660 Baker Street Landscape Improvement Plans

Sheet Index

HUNTER LANDSCAPE

711 S. Fee Ana Street
Placentia,California 92870
Ph: 714.986-2400
Fax: 714.986-2408

REGISTERED LANDSCAPE ARCHITECT
THOMAS K. HAYES
1/31/2021
STATE OF CALIFORNIA

ABBREVIATIONS

AC	ASPHALT CONCRETE	PIP	POURED IN PLACE
CJ	COLD JOINT	⅊	PROPERTY LINE
℄	CENTERLINE	R or RAD	RADIUS
CONC	CONCRETE	R	RISER
CONT	CONTINUOUS	RWD	REDWOOD
DIA	DIAMETER	RS	ROUGH SAWN
D.F.	DOUGLAS FIR	SL	SCORELINE
EA	EACH	SHT	SHEET
EJ	EXPANSION JOINT	SPECS	SPECIFICATIONS
EQ	EQUAL	SQ	SQUARE
EXIST.	EXISTING	STD	STANDARD
FRH	FIRE HYDRANT	STRUCT	STRUCTURAL
FS	FINISH SURFACE	S4S	SURFACE FOUR SIDES
FT	FEET	T	TREAD
FTG	FOOTING	THK	THICK
GA	GAUGE	TOC	TOP OF CONCRETE or CURB
GALV	GALVANIZE(D)	TYP	TYPICAL
GB	GRADE	TOW	TOP OF WALL
HP	HIGH POINT	TOF	TOP OF FOOTING
MAX	MAXIMUM	UNO	UNLESS NOTED OTHERWISE
MIN	MINIMUM	VEH	VEHICULAR
NIC	NOT IN CONTRACT	VERT	VERTICAL
NTS	NOT TO SCALE	WWM	WOVEN WIRE MESH
OC	ON CENTER	WI	WROUGHT IRON
PA	PLANTING AREA	d	NAIL PENNY SIZE

General Notes

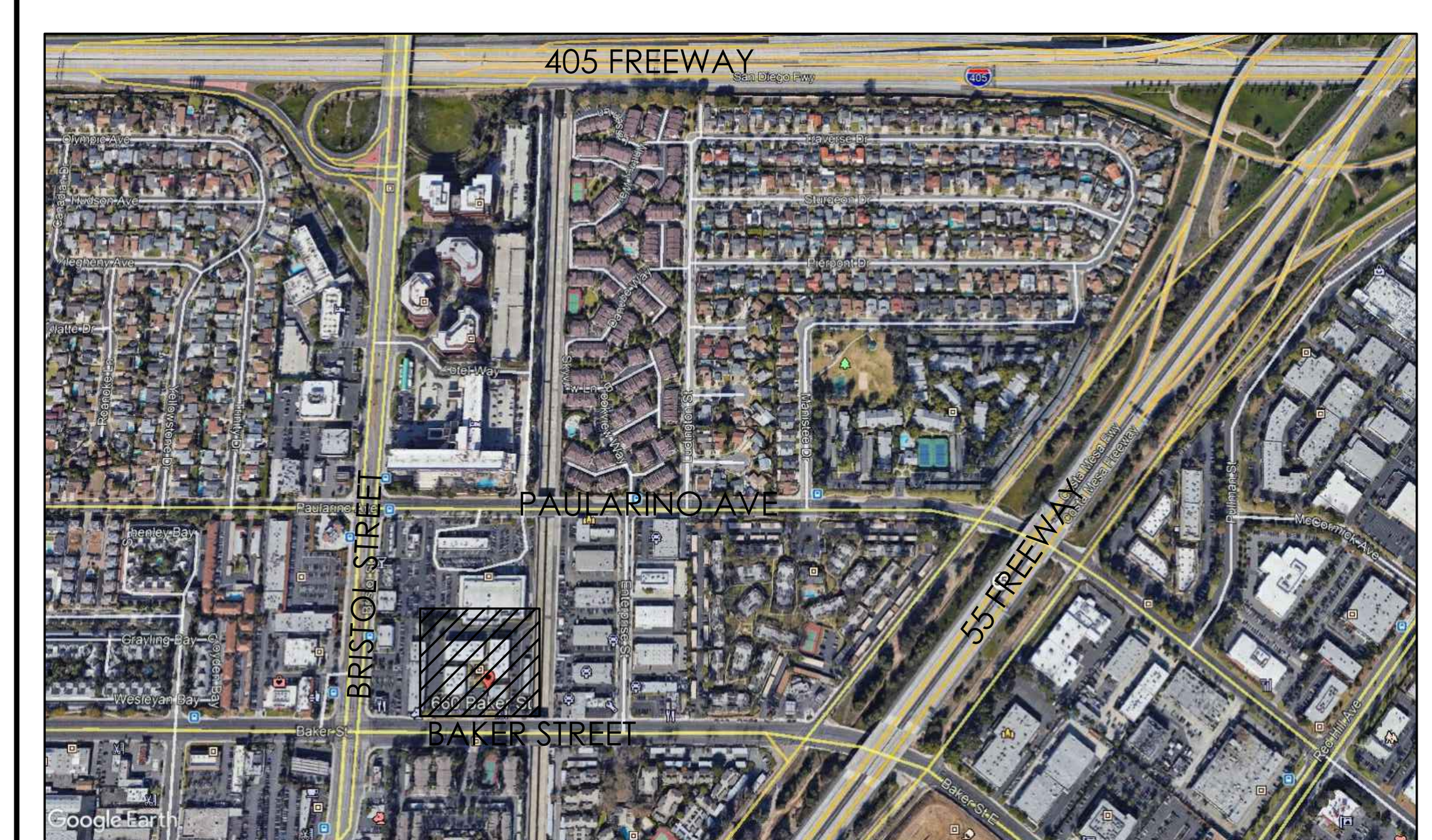
IRRIGATION

1. FINAL LOCATION OF CONTROLLER TO BE DETERMINED IN THE FIELD WITH APPROVAL OF OWNER AND LANDSCAPE ARCHITECT.
2. REFER TO GENERAL IRRIGATION NOTES ON IRRIGATION PLAN.

PLANTING

1. ALL BOX TREES ARE TO BE SELECTED BY THE LANDSCAPE ARCHITECT.
2. CONTRACTOR IS TO SPOT ALL PLANT MATERIAL AND HAVE LANDSCAPE ARCHITECT APPROVE THE SPOTTING PRIOR TO THE EXCAVATION OF ANY PLANT PIT. ALLOW 48 HOURS LEAD TIME. ANY TREE, SHRUB, OR VINE THAT IS PLANTED WITHOUT APPROVAL OF THE LANDSCAPE ARCHITECT MAY BE MOVED AT THE CONTRACTOR'S EXPENSE.
3. REMOVE STAKES FROM ALL ESPALIERS AND VINES AND ATTACH TO WALLS, POST, ETC.
4. PRIOR TO PLANTING INSTALLATION, CONTRACTOR SHALL HAVE SOIL TESTED AND SEND RESULTS TO PUBLIC WORKS INSPECTOR. REFER TO SPECIFICATIONS FOR SOIL PREPARATION INFORMATION.
5. CONTRACTOR TO CONTACT LANDSCAPE ARCHITECT AND CITY INSPECTOR FOR FINAL INSPECTION WHEN INSTALLATION IS COMPLETE, AND FOR A FINAL MAINTENANCE INSPECTION AT THE END OF THE MAINTENANCE PERIOD.

