be equal to the original installation prior to damage. Report damage immediately to Landscape Architect who shall approve repairs before they are buried.

3.08 MAINTENANCE

A. Protect and maintain plant material (trees, shrubs, groundcover, lawn, and vines) immediately after planting. Maintenance to be provided for sixty (60) days from acceptance by the Landscape Architect. At the end of sixty (60) days the Landscape Architect may extend the maintenance period if during that period the maintenance is not acceptable. Maintenance includes watering, weeding, cultivation, mulching, tightening, and repairing of guys, removal of dead material, resetting plants to proper grade or upright positions and restoration of the planting saucer and other construction work until acceptance.

B. Sod
1. Maintain sodded areas immediately after placement and for a sixty (60) day period. After acceptance maintenance includes weekly mowing and all necessary irrigation adjustment.
2. After sixty (60) day maintenance, coordinate post-maintenance mowing of new sod with Owner's maintenance personnel.
3. Water sod when required and in sufficient quantities to prevent grass and underlying soil from drying out.
4. Roll and sand sod when required to remove minor depressions or irregularities.
5. Control growth of weeds in sod. When using herbicides, apply in accordance with manufacturer's instructions. Remedy damage resulting from negligent or improper use of herbicides.
6. Immediately repair or replace any sodded areas which show deterioration or bare spots.
7. Protect sodded areas with warning signs during maintenance period.

3.09 INSPECTION FOR ACCEPTANCE

A. Inspection of the landscaping work to determine completion of contract work, exclusive of plants, will be made by the Landscape Architect at the conclusion of the maintenance period.

B. Acceptance: After inspection, the Contractor will be notified in writing by the Landscape Architect of all work of this Section, exclusive of the possible replacement of plants subject to reinspection and guarantee, or if there are and deficiencies of the requirements for completion of the work.

C. Upon acceptance made by the Landscape Architect, the Contractor's maintenance is terminated and the guarantee period begins.

3.10 PLANT GUARANTEE AND REPLACEMENT/FINAL ACCEPTANCE

A. The guarantee is for a period of one (1) year from date of acceptance by the Landscape Architect. The guarantee is for all new plant material, lawns, transplants, and existing plant material.

B. At the end of the guarantee period, the Landscape Architect shall reinspect all guaranteed work for Final Acceptance upon written request of Contractor. Request shall be received at least ten (10) calendar days before anticipated date for final inspection. Upon final inspection and reinspection of replacements or repairs necessary in judgment of Landscape Architect at that time, Landscape Architect shall certify in writing to Owner as to Final Acceptance of plantings. Contractor shall replace, without cost to Owner, as soon as weather conditions permit, and within specified planting period, all dead plants and all plants not in vigorous, thriving conditions as determined by Landscape Architect at the end of guarantee period. Plants shall be free of dead or dying branches and branch tips, and shall bear foliage of normal density, size, and color. Replacements shall closely match adjacent specimens of same species and shall be equal in size to previously planted specimens, including increased growth since planting Replacement shall be subject to all requirements of this Specification. If replacement plant material is not acceptable at end of two month period following replacement, Owner may elect subsequent replacement or credit for each item. Owner will retain sufficient amount from Contractor's payment to cover estimated cost of possible replacements at time of initial inspection for acceptance, including materials and labor. Contractor shall receive final payment only after all replacements have been made and approved.

C. Portions of lawns and/or plantings may be accepted in part upon Landscape Architect's approval.

PART 4 – MISCELLANEOUS AND GENERAL NOTES

4.01 FINISH GRADING AND GRADING

A. The General Contractor to provide Landscape Contractor finish grade within + 0.1 of a foot as shown on the civil grading plan and landscape plan.

B. All mounding, berms, and finish grading to be approved by the Landscape Architect prior to planting or irrigation work.

4.02 GENERAL NOTES

A. The Landscape Contractor at his own expense shall procure all permits, certificates, and licenses required of him by law for the execution of this work. He shall comply with all state, county, and local laws, ordinances, rules, or regulations relating to the performance of this work. All deductions or additions will be made through a change order issued by the Architect. Changes made without a change order are not considered part of the contract and payment cannot be guaranteed.
B. The Contractor shall visit and inspect site to thoroughly inform himself of all existing conditions. Any discrepancies between existing conditions and those shown on drawings should immediately be brought to the attention of the Landscape Architect.

IRRIGATION SPECIFICATIONS

SECTION 02900

PART 1 – GENERAL

1.01 WORK INCLUDED

A. The work included under these specifications shall consist of the furnishing of all labor, materials, permits, tools, and equipment necessary for the complete installation of a sprinkler irrigation system in accordance with the following specifications and accompanying drawings.

B. It is the intent of these drawings and specifications to form a guide for a complete installation, and although some items may not be specifically noted, but are reasonably necessary for a complete installation, they shall be furnished under this contract. Sprinklers shall be located and spaced so that adequate overlapping of the spray will provide uniform head to head (100%) coverage. The system shall efficiently and evenly irrigate all areas, and shall be complete in every respect, ready for operation by the Owner.

C. It is the responsibility of the Irrigation Contractor to provide 100% coverage to all landscape areas.

1.02 CONTRACTOR'S QUALIFICATIONS

A. Installers shall be licensed irrigation contractors with experience in the installation of automatic underground lawn sprinkling systems. All work shall be performed in a professional workmanlike manner by mechanics skilled in the trade.

B. The Contractor shall be responsible for any damage to any work covered by these specifications, under his care and custody, until final acceptance of his work.

C. The Contractor shall obtain all permits from, pay required fees to, and arrange any necessary inspections by any government agency having jurisdiction over the work.

1.03 VERIFICATION OF DRAWINGS AND SPECIFICATIONS

A. It shall be the Contractor's responsibility to carefully examine the drawings and specifications, and to visit the site in order to check existing conditions prior to bidding. Any conflict or errors shall be immediately brought to the attention of the Landscape Architect for interpretation or instructions. Otherwise, any changes necessary to meet existing conditions, shall be made at the Contractor's expense.

B. It is the Irrigation Contractor's responsibility to verify water pressure, water source, and size in the field prior to construction. Should a discrepancy exist between design pressure and the field pressure the Landscape Architect shall be notified immediately.

1.04 WORKING CONDITIONS

A. The Contractor shall confine his operations to the areas allotted to him by the Owner, for his work and for material and equipment storage.

B. The Contractor shall continuously maintain a competent superintendent, satisfactory to the Owner, on the work during progress, with authority to act for the Contractor in all matters pertaining to the work.

C. The Contractor shall not assign nor sublet any portion of this work without written approval by the Owner.

D. The Contractor shall be responsible for staking out the system from the drawings, using the property lines and building dimensions as a guide.

E. The Contractor shall coordinate his work with that of the other trades, so as to avoid any conflict, and carry the installations to a rapid completion without any unnecessary delays.

PART 2 – PRODUCTS

2.01 PIPING

A. All pressure main piping, on the supply side of the zone valves, shall be class 200 PVC with integrally formed bell-tite joint couplers. All fittings shall be solvent welded, schedule 40 PVC.

B. All lateral piping, on the discharge side of the zone valves, two (2") inches and under, shall be class 200 PVC. Fittings shall be schedule 40 PVC material.

C. All plastic to metal shall be made with PVC schedule 40 male adaptors or PVC schedule 80 nipples. Joint compound for such connections shall be Permatex Type II Teflon tape or a prior approved equivalent.
D. Where pipes are installed under roads, drives, parking areas or walks, schedule 40 PVC sleeves shall be provided for the lines. In planting areas, where cultivation might damage shallow plastic piping, protective sleeves must be provided, unless copper tubing is installed. Risers in flower beds and shrubbery shall be schedule 80 PVC.

2.02 SPRINKLER HEADS

A. Emitter heads shall be on PVC laterals, or prior approved equivalent.

2.03 AUTOMATIC CONTROLLER

A. Unit features shall include mechanical time control design, adjustable time setting up to 60 minutes per station, 24-hour clock, 14-day calendar, and automatic rapid advance. Unit shall be UL listed and shall operate on 120 volt, 1 phase, 60 Hertz power. General Contractor to bring power to controller. Irrigation Contractor to hardwire to controller, see detail.