Vicinity Map



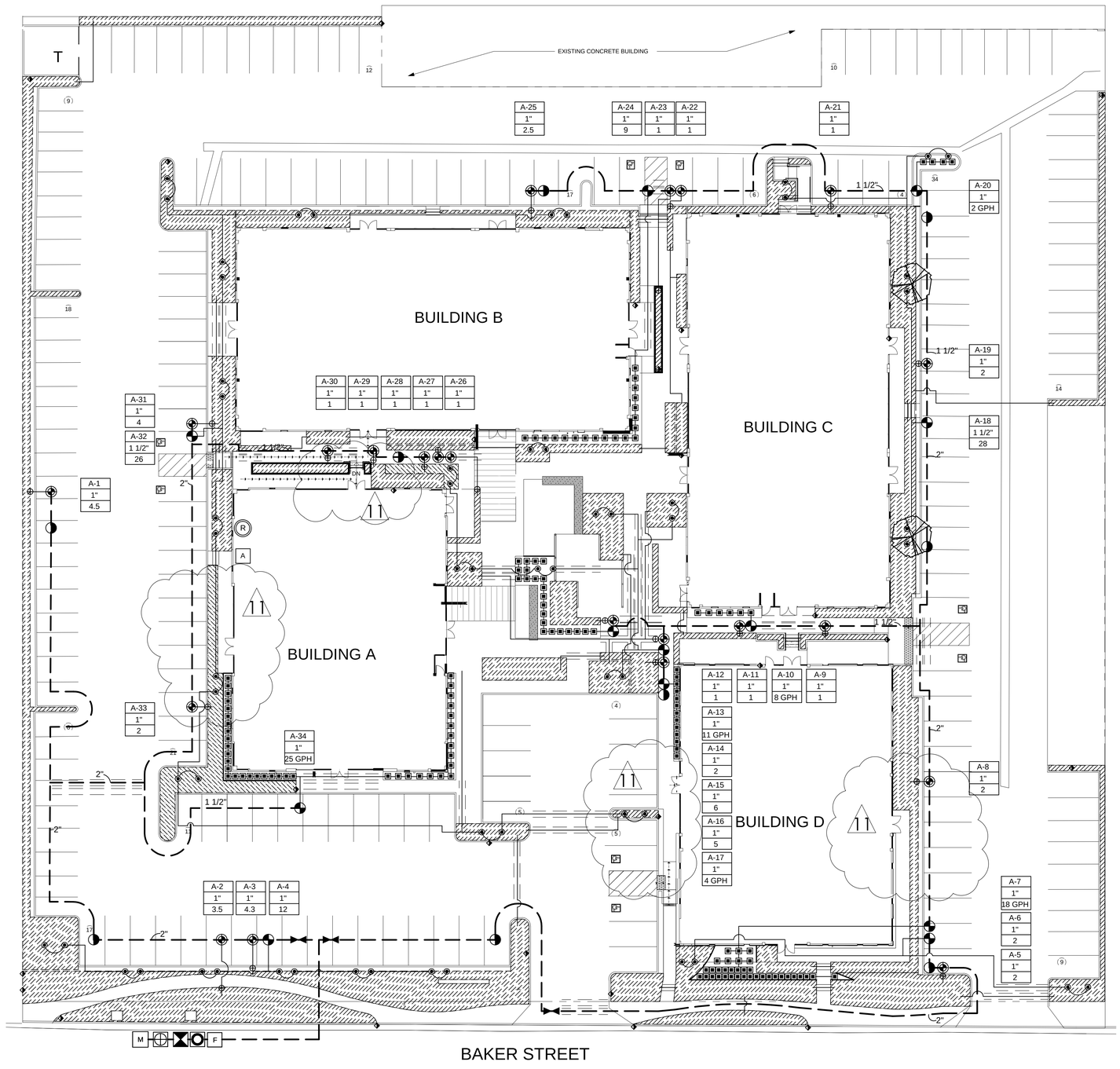
Project Name:
660 Baker Landscape Improvement
660 Baker Street
Costa Mesa, Ca.

Owner/Developer:
Dunbar
841 Apollo Street, Ste 334
El Segundo, CA 90245

	Date	Remarks
	3.25.19	Courtyard Revision
	5.2.19	Door Revision

Sheet Title:
Cover Sheet

Scale:	
Date:	03/25/19
Drawn by:	TH
Job Number:	18-049
Sheet No:	L-T



IRRIGATION LEGEND

SYMBOL	MANUF.	MODEL NO.	DESCRIPTION	PSI	RADIUS	GPM
	RAINBIRD	PCT-05	SHRUB BUBBLER ON 6" RISER	30	1	.5 GPH
	RAINBIRD	1804-5H-B	POP-UP TREE BUBBLER	30	3	1.0
	HUNTER	XFD-06-18	LANDSCAPE DRIPLINE SPACED AT 18"	30	–	.4 GPH
	HUNTER	XFD-06-18	LANDSCAPE DRIPLINE SPACED AT 24"	30	–	.4 GPH
	RAINBIRD	AR VALVE KIT	AIR VACUUM RELIEF VALVE KIT LOCATE AT HIGH POINT IN LINE	–	–	–
	RAINBIRD	MDFCOUP AND MDCFPCAP	FLUSH CAP	–	–	–
	RAINBIRD	XCZ-100-B-COM (1" VALVE KIT)	REMOTE CONTROL VALVE CONTROL ZONE KIT IN RECTANGLE VALVE BOX (PURPLE LID)	–	–	–
	RAINBIRD	PEB SERIES	REMOTE CONTROL VALVE SIZE AS NOTED ON PLAN	–	–	–
	RAINBIRD	33DRC	QUICK COUPLING VALVE	–	–	–
	NIBCO	MODEL T-113	GATE VALVE (LINE SIZE)	–	–	–
	NIBCO	T580-70	BRASS BALL VALVE	–	–	–
	FEBCO	825 Y	BACKFLOW PREVENTER - 1 1/2"	–	–	–
M	APPROVED	WATER METER	1 1/2" SUBMETER TO SEPARATE IRRIGATION FROM DOMESTIC	–	–	–
	RAINBIRD	PESB	MASTER VALVE LINE SIZE. RELAY TO CONTROLLER	–	–	–
F	RAINBIRD	FS100P	1" FLOW SENSOR	–	–	–
R	RAINBIRD	RSD-BEx	RAIN SENSOR W/BRACKET, EXTENSION WIRE MOUNT OUTSIDE CONTROLLER	–	–	–
A	RAINBIRD	ESP12-LXMEF WITH (2) ESPLXMSM12	WALL MOUNTED CONTROLLER SEE NOTE BELOW	–	–	–
	APPROVED	SCH 40 PVC	MAINLINE (SIZE PER PLAN)	–	–	–
	APPROVED	CLASS 200 PVC	LATERAL LINE - BURIED (SIZE AS NOTED ON CHART BELOW)	–	–	–
	APPROVED	SCH 40 PVC	SLEEVE (TWICE PIPE DIAMETER, 2" FOR WIRE)	–	–	–

0 0 0 — VALVE STATION NUMBER / VALVE SIZE / SYSTEM GALLONAGE

PIPE SIZE CHART

PIPE	GPM RANGE
3/4"	0-7
1"	8-12.9
1 1/4"	13-19.9
1 1/2"	20-29.9
2"	30-37.9

IRRIGATION CONTROLLER - PLACE CONTROLLER IN POWDER-COATED METAL CABINET ON OUTDOOR WALL. LOCATION TO BE COORDINATED WITH GENERAL CONTRACTOR WHERE ELECTRICAL SERVICE WILL BE AVAILABLE AND CONTROLLER WILL NOT BE HIGHLY VISIBLE. INCLUDE AN IQ COMMUNICATION CARTRIDGE MODEL#IQ3GUSE AND 1 YEAR IQ SERVICE PLAN. PLEASE USE PART NUMBER C01401 WHEN ORDERING ONE YEAR 3G CELLULAR SERVICE FOR IQ CLOUD. CONTRACTOR TO COORDINATE WITH RAINBIRD GSP (1-866-GSP-XPRT) AND PROPERTY MANAGER ON ANNUAL CELLULAR CONTRACT TRANSFER BETWEEN LANDSCAPE MAINTENANCE CONTRACTORS AFTER CONTRACT SERVICE IS COMPLETED. FOR ADDITIONAL RAINBIRD SUPPORT, CONTACT THE LOCAL RAINBIRD ACCOUNT MANAGER, JOSHUA SEIPEL AT (1-909-693-8965 FOR ADDITIONAL ASSISTANCE WITH NCC DEVICE SETUP COORDINATION.

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Dunbar
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Sheet Title:
Irrigation Plan

	Date	Remarks
A	3.25.19	Courtyard Revision
A	5.2.19	Door Revision

N

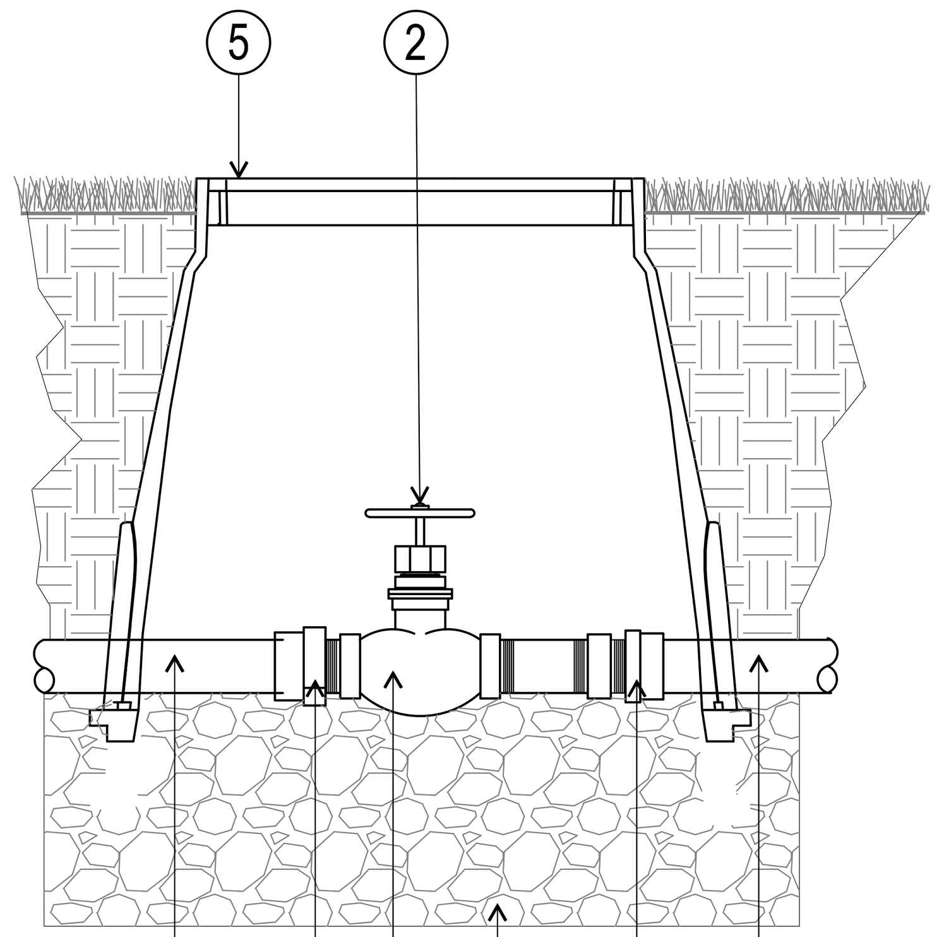
Scale: 1" = 20'