2.04 QUICKCOUPLING VALVES

A. Furnish and install where shown on the drawings quick-coupler with swivel and hose bib, 3/4" size, or prior approved equivalent. They shall be mounted on one (1") inch copper swing joint risers, and the tops shall be set flush with the top of the planters. Furnish and deliver to the Owner double-lug coupler key complete with one (1") inch hose swivel for connecting to the above valves. Also furnish two (2) locktop cover key.

2.05 ELECTRICAL CONTROL CABLE

A. All electrical control and ground wire shall be irrigation control cable of size as required. All wiring to be used for connecting the automatic remote control valve to the automatic controllers shall be Type "UF" 600 volt, stranded or solid copper, single conductor core with PVC insulation and bear UL approval for direct underground burial feeder cable.

B. All control or "hot" wires shall be on one color (red) and all common or "ground" wires shall be or another color (white).

C. Verification of wire types and installation procedures shall be checked to conform to local codes.

D. All electric control cable shall be of size as determined by the equipment manufacturer and shall be installed in the piping trenches wherever possible and in the manner recommended by the manufacturer, leaving slack in the wire. Expansion joints in the wire may be provided at 200-foot intervals by making five or six (5 or 6) turns of the wire around a piece of ½" inch pipe. where it is necessary to run wire in a separate trench, the wire shall have a minimum cover of twelve (12") inches.

PART 3 – INSTALLATION

3.01 PROTECTION OF UTILITIES, IRRIGATION SYSTEM, ETC.

A. The Contractor shall verify the location of all utilities and mark location of utilities, irrigation piping and underground obstructions. The contractor shall be responsible for the cost of repairing buried conduit, cables or pipeline damaged during the installation of the irrigation system.

B. The Contractor shall clearly mark and maintain markers showing locations of irrigation system wiring and piping installed in order that other contractors may avoid damaging this work.

C. The Contractor shall take necessary precautions to protect site conditions and plant materials which are to remain. Should damage be incurred. Contractor shall repair damage to its original condition or furnish and install equal replacement at his expense.

D. The Contractor shall coordinate with the Landscape Architect to provide irrigation to existing materials.

3.02 EXCAVATION

A. The Contractor shall do all necessary excavation for the proper installation of his work. Machine trenchers used on the site shall be of an approved type to cut smooth-bottom trenches on uniform slopes. Trenches shall be no wider than necessary to lay the pipe, except where necessary to make joints. Over excavating shall be backfilled and carefully tamped to provide a smooth and firm bearing surface for laying the pipe. When necessary, Contractor must provide barricades and lights for public protection. Minimum depth of cover shall be at least eighteen (18") inches for the main piping, and at least twelve (12") inches for the lateral branch lines.

3.03 PIPE INSTALLATION

A. All pipe lines shall be installed in the locations and of the sizes indicated, and of the materials specified Parallel piping may be installed in the same trench. Piping shall be laid accurately to the line and grade required, with full uniform bearing on the trench bottom. No piping shall be laid on the soft fill or other unstable material. No direct contact, with other piping or structures, will be permitted at crossing. Interior of piping shall be kept clear of foreign matter before installation, and shall be kept clean by means of plugged or capped ends after lowering into the trench. The supply main lines shall be flushed out and tested for leads, with control valves in place, before backfilling of the joints. All lateral piping sections shall be flushed out before sprinkler heads are attached. All pipe shall be installed in strict accordance with recommendations of the manufacturer. This shall apply to thrust blocking, handling, storage, depth of cover, expansion allowance, testing, etc.

B. Under existing drives or sidewalks, the Contractor shall either saw cut concrete and replace it to the former condition or install the pipe by boring or jacking under the area.

3.04 BACKFILLING
A. As soon as the work has been installed, inspected and accepted, all excavations and trenches shall be filled and water settled with fine earth materials, free from clods, rocks, or other unsuitable\ substances. Trenches must be left flush with adjacent finished grade after compacting to the original density of the soil. Flooding of trenches will be permitted downstream of zone valves. Care shall be taken to place any previously tilled and fertilized soil in the top portion of the trench, and subsoil will not be allowed in the top six (6") inches of the backfill.

3.05 SPRINKLER HEADS

A. Sprinklers shall be set plumb and level with the turf at locations shown on the drawings. In lawn areas where grass has not been established, the heads shall be installed in temporary risers at least three inches (3") above the grade. After the turf is established, the Contractor shall, within ten (10) days after notification, lower the heads to their permanent positions flush with the finished grade. This elevation is critical and Contractor shall exercise care to set them exactly at grade – never below.

3.06 AUTOMATIC VALVES

A. Each sprinkler zone shall be operated by automatic electric valves in the sizes indicated on the drawings. Each valve shall be provided with a built-in pressure regulator capable of holding a steady downstream pressure, regardless of fluctuations in the main supply pressure. The valves shall be installed where shown and supplied with a tag on which the valve's zone number shall be plainly marked.

B. All valves to be in valve boxes.

C. Each valve shall be housed in an Ametex valve box, or prior approved equivalent. Place valve boxes in an orderly fashion. In the lawn place valve boxes in such a manner that mowing and weeding can easily be performed.

3.07 WATER SUPPLY

A. Connection shall be made to the sprinkler outside the building as shown on the drawings.

B. Water meter to be supplied by others.

3.08 ELECTRICAL WORK

A. The Electrical Contractor will provide a single source of electrical power for the irrigation system as shown on the drawings. The Underground Sprinkler System Contractor shall furnish and install complete and properly operating all the required electrical work for the lawn irrigation system. This shall include all power and control wiring along with switches, safety switches, relays, transformers, fuses, conduit, wiring devices, etc., required for a properly operating system.

B. All electrical work shall be done in accordance with the National Electrical Code and local ordinances.

C. All wire connections, at remote control valves (either direct buried or in control boxes) and at all wire splices, shall be left with sufficient "slack" so that in case of repair the valve bonnet or splice may be brought to the surface without disconnecting the wires.

D. Each remote control valve or group of remote control valves, which are to be connected to one station of a controller, shall have wire sizes as shown in the wiring diagrams on the drawings or as specified. All remote control valves, which are to be connected to the same controller, shall be connected to a common ground wire to size as shown on the drawings or as specified. Each individual controller shall have a separate common ground wire system entirely independent of the common ground wire system of all other controllers. Only those remote control valves which are being controlled by an specific controller shall be connected to that controller's common ground wire system.

3.09 TESTING

A. After all supports, anchors, and thrust blocks are in place, the line shall be tested at a pressure of 150 psi 30 minutes. Should any leaks be found, they shall be repaired and the line retested until satisfactory. Zone lines shall be tested at 80 psi in like manner. After testing, the system shall be thoroughly flushed out before the heads may be installed. Upon completion, an operating test shall be performed to visually check the coverage of the system. Any heads, which do not function according to the manufacturer's data shall be replaced with sprinklers that do or the installation shall be otherwise corrected to provide satisfactory performance. Final adjustment of the sprinkler heads and automatic equipment will be done by the Contractor upon completion of the installation to the satisfaction of the Landscape Architect. Minor adjustment from then on shall be made by the Owner's Maintenance Staff.

3.10 DRAWINGS OF RECORD

A. The Contractor shall provide and keep up to date a complete "as-built" record set of mylar sepias which shall be corrected to shown any changes from the original drawings. These record drawings shall show location of all control lines, valves, valve boxes, main lines, flush caps, controllers, and any substitutions as well as any deviation in piping or location of buried valves, etc. with accurate dimensions indicated.

B. After completion of the sprinkler installation, the Contractor shall deliver to the Owner three (3) prints of the correct and completed "as-built" set of drawings, along with three (3) bound instruction folders covering the equipment installed. Contractor shall present the above information as a condition precedent to the completion payment.

3.11 GUARANTEE

A. Within ten (10) days after the Contractor's notification that the sprinkler installation is complete, the Landscape Architect will inspect the system and, if necessary, submit a "punch list" to the Contractor. Acceptance by the Landscape Architect of these corrections will signify final acceptance by the Owner.

B. The entire sprinkler system shall be guaranteed for a period of one (1) year from this final acceptance date. The Contractor shall promptly replace, without cost to the Owner, any defective materials or faulty workmanship which may develop within this guarantee period, including restoration of any property damaged during repairs. He shall also be responsible for damages resulting from leaks which may occur in the piping system installed by him, and he shall repair, at his expense, all damage so caused, in a manner satisfactory to the Owner. However the Contractor shall not be held liable for damages occasioned by strikes, fire, weather, violence or theft, acts of God, acts of other contractors, or any other cause beyond the control of the Contractor.

C. It will be the Owner's responsibility to maintain the system in working order during the guarantee period, performing necessary minor maintenance, keeping grass from obstructing the sprinkler heads, protecting against vandalism and preventing damage during the landscape maintenance operation.

D. The Contractor shall service the system at the Owner's request during the guarantee period, and shall be paid for work performed which is not covered by the guarantee, in accordance with a predetermined schedule of fees.

263-1100

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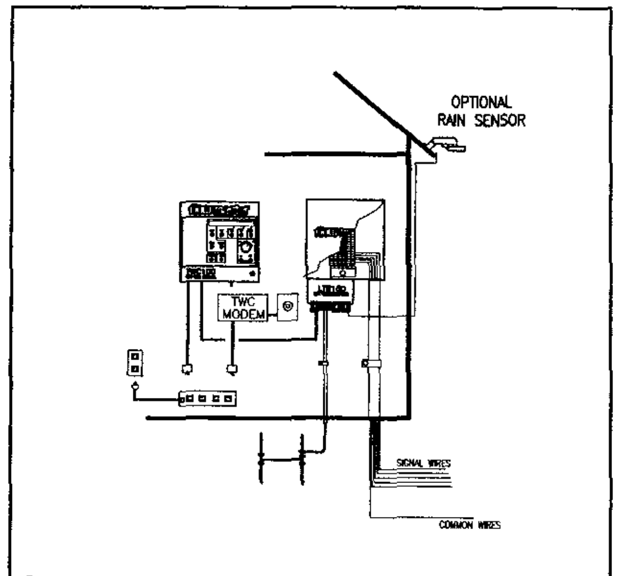
REGISTERED LANDSCAPE ARCHITECT CERTIFICATE NO. 20088 HARDY A. LASKIN ARIZONA USA

Promenade phase 2
S.E.C. of Scottsdale Road and Frank Lloyd Wright Blvd
Scottsdale, Arizona
Landscape & Irrigation Specifications

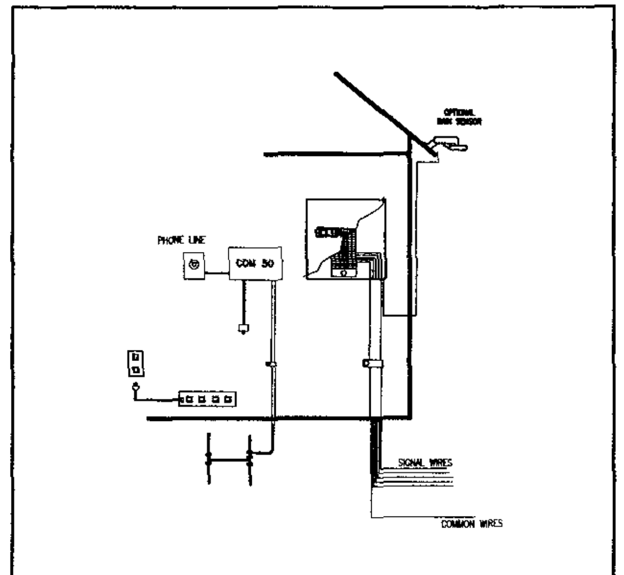
DRAWN: FJS
CHECKED: HAL
SHEET SCALE: scale
DATE: 2.12.2003
REVISIONS: 5.22.2003 C.O.S. COMMENTS; 6.27.2003 C.O.S. COMMENTS; 2.09.2004 COORD; 3.05.2004 COORD
CITY NUMBERS

SHEET NUMBER: LA.18

82-DR-98 #2A CDS 371-99-2/3 NATIVE PLANT PERMIT # 75683



RETRO-FIT TWC 100/50
NTS



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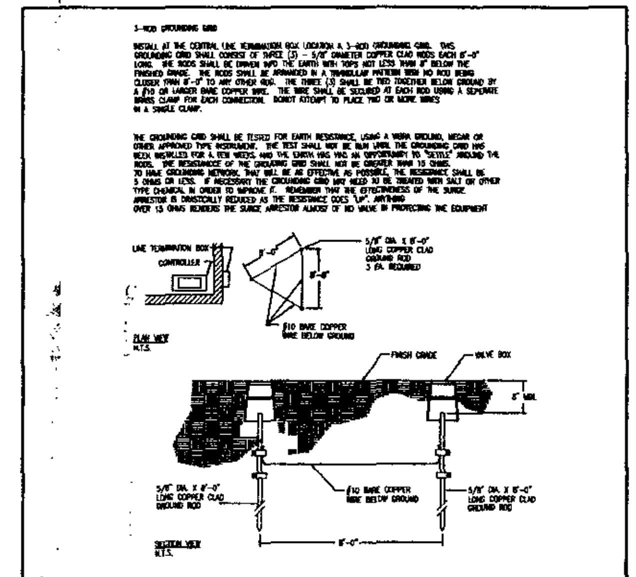
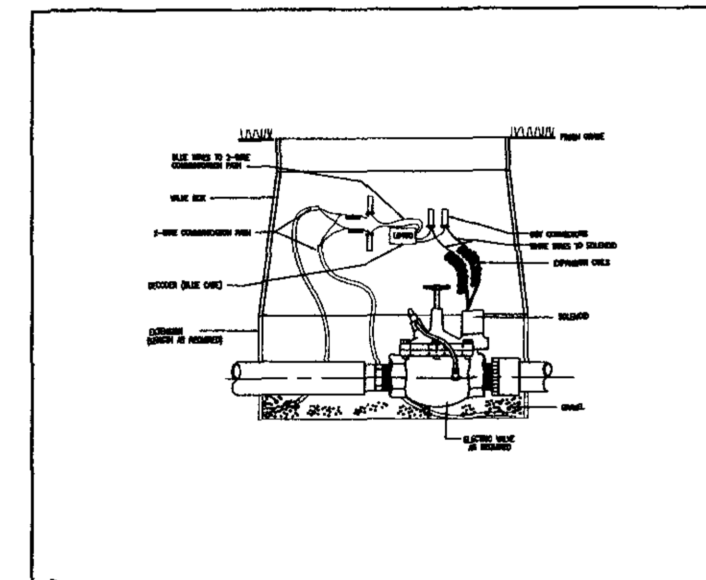