Date: 03/25/19

Drawn by: TH

Job Number: 18-049

Sheet No: LI-1

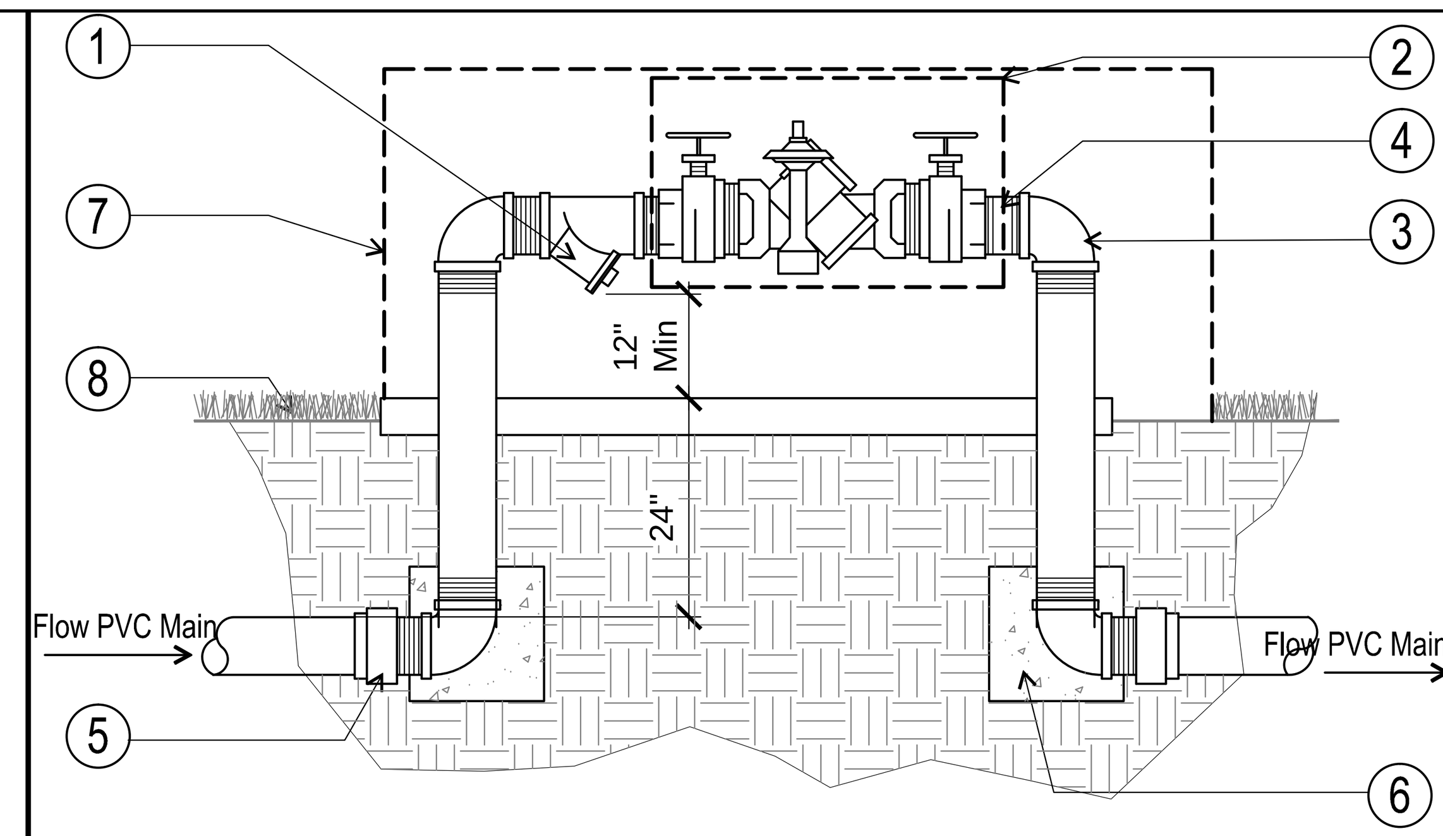


LEGEND:

1. Gate or ball valve.
2. Hand wheel.
3. Mainline.
4. PVC male adaptor.
5. 10" round plastic box and purple locking cover.
6. ¾" crushed rock.

4 Ball / Gate Valve

Scale: N.T.S



LEGEND:

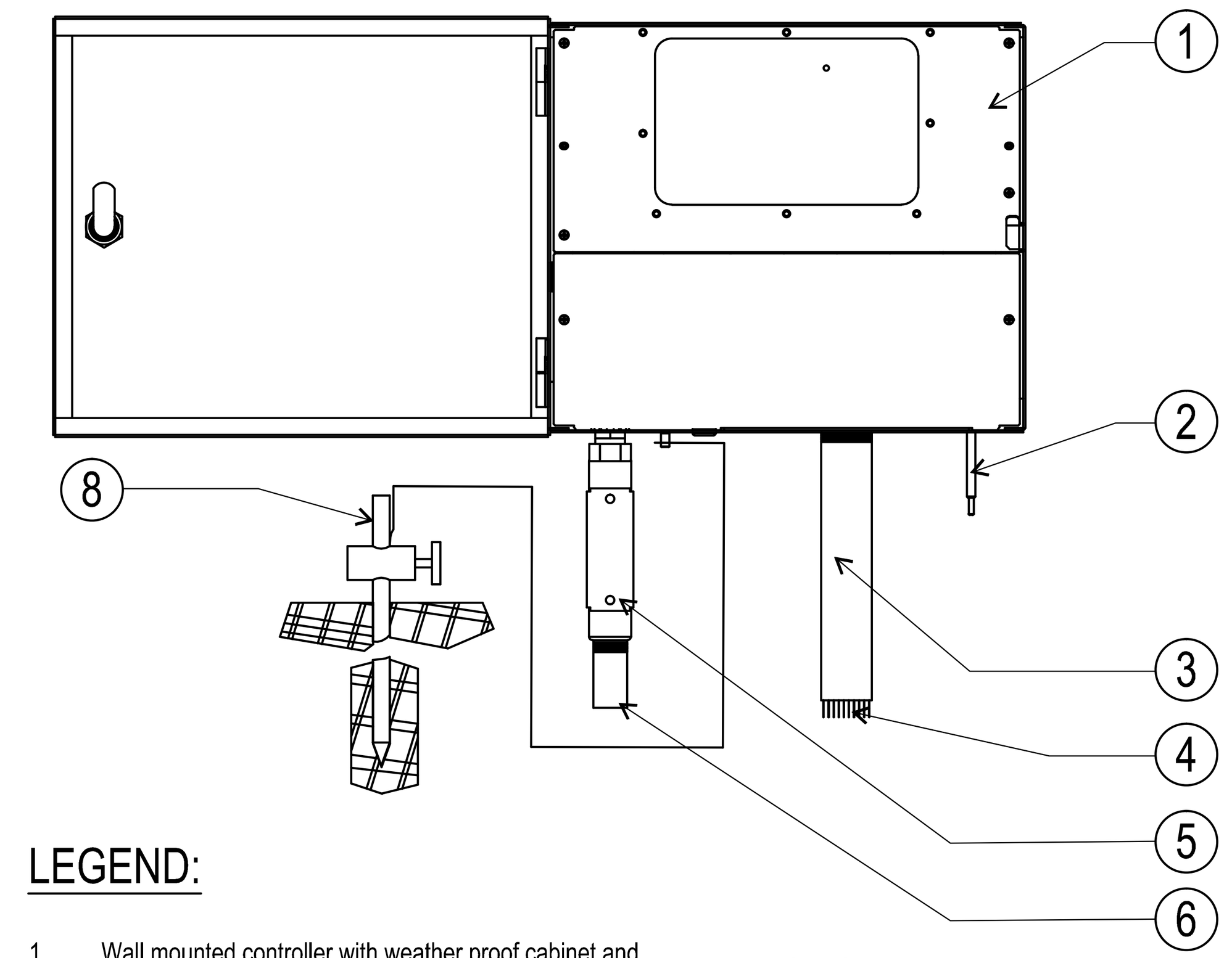
1. Bronze wye strainer w/ full size blow off valve (80 mesh).
2. Reduced pressure backflow preventer with 2 shut off valves.
3. Brass pipes, nipples and fittings, typ.
4. Brass unions line sized both sides.
5. Sch 80 PVC male adaptor brass coupling and brass nipple, typical both sides.
6. 12" square concrete thrust block
7. Backflow enclosure V.I.T. SBBC-45CR, on concrete pad.
8. Finish grade.