GROUNDING GRID NETWORK
NTS



VALVE & DECODER DETAIL
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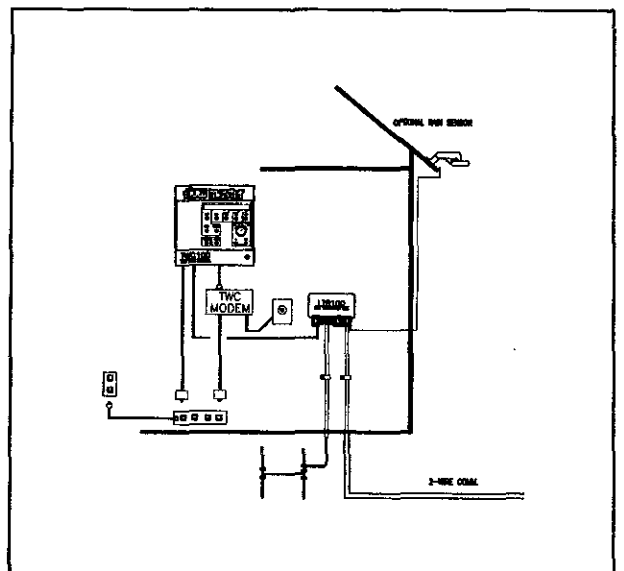
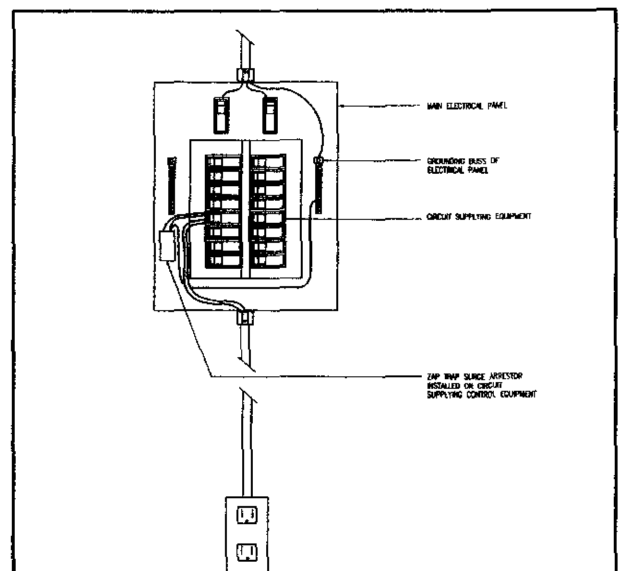
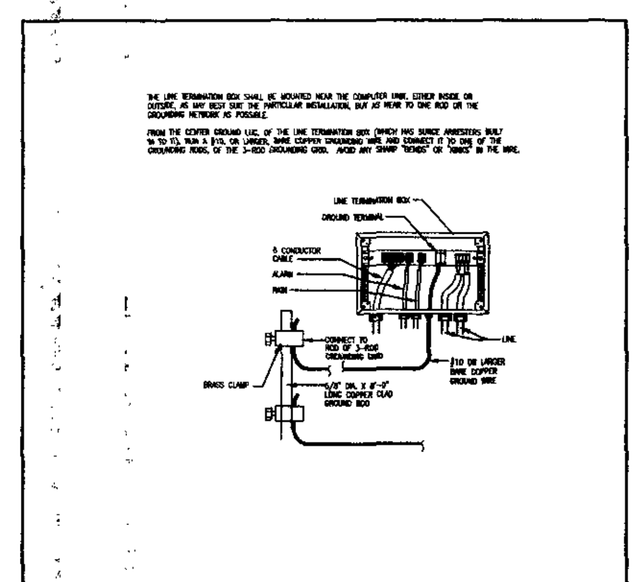


NEW CONSTRUCTION
NTS



ELECTRICAL PANEL WITH ZAP TRAP
NTS



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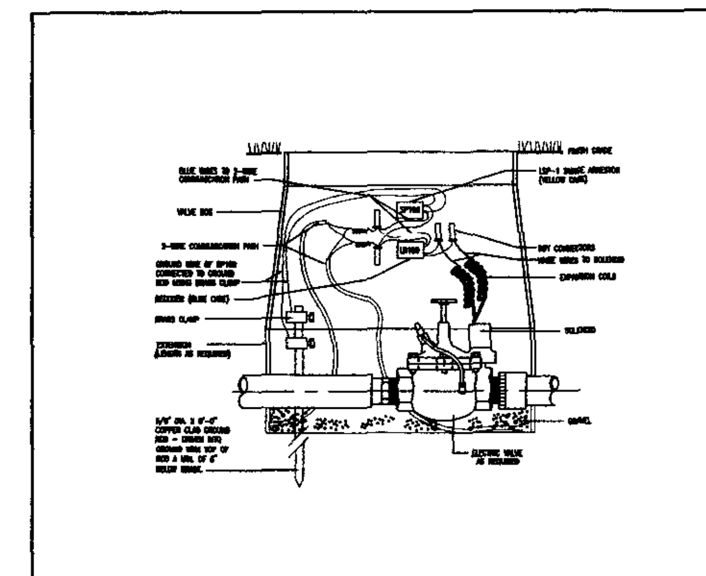

ELECTRIC VALVE, DECODER & SURGE ARRESTER DETAIL
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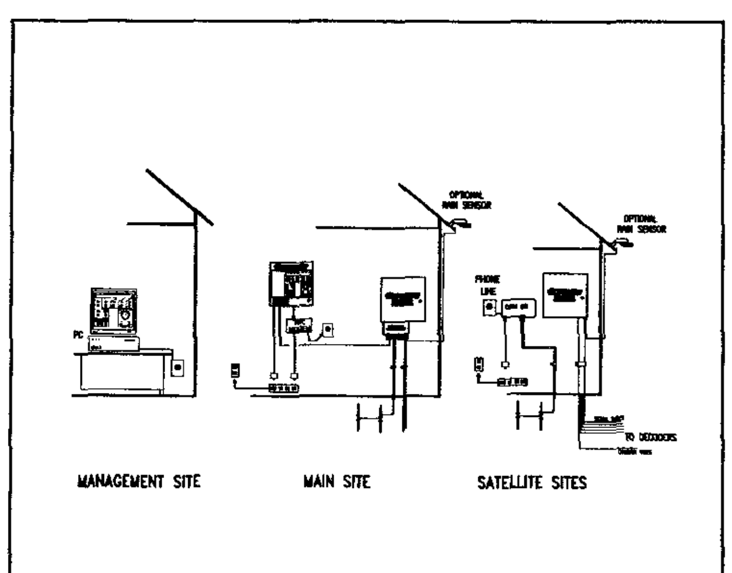

RETRO-FIT
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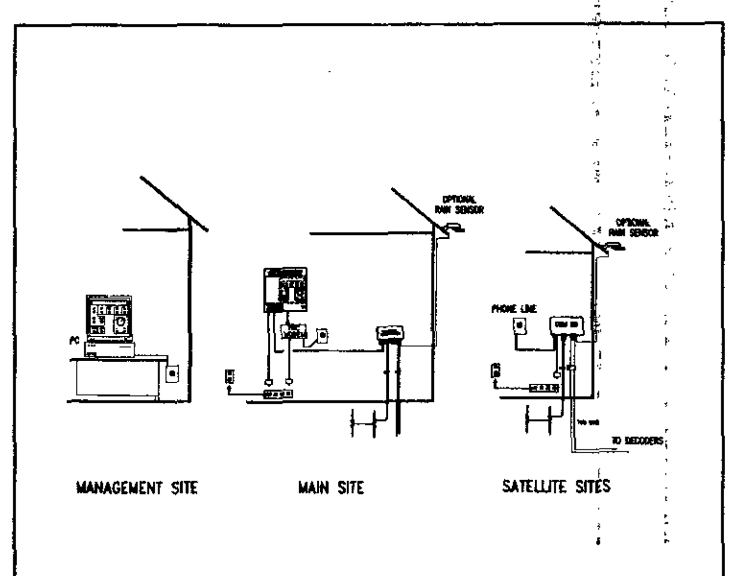

NEW CONSTRUCTION
NTS

263-1100

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Promenade phase 2
S.E.C. of Scottsdale Road and Frank Lloyd Wright Blvd
Scottsdale, Arizona
Tucor Irrigation Specifications

DRAWN FJS
CHECKED HAL
SHEET SCALE scale
DATE 2.12.2003
REVISIONS
5.22.2003 C.O.S. COMMENTS
6.27.2003 C.O.S. COMMENTS
3.05.2004 COORD
CITY NUMBERS
SHEET NUMBER

LA.19

82-DR-98 #2A CDS 371-99-[illegible] NATIVE PLANT PERMIT # 75683

Specifications for Tucor Flowmaster COM-50/25 Central Control System

GENERAL:

The Automatic Sprinkler System Controls shall be the TUCOR Flowmaster COM-50/25 Control System, as hereinafter specified and as shown on the drawings.

The system shall include the COM-50/25 central controller, Line Decoders, PD-100 Pump Decoder (optional), Field Access Unit with Outlets(optional), Remote Access Software or Remote Monitoring Software (both optional), Field wiring, surge protection and all other equipment required for a complete system and as hereinafter specified.

The COM-50/25 shall be a stand-alone controller and shall have the possibility to be operated remotely from a TWC series controller or from a PC with the Remote Access Software. The remote operation may be via a serial cable or modem/telephone line. The serial communication cable shall have a built-in optical isolator which shall offer a complete protection against surges up to 2500V.