NOTE:

1. Brass is required on all irrigation reduced pressure.

3 Backflow Prevention Device

Scale: N.T.S



LEGEND:

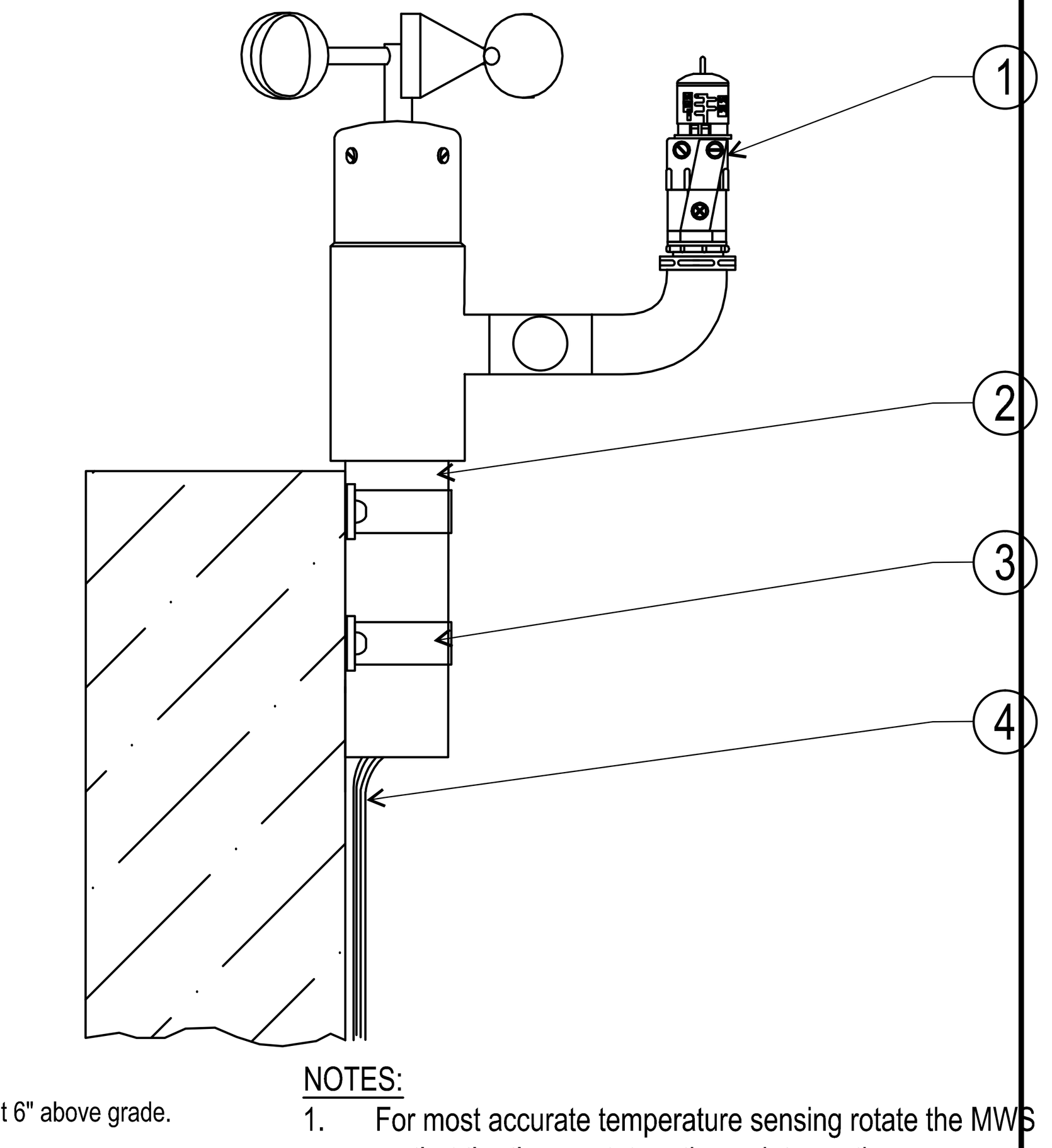
1. Wall mounted controller with weather proof cabinet and locking cover (per irrigation legend).
2. Antenna.
3. 1 ½" PVC sch 40 conduit for UF direct burial control wires, size as required.
4. Wires to remote control valves.
5. Junction box.
6. 1" PVC sch 40 conduit to power supply.
7. Ground rod ⅝" x 6'.

NOTES:

1. Installation to comply with all national and local electrical and building codes.
2. Power required 110v AC @ 1.2 amps or less.
3. Mount controller 4' above finish grade from bottom of controller.
4. Provide on/off switch.

2 Wall Mounted Controller

Scale: N.T.S



LEGEND:

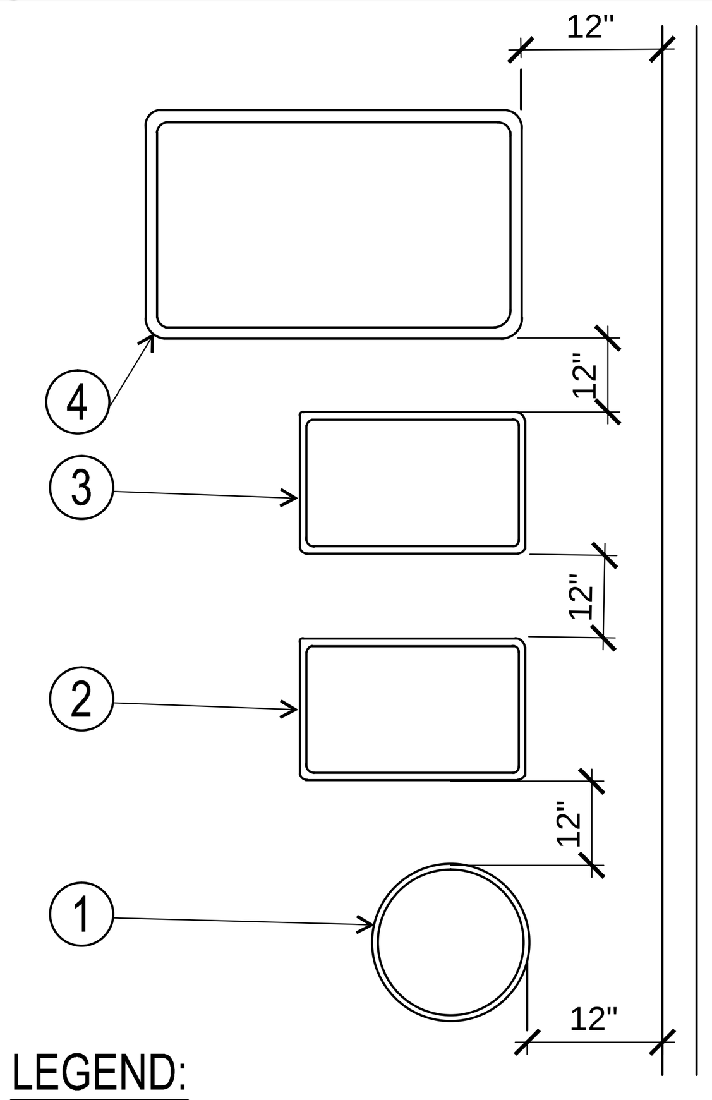
1. Weather station, mount 6" above grade.
2. 6' post.
3. Mount to post or with conduit clamps.
4. Run lead wires to controller.

NOTES:

1. For most accurate temperature sensing rotate the MWS so that the thermostat portion points south.
2. The MWS is designed to mount on a 2" dia. pipe post any combination of pipe and fittings may be used.