The COM-50/25 shall be capable of logging every action in the system (opening and closing of valves, start/stop of schedules, sensor actions, power failure etc.) to a maximum of 10,000 actions. When the COM is accessed from a PC, the COM shall upload the complete log to the PC.

The COM-50/25 shall be capable of logging every opening and closing of a valve for period of 7 days. When the COM-50/25 is accessed from a PC with the Remote Monitoring software, the COM shall upload the complete log to the PC.

The system shall be capable of integrating into it one sensor for control of the system or for some other action to take place. Sensors may be such types as a rain shut-down sensor, an ALARM sensor, etc.

The system shall include a special circuit for monitoring, on a continuous basis, the line voltage condition to ensure that the mean voltage relative to the ground is slightly negative. Thus, if this condition is changed, due to a leakage in the system, etc. the communication lines shall be automatically disconnected from the central unit. The system shall include a special circuit for monitoring on a continuous basis, the line voltage to be maintained within certain limits. Thus, if this condition is changed due to a short in the system etc., the communication lines shall be automatically disconnected from the central unit.

The controller shall come in two versions: The COM-50 for individual control of up to 50 valves and COM-25 for up to 25 valves. It shall be possible to upgrade COM-25 to the COM-50.

The COM-25 shall be capable of managing a maximum of 25/50 Line Decoders operating a maximum of 5 solenoids at a time. Each LD-100 decoder shall be capable of operating 2 solenoids whereas the LD-200 (2 outputs) and LD-400 (4 outputs) shall be capable of operating 1 solenoid independently on each output.

The COM shall be capable of managing a maximum of 5 schedules at any one time. Each of the 5 schedules can have up to 8 independent start times per day. The scheduling for each program, shall be on 14 day irrigation cycle allowing operation to occur on any or all of the 14 days.

Each of the 5 schedules shall be capable of independently being watering adjustments to accommodate adjustment for daily climatic changes, etc.

The COM-50/25 shall compute total and remaining run times and shall give a warning for mistaken in programming like overlapping schedules, missing start times, etc.

The COM-50/25 shall provide the possibility to program schedules either for day and time start or for a link-start with first the schedule being the master schedule and the rest being linked to the master thus avoiding overlapping when water budgeting.

The COM-50/25 shall provide two modes of operation: Automatic or Manual. In the Automatic mode the COM shall carry out the schedules as programmed. In the Manual mode it shall be possible to turn on any of the 25 (50) valves for 1-999 minutes up to the system capacity of 10 solenoids.

Programming shall be done in a maximum of 60 steps each of a maximum of 999 minutes, which shall allow for repetition of a certain valve (cycle and soak) or pauses "between" steps.

The Remote Access Software TWC-RAS (optional) shall allow remote access to one controller from a PC for schedule management and manual control.

The Remote Monitoring Software TWC-RMS (optional) shall allow starting of up to 25 phone numbers (Phone Book) to be selected for access via the telephone network for control and uploading of logged data. The Remote Monitoring software shall allow for scheduling of "calls" to the 25 addressees in the Phone Book. The uploaded logged data shall be stored in a file on the PC's hard disk.)

LINE DECODERS:

Furnish and install, where shown on the drawings, TUCOR Line Decoders, LD-100, LD200 or LD-400, for interfacing between the communication 2-Wire path and the remote control valves at the sprinklers. The decoders shall be completely Epoxy sealed for complete water proofing. Each decoder shall have "built-in" surge protection as an integral part of the basic decoder. The decoder shall have two (2) blue colored wires for connection onto the 2-Wire Communication path and two (2) white colored wires for connection to the solenoid of the remote control valve. Each decoder shall be clearly marked with a three (3) or four (4) digit number (from 1000 to 2000) indicating the number (address) that it has been set to respond to. Decoders may be installed in any random order desired.

The output of the decoder shall be 24 VAC. Each LD-100 decoder shall be capable of operating a maximum of two (2) Solenoids (24 VAC, 29VA). The secondary wiring, from the first solenoid to the second solenoid, when two (2) solenoids are being powered and controlled from one decoder – shall be Size #14.

The contractor shall be responsible for accurately recording on the drawings, as each decoder is being installed, the address number of the decoder at that location. It is also necessary that it be indicated which remote control valves or Valve-in-Head sprinklers are being controlled by each specified decoder. In this way he will have the necessary information when he is ready to input the system installation data.

Where the decoder are activating and controlling individual remote control valves, the valve and the decoder shall be installed in a standard plastic valve box of sufficient size to provide easy and necessary access to service the valve and decoder.

PUMP DECODERS: (Optional)

Furnish and install a TUCOR PD-100 Pump Decoder for each of the pumps on the system, including any Booster pumps, for interfacing between the communication 2-Wire path and the pump main motor starter holding coil relay.

FIELD ACCESS UNIT: (Optional)

Furnish a TUCOR FA-100 Portable Field Access Unit for manual operation of decoders from remote locations in the field. It shall be possible to "Plug" the Portable Field Access Unit into the 2-Wire Communication path and by keying in the proper decoder identification – have the control computer "turn on" or "turn off" the designated decoder. It shall be possible to turn on decoders in any order desired, any where on the system, for a length of time from 1 to 999 minutes for each to operate and to have as many in operation at one time (up to a maximum of 5 solenoids/decoders total) as may be desired.

FIELD ACCESS UNIT CONNECTION BOX: (Option)

Furnish and install, where shown on the drawings and/or where directed, a TUCOR FAB-700 Field Access Unit Connection box assembly. The box shall be of molded plastic (5" x 5" x 2 1/4" deep) with coin operated latch for the hinged cover. A 1/2" cable gland shall be provided at the bottom for connection of the 2-Wire Communication path to the Plug-in Socket housed in the box on a stainless steel bracket.

Each Field Transmitter Connection Box shall be securely mounted on a 4" x 4" treated and polished wood post, which is securely anchored on a 12" x 12" x 8" deep poured concrete base. The Connection Box shall be approximately 42" above the finish grade. A 1/2" conduit shall be run from below grade, up through the concrete base and attached to the bottom of the transmitter connection box, through which the 2-Wire Communication Wire shall be run up to the box and connected to the socket in the box.

2-WIRE COMMUNICATION PATHS:

All wire required for the 2-wire Communication Paths, from the Line Termination Box, at the central computer location our to the various field decoders shall be double jacketed two (2) conductor cable specially designed for use with the Tucor Flowmaster control systems. The cable shall be suitable for direct burial and may also be installed in ducts or conduits.

The conductors shall be tin coated, soft drawn, annealed, solid copper conforming to ASTM 33 with 4/64" thick PVC (polyvinyl chloride) insulation, conforming to UL Standard #83 for thermoplastic-insulated style UF (Underground Feeder), rated at 60 degree C.

The two insulated conductors shall be laid in parallel and encased in a single outer jacket of 3/64" thick, high density, sunlight resistant Polyethylene conforming to ICEA S-61-402 and NEMA WC5, having a minimum wall thickness of .045". The outer jacket shall be pressure extruded so as to completely fill the interstices between the two insulated wires, or may have Tube Jacketing to form an envelope over the two insulated UF conductors lying in parallel, at the discretion of the manufacturer.

The two conductors shall be color coded with one conductor black and the other red. Both conductors shall be the same size and shall be of sizes as required for the proper operation of the Field Decoders and solenoids and/or as called for on the drawings.

All splices and connections in this wiring shall be made using either 3M, DBY (direct burial), series 7000 epoxy wire connector kits. Any other type of wire connectors will NOT be acceptable. Care shall be taken with each wire joint or connection to assure that a completely good, waterproof connection will result. It is important that ALL wire connections be ABSOLUTELY watertight and with NO LEAKAGE TO GROUND nor any shorting from one conductor to the other.

The Grounding Network shall measure NOT MORE than 15 OHMS when measured with a Vibro-Ground, or similar type instrument. It will greatly increase the effectiveness of the Surge Protection Equipment, if the grounding grid network can be 5 OHMS or less. It is extremely important that a good ground be maintained for the surge Arrestors to be effective and periodic testing is recommended, to assure that you do have a good grounding system at all times.

The system shall be capable of using existing multi-wired control circuits by converting them into a two-wire layout utilizing the SCB-100 Conversion Terminal.

SURGE PROTECTION – GENERAL:

All Surge Protection, Grounding and installation of equipment, herefore specified, shall be installed in strict compliance with the manufacturer's recommendations and in accordance with Local, State and Federal codes and requirements.

PRIMARY POWER SURGE PROTECTION:

Furnish and install on the Power Circuit, furnishing power to the power transformer and the central computer equipment a "Zap Trap" surge arrestor. Install the zap trap in the electrical panel, or at the wall outlet according to the manufacturer's recommendations. Ground the unit to the electrical panel grounding bus. The Zap trap shall be a MODEL Z-2, as manufactured by Tytewadd Power Filter, Springfield, MO 65807 (412-887-3770)

FIELD SURGE PROTECTION:

Surge protection SP-100 shall be installed at every line termination point. Additional installation of SP-100's are needed per 600 feet of wire cable, located at the nearest line decoder. The SP-100 ground wires shall be connected to a single 8 foot ground rod. If the valve is metallic or the solenoid valve has a metallic center pin, one SP-100 ground wire shall be connected to this.

Specifications for Tucor Flowmaster TWC-100/50 Control System

GENERAL:

The Automatic Sprinkler System Controls shall be the TUCOR Flowmaster TWC-100/50 Computer Control system, as hereinafter specified and as shown on the drawings

The system shall include the TWC 100/50 controller modem (optional), the LTB-100 Line Termination Box, Optiscyber, Line Decoders, PD-100 Pump Decoder (optional), Field Access Unit with Outlets (optional), Remote Access Software or Remote Monitoring Software (both optional), Field wiring, surge protection and all other equipment required for a complete system and as hereinafter specified.

The TWC-100/50 shall be a stand-alone controller and shall have the possibility to be operated remotely from another TWC-100/50 or from a PC with the Remote Access software. The remote operation may be via a serial cable or modem/telephone line. The serial communication cable shall have a built-in optical isolator which shall offer a complete protection against surges up to 2500 V.

The TWC-100/50 shall be capable of logging every action in the system (opening and closing of valves, start/stop of schedules, sensor actions, power failure etc.) to a maximum of 10,000 actions. When the TWC-100/50 is accessed from a PC, the TWC-100/50 shall upload the complete log to the PC

The system shall be capable of integrating into it a maximum of two (2) sensors for control of the system or for some other action to take place. Sensors may be such types as a rain shut-down sensor, an alarm sensor, etc.

The system shall include a special circuit for monitoring, on a continuous basis, the line voltage condition to ensure that the mean voltage relative to the ground is slightly negative. Thus, if this condition is changed, due to a leakage in the system, etc. the communication lines shall be automatically disconnected from the central unit. The system shall include a special circuit for monitoring on a continuous basis, the line voltage to be maintained within certain limits. Thus, if this condition is changed due to a short in the system etc., the communication lines shall be automatically disconnected from the central unit.

The controller shall come in two versions: The TWC-50 for individual control of up to 50 valves and TWC-100 for up to 100 valves. It shall be possible to upgrade TWC-50 to the TWC-100.

The TWC-100/50 shall be capable of managing a maximum of 50/100 Line Decoders operating a maximum of 10 solenoids at a time. Each LD-100 shall be capable of operating 2 solenoids whereas the LD-200 (2 outputs) and LD-400 (4 outputs) shall be capable of operating 1 solenoid independently on each output.

The TWC-100/50 shall be capable of managing a maximum of 5 schedules at any one time. Each of the 5 schedules can have up to 8 independent start times per day. The scheduling for each program, shall be on 14 day irrigation cycle allowing operation to occur on any or all of the 14 days.

Each of the 5 schedules shall be capable of independently being watering adjustments to accommodate adjustment for daily climatic changes, etc.

The TWC-100/50 shall display total and remaining run times and shall give a warning for mistakes in programming like overlapping schedules, missing start times, etc.

The TWC-100/50 shall provide the possibility to program schedules either for day and time start or for a link-start with first the schedule being the master schedule and the rest being linked to the master thus avoiding overlapping when water budgeting.

The TWC-100/50 shall provide two modes of operation: Automatic or Manual. In the Automatic mode the TWC shall carry out the schedules as programmed. In the Manual mode it shall be possible to turn on any of the 50 (100) valves for 1-999 minutes up to the system capacity of 10 solenoids.

Programming shall be done in a maximum of 60 steps each of a maximum of 999 minutes, which shall allow for repetition of a certain valve (cycle and soak) or pauses "between" steps.

The Remote Access Software TWC-RAS (optional) shall allow remote access to one controller from a PC for schedule management and manual control.

The Remote Monitoring Software TWC-RMS (optional) shall allow starting of up to 25 phone numbers (Phone Book) to be selected for access via the telephone network for control and uploading of logged data. The Remote Monitoring software shall allow for scheduling of "calls" to the 25 addressees in the Phone Book. The uploaded logged data shall be stored in a file on the PC's hard disk.)

LINE TERMINATION BOX:

Furnish and install, for connection of the field 2-wire communication paths to the Controller, a TUCOR LTB-100 Line Termination Box. This Line Termination Box shall provide for Surge Protection on the 2-Wire Communication wires to prevent surges coming from the field wires back to the controller. In addition to facilitating connection of the 2-Wire Communication wires to the Controller it shall also provide for connection of the Sensor Devices into the system. The Line Termination Box shall provide terminals for connecting up to two (2) 2-Wire communication paths. The Line Termination Box shall be mounted near the Computer, where shown on the drawings and/or where directed. Install a #10, or larger, bare copper grounding wire from the ground terminal in the line termination box to a 3/4ø ground rod, as specified under Surge Protection and Grounding, of this specification.

LINE DECODERS:

Furnish and install, where shown on the drawings, TUCOR Line Decoders, LD-100, LD200 or LD-400, for interfacing between the communication 2-Wire path and the remote control valves at the sprinklers. The decoders shall be completely Epoxy sealed for complete water proofing. Each decoder shall have "built-in" surge protection as an integral part of the basic decoder. The decoder shall have two (2) blue colored wires for connection onto the 2-Wire Communication path and two (2) white colored wires for connection to the solenoid of the remote control valve. Each decoder shall be clearly marked with a three (3) or four (4) digit number (from 1000 to 2000) indicating the number (address) that it has been set to respond to. Decoders may be installed in any random order desired.

The output of the decoder shall be 24 VAC. Each LD-100 decoder shall be capable of operating a maximum of two (2) Solenoids (24 VAC, 29). The secondary wiring, from the first solenoid to the second solenoid, when two (2) solenoids are being powered and controlled from one decoder – shall be Size #14.

The contractor shall be responsible for accurately recording on the drawings, as each decoder is being installed, the address number of the decoder at that location. It is also necessary that it be indicated which remote control valves or Valve-in-Head sprinklers are being controlled by each specified decoder. In this way he will have the necessary information when he is ready to input the system installation data.

Where the decoder are activating and controlling individual remote control valves, the valve and the decoder shall be installed in a standard plastic valve box of sufficient size to provide easy and necessary access to service the valve and decoder.

PUMP DECODERS: (Optional)

Furnish and install a TUCOR PD-100 Pump Decoder for each of the pumps on the system, including any Booster pumps, for interfacing between the communication 2-Wire path and the pump main motor starter holding coil relay.

FIELD ACCESS UNIT: (Optional)

Furnish a TUCOR FA-100 Portable Field Access Unit for manual operation of decoders from remote locations in the field. It shall be possible to "Plug" the Portable Field Access Unit into the 2-Wire Communication path and by keying in the proper decoder identification – have the control computer "turn on" or "turn off" the designated decoder. It shall be possible to turn on decoders in any order desired, any where on the system, for a length of time from 1 to 999 minutes for each to operate and to have as many in operation at one time (up to a maximum of 10 solenoids/decoders total) as may be desired.

FIELD ACCESS UNIT CONNECTION BOX: (Option)

Furnish and install, where shown on the drawings and/or where directed, a TUCOR FAB-700 Field Access Unit Connection box assembly. The box shall be of molded plastic (5" x 5" x 2 1/4" deep) with coin operated latch for the hinged cover. A 1/2" cable gland shall be provided at the bottom for connection of the 2-Wire Communication path to the Plug-in Socket housed in the box on a stainless steel bracket.