1 Mini-Weather Station

Scale: N.T.S



NOTES:

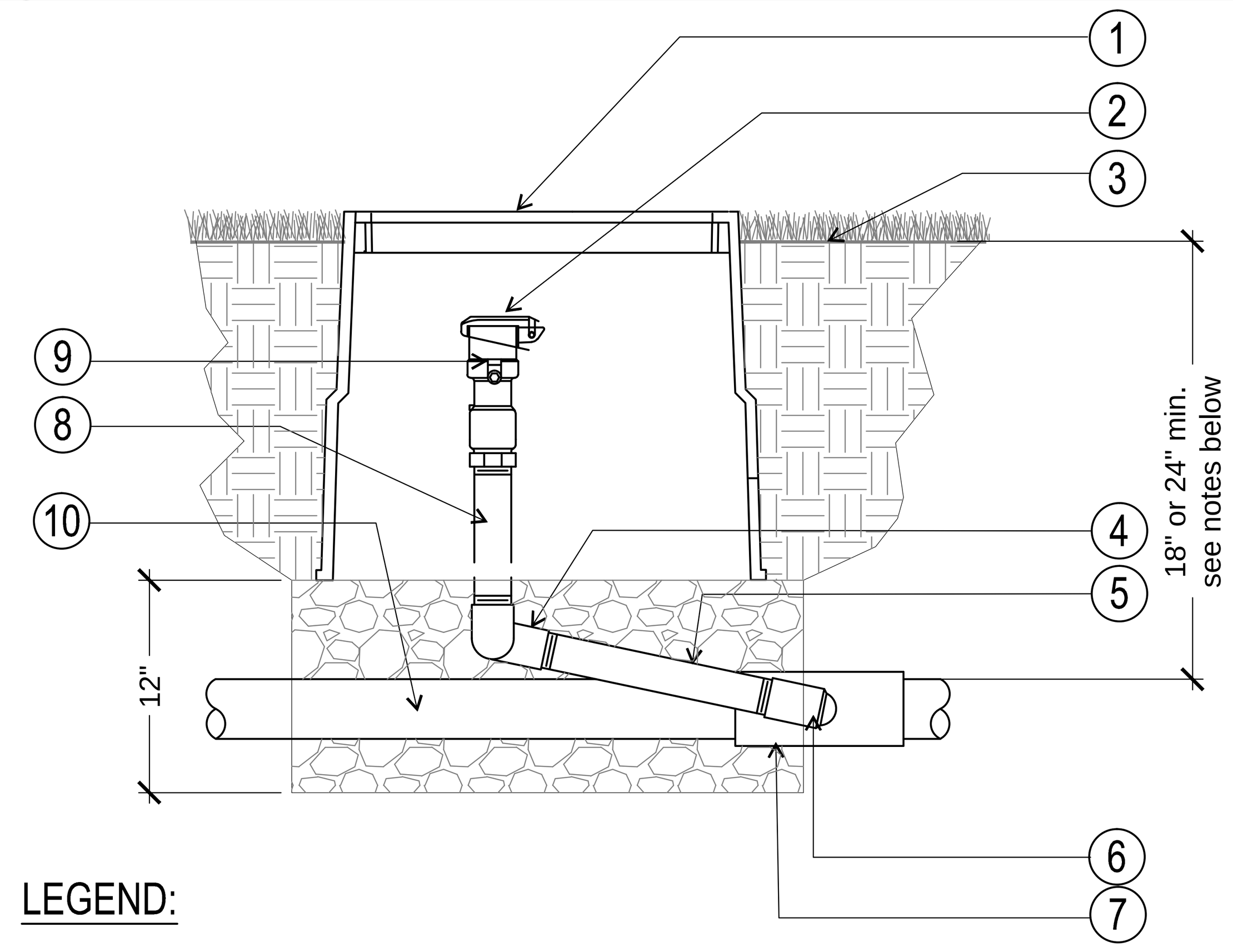
1. Center valve box over valve to facilitate servicing of valve.
2. Set valve boxes 2" maximum above grade in mulch cover or ground areas. Set flush with finish grade in turf areas.
3. Set valve box and valve assembly in groundcover / shrub area where possible. Install in turf only if there is no adjacent groundcover.
4. Set valve boxes parallel to one another and perpendicular to edge.
5. Avoid heavy compaction of soil around valve boxes to prevent their deformation / collapse.

LEGEND:

1. 10" diameter circular valve box.
2. Edge of lawn, walk, fence, curb, etc.
3. 14" x 19" rectangular valve box.
4. 20" x 30" rectangular valve box.

8 Valve Box Layout

Scale: N.T.S

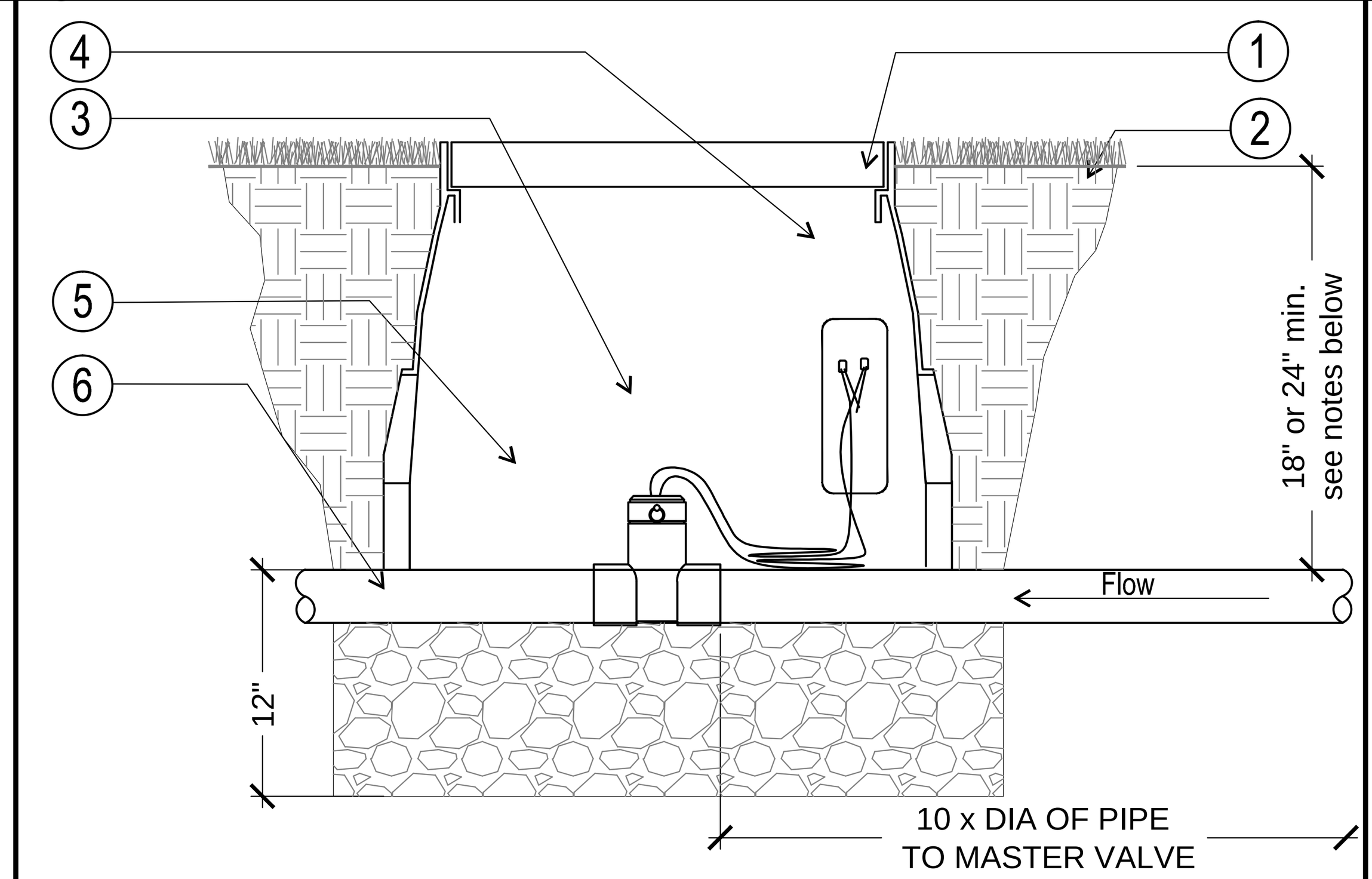


LEGEND:

1. 10" diameter circular valve box and purple locking cover.
2. Quick coupling valve with locking cover.
3. Finish grade.
4. 2 PVC sch 80 ell.
5. PVC sch 80 nipple.
6. PVC sch 40 elbow.
7. PVC tee
8. 1 cu. ft. pea gravel.
9. PVC sch 80 riser.
10. PVC mainline.

7 Quick Coupler Valve

Scale: N.T.S

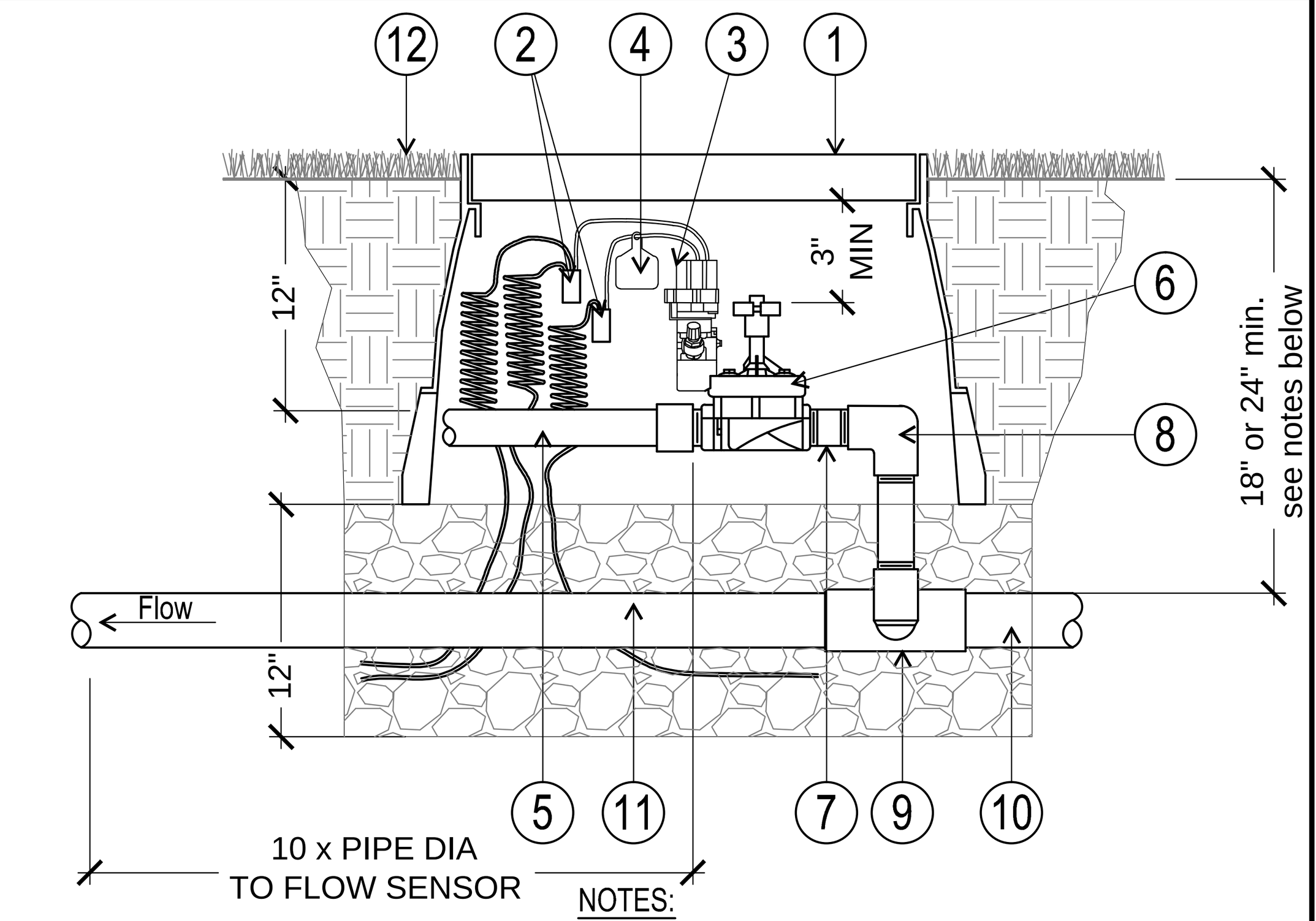


LEGEND:

1. Approved 14" x 19" plastic valve box with locking purple cover.
2. Finish grade.
3. Flow sensor.
4. P.E. cable to controller.
5. PVC mainline.
6. ¾" crushed rock.

6 Flow Sensor

Scale: N.T.S



NOTES:

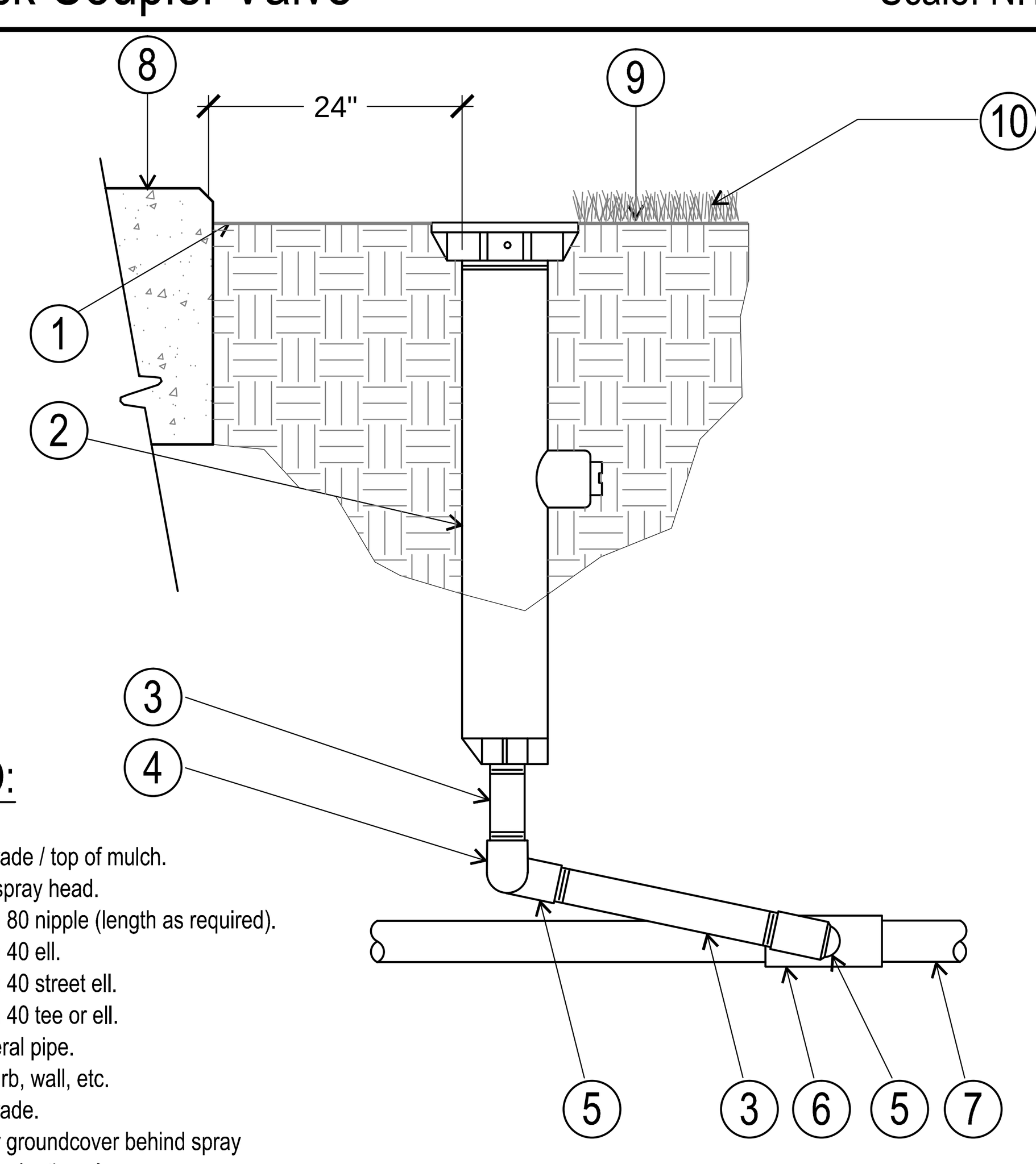
1. Pipe cover for class 315 - 2" dia and larger shall be 24".
2. Pipe cover for 1 ½" sch 40 and smaller shall be 18".

LEGEND:

1. Approved 14" x 19" plastic valve box with locking purple cover.
2. Silicone filled connectors, spears DS-400.
3. Valve ID tag.
4. Lateral line.
5. Master or remote control valve.
6. Male adapter.
7. 90 ell tee.
8. Tee.
9. Mainline.
10. ¾" crushed rock.
11. Finish grade.