Each Field Transmitter Connection Box shall be securely mounted on a 4" x 4" treated and painted wood post, which is securely anchored on a 12" x 12" x 8" deep poured concrete base. The Connection Box shall be approximately 42" above the finish grade. A 1/2" conduit shall be run from below grade, up through the concrete base and attached to the bottom of the transmitter connection box, through which the 2-Wire Communication Wire shall be run up to the box and connected to the socket in the box.

2-WIRE COMMUNICATION PATHS:

All wire required for the 2-wire Communication Paths, from the Line Termination Box, at the central computer location our to the various field decoders shall be double jacketed two (2) conductor cable specially designed for use with the TUCOR Flowmaster control systems. The cable shall be suitable for direct burial and may also be installed in ducts or conduits.

The conductors shall be tin coated, soft drawn, annealed, solid copper conforming to ASTM 33 with 4/64" thick PVC (polyvinyl chloride) insulation, conforming to UL Standard #83 for thermoplastic-insulated style UF (Underground Feeder), rated at 60 degree C.

The two insulated conductors shall be laid in parallel and encased in a single outer jacket of 3/64" thick, high density, sunlight resistant Polyethylene conforming to ICEA S-61-402 and NEMA WC5, having a minimum wall thickness of .045". The outer jacket shall be pressure extruded so as to completely fill the interstices between the two insulated wires, or may have Tube Jacketing to form an envelope over the two insulated UF conductors lying in parallel, at the discretion of the manufacturer.

The two conductors shall be color coded with one conductor black and the other red. Both conductors shall be the SAME SIZE and shall be of sizes as required for the proper operation of the Field Decoders and solenoids and/or as called for on the drawings.

All splices and connections in this wiring shall be made using either 3M, DBY (direct burial), series 7000 epoxy wire connector kits. Any other type of wire connectors will NOT be acceptable. Care shall be taken with each wire joint or connection to assure that a completely good, waterproof connection will result. It is important that ALL wire connections be ABSOLUTELY watertight and with NO LEAKAGE TO GROUND nor any shorting from one conductor to the other.

The Grounding Network shall measure not more than 15 OHMS when measured with a Vibro-Ground, or similar type instrument. It will greatly increase the effectiveness of the Surge Protection Equipment, if the grounding grid network can be 5 OHMS or less. It is extremely important that a good ground be maintained for the surge Arrestors to be effective and periodic testing is recommended, to assure that you do have a good grounding system at all times.

The system shall be capable of using existing multi-wired control circuits by converting them into a two-wire layout utilizing the SCB-100 Conversion Terminal.

SURGE PROTECTION – GENERAL:

All Surge Protection, Grounding and installation of equipment, herefore specified, shall be installed in strict compliance with the manufacturer's recommendations and in accordance with Local, State and Federal codes and requirements.

PRIMARY POWER SURGE PROTECTION:

Furnish and install on the Power Circuit, furnishing power to the power transformer and the central computer equipment a "Zap Trap" surge arrestor. Install the Zap Trap in the electrical panel, or at the wall outlet according to the manufacturer's recommendations. Ground the unit to the electrical panel grounding bus. The ZAP TRAP shall be a MODEL Z-2, as manufactured by Tytewadd Power Filter, Springfield, MO 65807 (412-887-3770).

FIELD SURGE PROTECTION:

Surge protection SP-100 shall be installed at every line termination point. Additional installation of SP-100's are needed per 600 feet of wire cable, located at the nearest line decoder. The SP-100 ground wires shall be connected to a single 8 foot ground rod. If the valve is metallic or the solenoid valve has a metallic center pin, one SP-100 ground wire shall be connected to this.

Specifications for Tucor Flowmaster – TWC-500 Computerized Control Control System

GENERAL:

The Automatic Sprinkler System Controls shall be the TUCOR Flowmaster TWC-500 Computer Control system, as hereinafter specified and as shown on the drawings. The system shall include a dedicated central controller, power transformer, fire termination box, line decoders, (pump decoder), (field access unit), field access unit outlets, field wiring and all other equipment required for a complete system and as hereinafter specified.

The system shall include the TWC central controller, the LTB-500 Line Termination Box, Line Decoders, PD-100 Pump Decoder (optional), Field Access Unit (optional), Software for Remote Controller and PC, Field Wiring, surge protection and all other equipment required for a complete system and as hereinafter specified.

The TWC-500 shall be a stand-alone controller which connects to a PC only for scheduling and monitoring of operation. The connection shall take place via a serial communication cable with built-in optical isolator, which shall be connected between the interface unit and the serial port of the computer. The optical isolator shall offer a complete protection against surges up to 2500 V.

The system shall be capable of managing a maximum of 500 field decoders and operating a maximum of forty (40) solenoid valves at one time. This refers to standard solenoids (24 VAC, 7 W). The system shall be capable of operating with existing 24 VAC solenoid. It is unpurposed that solenoids that differ from standard will allow for modification of the before-mentioned maximum values. Each LD-100 decoder shall be capable of operating two (2) solenoids maximum, whereas the LD-200 (2 outputs) and LD-400 (4 outputs) shall be capable of operating 1 solenoid independently on each output. The computer shall be capable of managing a maximum of forty (30) schedules at any one time. Separate schedules can be written for grass, bass, fairways, summer, spring, fall, syringe, fertilizer wash-in, overseeding, etc. Maximum run time for any one decoder shall be 999 minutes. The computer shall communicate to the field decoders over a 24 volt Two-Wire path, powered from the central location

The TWC-500 shall be capable of logging every action in the system (opening and closing of valves, start/stop of schedules, sensor actions, power failure etc.) to a maximum of 10,000 actions. When the TWC-500 is accessed from a PC, the TWC-500 shall upload the complete log to the PC

The system shall be capable of being programmed to operate the individual field decoders, in any one of three (3) different modes. One being the sequential operation of the decoders, one decoder at a time, in the order that the operator has typed them. A second mode is the priority operation, which allows the operator to designate the exact sequence that the decoders are to be operated, and provides for multiple simultaneous operation of stations – as many as the piping system will allow. The third mode is automatic operation of the schedule, in which the controller will operate the decoders in random, multiple, simultaneous order – trying to utilize fully the maximum system and piping sections capacity – resulting in the most efficient and shortest time cycle of operation.

It shall be possible to do the programming on three (3) different bases, minutes, precipitation or ET-factors. If a weather Station (optional) is connected to the TWC-500, it shall automatically connect to the weather station and upload weather data for automatic adjustment of irrigation on basis of the measured weather data.

Each of the thirty (30) programs or schedules can have up to 12 independent start times per day. The scheduling, for each program, shall be on a 14 Day irrigation cycle – allowing operation to occur on any or all of the 14 Days. Each of the thirty (30) schedules shall be capable of independently being watering adjustments to accommodate adjustment for daily climatic changes, etc.

It shall be possible to group like operating decoders together in "sectors." There shall be 150 Sectors possible, which can then be programmed and controlled in groups for ease of programming.

To further simplify and enhance the programming the various Sectors shall be possible to be assigned to Zones and these Zones then independently controlled. A maximum of 50 Zones shall be possible to turn on any of the 500 decoders assigned and programmed.

It shall be possible to manually operate as many of the field decoders, at one time, as may be desired, up to a maximum of forty (40) solenoids total. When manually being operated this system shall not limit the number of decoders that can be in operation at one time, due to system pump capacity or system pipe capacity.

The system shall be capable of integrating into it a maximum of two (2) sensors for control of the system or for some other action to take place. Sensors may be such types as a rain shut-down sensor, an alarm sensor, etc.

The system shall include a special circuit for monitoring, on a continuous basis, the line voltage condition to ensure that the mean voltage relative to the ground is slightly negative. Thus, if this condition is changed, due to a leakage in the system, etc. the communication lines shall be automatically disconnected from the central unit.

The system shall be capable of integrating into it a maximum of two(2) sensors for control of the system or for some other action to take place. Sensors may such types as a rain shut-down sensor , an alarm sensor, etc.