5 Master / Remote Control Valve

Scale: N.T.S

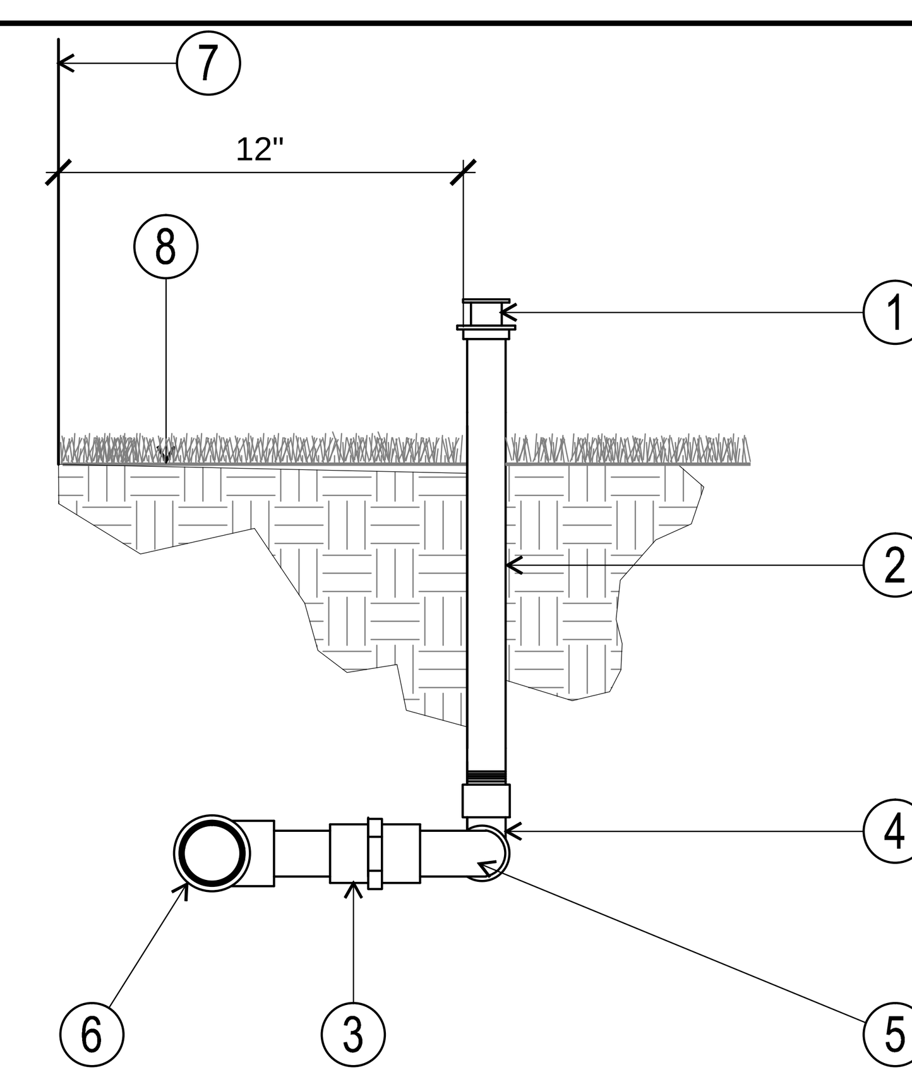


LEGEND:

1. Finish grade / top of mulch.
2. Pop-up spray head.
3. PVC sch 80 nipple (length as required).
4. PVC sch 40 ell.
5. PVC sch 40 street ell.
6. PVC sch 40 tee or ell.
7. PVC lateral pipe.
8. Walk, curb, wall, etc.
9. Finish grade.
10. Shrub or groundcover behind spray head per planting plan.

11 Pop-up Spray Head

Scale: N.T.S



LEGEND:

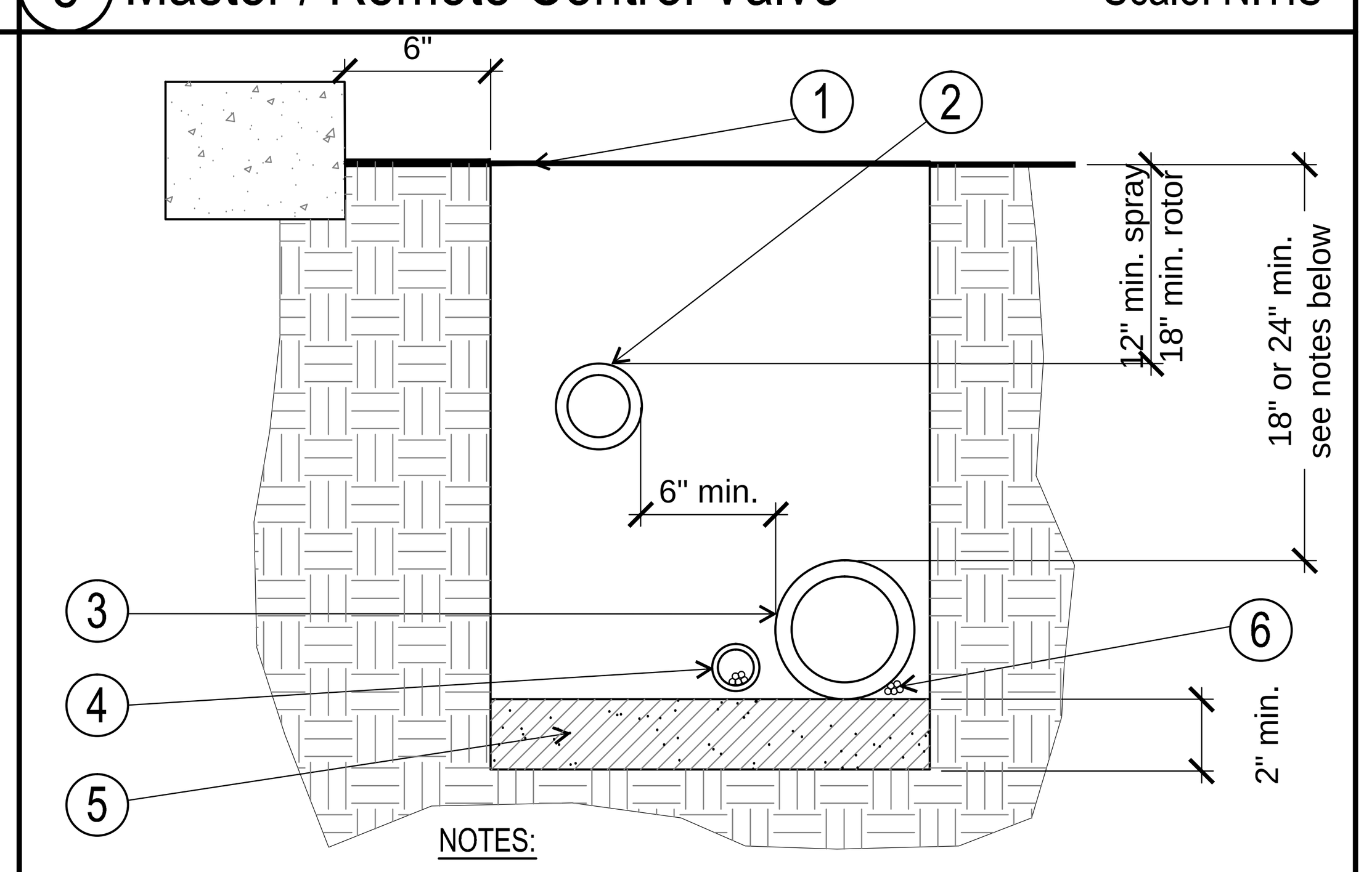
1. Spray nozzle.
2. PVC sch 80 riser.
3. ADV valve as required, see specs.
4. PVC sch 40 ells.
5. PVC sch 80 ells.
6. PVC lateral line.
7. Wall or building.
8. Finish grade.

NOTES:

1. Install heads 12" above the interior of planting beds.

10 Spray Head on Riser

Scale: N.T.S



NOTES:

1. All plastic piping to be snaked in trenches.
2. Bundled & tape wiring at 10' intervals.
3. Tie a loose 24" loop in wiring every 100 feet and at changes of direction greater than 30 degrees. Untie all loops after all connections have been made.Lateral line.
4. Install all control wire on the underside of the mainline pipe.
5. See irrigation specs for backfill and compaction requirements.
6. Pipe cover for class 315 - 2" dia. and larger pipe shall be 24".
7. Pipe cover for 1 ½" sch 40 and smaller shall be 18".
8. Pipe cover for non-pressure lateral lines shall be 12" for spray heads.
9. Pipe cover for non-pressure lateral lines shall be 18" for rotor heads.
10. Common trench with other utilities is prohibited.

LEGEND:

1. Finish grade.
2. Lateral line.
3. Mainline or sleeve.
4. Sleeve.
5. Clean or sand backfill.
6. Control wire.

ALL IMPROVEMENTS TO BE MAINTAINED BY THE PROPERY OWNER.