The system shall be capable of being programmed to continue the irrigation Cycle from where it was interrupted, upon a power failure in which the duration was less than or equal to some specified maximum length of time. In the event that the power failure duration time is greater than the specified length, at time the irrigation Cycle was interrupted, the system shall have been – had no power failure occurred. In the event of a power failure, the length of time that the power was "off," shall be displayed on the screen.

POWER TRANSFORMER:

Furnish and install a TUCOR model TR 250/500 Power transformer for powering the computer and field decoders/solenoids. The transformer shall be for 120 VAC primary power with 24 VAC secondary power output. Transformer capacity shall be 100 VA minimum and shall be UL Listed. A 3-Prong power cord shall be installed on the primary side of the transformer for plug-in to a normal 120 VAC duplex receptacle outlet

LINE TERMINATION BOX:

Furnish and install, for connection of the field 2-wire communication paths to the Computer, a TUCOR model LTB-500 line termination box. This Line Termination Box shall provide for Surge Protection on the 2-Wire Communication wires to prevent surges coming from the field wires back to the computer. In addition to facilitating connection of the 2-Wire Communication wires to the Computer it shall also provide for connection of the Sensor Devices into the system. The Line Termination Box shall provide terminals for connecting up to five (5) 2-Wire communication paths. The Line Termination Box shall be mounted near the Computer, where shown on the drawings and/or where directed. Install a #10, or larger, bare copper grounding wire from the ground terminal in the line termination box to a 3/4ø ground rod, as specified under Surge Protection and Grounding, of this specification.

LINE DECODERS:

Furnish and install, where shown on the drawings, TUCOR Line Decoders, LD-100, LD200 or LD-400, for interfacing between the communication 2-Wire path and the remote control valves at the sprinklers. The decoders shall be completely Epoxy sealed for complete water proofing. Each decoder shall have "built-in" surge protection as an integral part of the basic decoder. The decoder shall have two (2) blue colored wires for connection onto the 2-Wire Communication path and two (2) white colored wires for connection to the solenoid of the remote control valve. Each decoder shall be clearly marked with a three (3) or four (4) digit number (from 1000 to 2000) indicating the number (address) that it has been set to respond to. Decoders may be installed in any random order desired

The output of the decoder shall be 24 VAC. Each LD-100 decoder shall be capable of operating a maximum of two (2) Solenoids (24 VAC, 29). The secondary wiring, from the first solenoid to the second solenoid, when two (2) solenoids are being powered and controlled from one decoder – shall be Size #14, TUCOR wire as hereinafter specified.

The contractor shall be responsible for accurately recording on the drawings, as each decoder is being installed, the address number of the decoder at that location. It is also necessary that it be indicated which remote control valves or Valve-in-Head sprinklers are being controlled by each specified decoder. In this way he will have the necessary information when he is ready to input the system installation data.

Where the decoder are activating and controlling individual remote control valves, the valve and the decoder shall be installed in a standard plastic valve box of sufficient size to provide easy and necessary access to service the valve and decoder.

PUMP DECODERS: (Optional)

Furnish and install a TUCOR PD-100 Pump Decoder for each of the pumps on the system, including any Booster pumps, for interfacing between the communication 2-Wire path and the pump main motor starter holding coil relay.

The system shall be capable of integrating up to a maximum of six (6) pump decoders for the purpose of controlling the pumps (to "start" and "stop" them). It shall be possible to program any Pump Decoder to be in the inactive status, in case the pump is out of operation for maintenance purposes, etc. It shall be possible to input the maximum pump capacity of the pump that the decoder is controlling, so that the system may use this capacity for determining the maximum number of sprinklers to operate at one time and avoid overloading the system hydraulically

FIELD ACCESS UNIT: (Optional)

Furnish a TUCOR FA-100 Portable Field Access Unit for manual operation of decoders from remote locations in the field. It shall be possible to "Plug" the Portable Field Access Unit into the 2-Wire Communication path and by keying in the proper decoder identification – have the control computer "turn on" or "turn off" the designated decoder. It shall be possible to turn On decoders in any order desired, any where on the system, for a length of time from 1 to 999 minutes for each to operate and to have as many in operation at one time (up to a maximum of 10 solenoids/decoders total) as may be desired.

FIELD ACCESS UNIT CONNECTION BOX: (Option)

Furnish and install, where shown on the drawings and/or where directed, a TUCOR FAB-1000 Field Access Unit Connection box assembly. The box shall be of molded plastic (5" x 5" x 2 1/4" deep) with coin operated latch for the hinged cover. A 1/2" cable gland shall be provided at the bottom for connection of the 2-Wire Communication path to the Plug-in Socket housed in the box on a stainless steel bracket.

Each Field Transmitter Connection Box shall be securely mounted on a 4" x 4" treated and painted wood post, which is securely anchored on a 12" x 12" x 8" deep poured concrete base. The Connection Box shall be approximately 42" above the finish grade. A 1/2" conduit shall be run from below grade, up through the concrete base and attached to the bottom of the transmitter connection box, through which the 2-Wire Communication Wire shall be run up to the box and connected to the socket in the box.

2-WIRE COMMUNICATION PATHS:

All wire required for the 2-wire Communication Paths, from the Line Termination Box, at the central computer location our to the various field decoders shall be double jacketed two (2) conductor cable specially designed for use with the Tucor Flowmaster control systems. The cable shall be suitable for direct burial and may also be installed in ducts or conduits.

The conductors shall be tin coated, soft drawn, annealed, solid copper conforming to ASTM 33 with 4/64" thick PVC (polyvinyl chloride) insulation, conforming to UL Standard #83 for thermoplastic-insulated style UF (Underground Feeder), rated at 60 degree C.

The two insulated conductors shall be laid in parallel and encased in a single outer jacket of 3/64" thick, high density, sunlight resistant Polyethylene conforming to ICEA S-61-402 and NEMA WC5, having a minimum wall thickness of .045". The outer jacket shall be pressure extruded so as to completely fill the interstices between the two insulated wires, or may have Tube Jacketing to form an envelope over the two insulated UF conductors lying in parallel, at the discretion of the manufacturer.

The two conductors shall be color coded with one conductor black and the other red. Both conductors shall be the same size and shall be of sizes as required for the proper operation of the Field Decoders and solenoids and/or as called for on the drawings.

All splices and connections in this wiring shall be made using either 3M, DBY (direct burial), series 7000 epoxy wire connector kits. Any other type of wire connectors will NOT be acceptable. Care shall be taken with each wire joint or connection to assure that a completely good, waterproof connection will result. It is important that ALL wire connections be ABSOLUTELY watertight and with NO LEAKAGE TO GROUND nor any shorting from one conductor to the other.

The Grounding Network shall measure not more than 15 OHMS when measured with a Vibro-Ground, or similar type instrument. It will greatly increase the effectiveness of the Surge Protection Equipment, if the grounding grid network can be 5 OHMS or less. It is extremely important that a good ground be maintained for the surge Arrestors to be effective and periodic testing is recommended, to assure that you do have a good grounding system at all times.

The system shall be capable of using existing multi-wired control circuits by converting them into a two-wire layout utilizing the SCB-100 Conversion Terminal

SURGE PROTECTION – GENERAL:

All Surge Protection, Grounding and installation of equipment, herefore specified, shall be installed in strict compliance with the manufacturer's recommendations and in accordance with Local, State and Federal codes and requirements.

PRIMARY POWER SURGE PROTECTION:

Furnish and install on the Power Circuit, furnishing power to the power transformer and the central computer equipment a "Zap Trap" surge arrestor. Install the Zap Trap in the electrical panel, or at the wall outlet according to the manufacturer's recommendations. Ground the unit to the electrical panel grounding bus. The ZAP TRAP shall be a MODEL Z-2, as manufactured by Tytewadd Power Filter, Springfield, MO 65807 (412-887-3770).

FIELD SURGE PROTECTION:

Surge protection SP-100 shall be installed at every line termination point. Additional installation of SP-100's are needed per 600 feet of wire cable, located at the nearest line decoder. The SP-100 ground wires shall be connected to a single 8 foot ground rod. If the valve is metallic or the solenoid valve has a metallic center pin, one SP-100 ground wire shall be connected to this.

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