9 Trenching Detail

Scale: N.T.S

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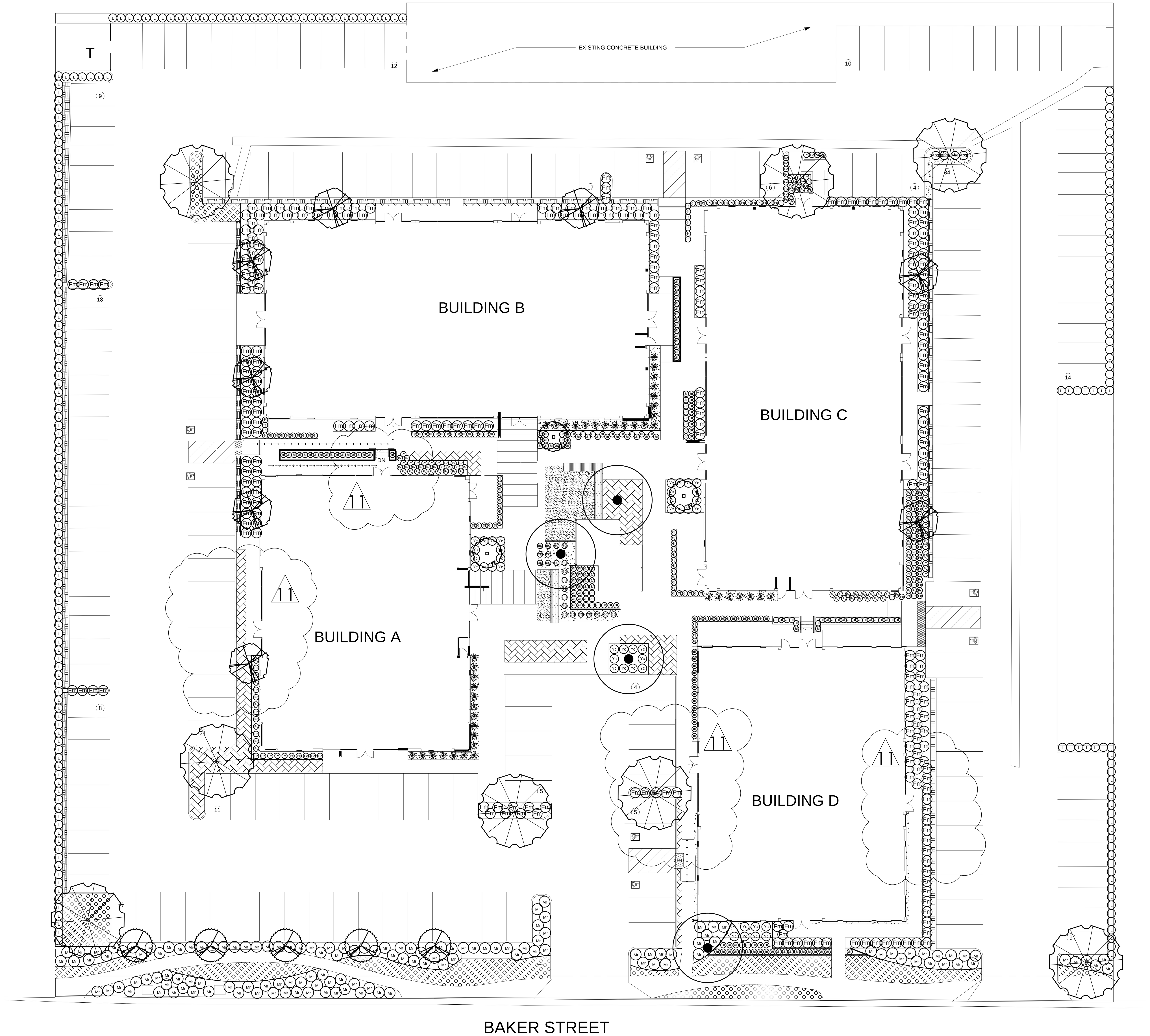

PLANTING LEGEND

TREES

SYMBOL	BOTANICAL/COMMON NAME	SIZE	QTY	WUCOLS	REMARKS
	Cercidium 'Desert Museum' Blue Palo Verde	36" Box	4	L	Standard
	Gleditsia tricanthos Honey Locust	24" Box	8	M	Standard
	Acacia stenophylla Shoestring Acacia	24" Box	3	L	Standard
	Lagerstroemia i 'Natchez' White Crape Myrtle	24" Box	5	M	Standard
	Tristania conferta Brisbane Box	15 Gal	8	M	Standard

SHRUBS

SYMBOL	BOTANICAL/COMMON NAME	SIZE	QTY	WUCOLS	REMARKS
	Cordyline festival grass Festival Grass	5 Gal	43	M	
	Euonymous j. 'Green Spire' Green Spire Euonymous	5 Gal	72	L	
Fm	Festuca Mairei Atlas Fescue	5 Gal	245	M	
L	Ligustrum j. Texanum Texas Privet	5 Gal	222	M	
M	Muhlenbergia rigens Deer nGrass	5 Gal	140	M	
	Pittosporum 'Creme de Mint' Dwarf Mock Orange	5 Gal	189	M	
Yc	Yucca 'Color Guard' Color Guard Yucca	5 Gal	41	M	

ACCENTS

SYMBOL	BOTANICAL/COMMON NAME	SIZE	QTY	WUCOLS	REMARKS
	Agave 'Blue Glow Blue Glow Agave	5 Gal	4	L	
	Aloe maculata Soap Aloe	5 Gal	13	L	
	Aloe rooikappie LIttle Red Riding Hood Aloe	1 Gal	123	L	
	Aloe vera - Yellow Yellow Aloe Vera	1 Gal	53	L	
	Enchinocactus grusonii Golden Barrel Cactus	5 Gal	22	L	

GROUNDCOVER

SYMBOL	BOTANICAL/COMMON NAME	SIZE	SPACING	WUCOLS	REMARKS
	Carex pansa California Meadow Sedge	4" Pots	12" O.C.	M	Grass
	Carissa c. m 'Green Carpet' Natal Plum	1 Gal	48" O.C.	M	
	Synthetic Turf				

3" layer shredded organic mulch in shrub areas, 1" layer in groundcover areas.

3/4" crushed rock decorative rock -Desert Gold. 3" layer over filter fabric.

Concrete mow curb, see Planting Detail sheet

NOTES:

1. ALL TREES WITHIN 5' OF HARDSCAPE SHALL HAVE A ROOTBARRIER INSTALLED
2. CONTRACTOR TO INSTALL CONCRETE MOW CURB BETWEEN TURF, PLANTERS AND GRAVEL AREAS. SEE PLANTING DETAIL SHEET.
3. A MINIMUM 3-INCH LAYER OF MULCH SHALL BE APPLIED ON ALL EXPOSED SOIL SURFACES OF PLANTING AREAS.
4. THESE PLANS WILL COMPLY WITH THE CITY'S WATER EFFICIENT LANDSCAPE ORDINANCE
5. PROVIDE MINIMUM 6" WARNING CURB IF CHANGE IN LEVEL EXCEEDS 4".

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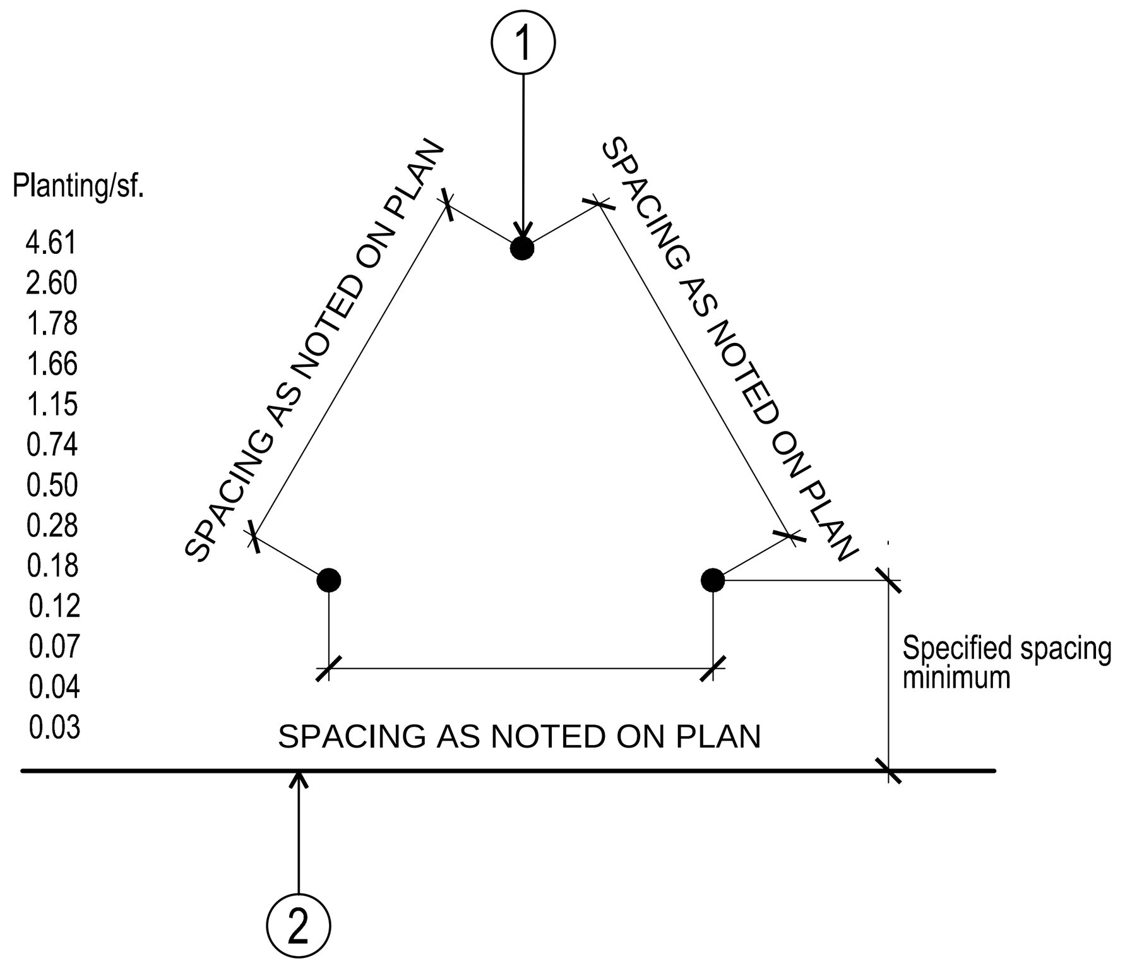
Spacing	Planting/sf.
6" o.c.	4.61
8" o.c.	2.60
9" o.c.	1.78
10" o.c.	1.66
12" o.c.	1.15
15" o.c.	0.74
18" o.c.	0.50
24" o.c.	0.28
30" o.c.	0.18
36" o.c.	0.12
48" o.c.	0.07
60" o.c.	0.04
72" o.c.	0.03

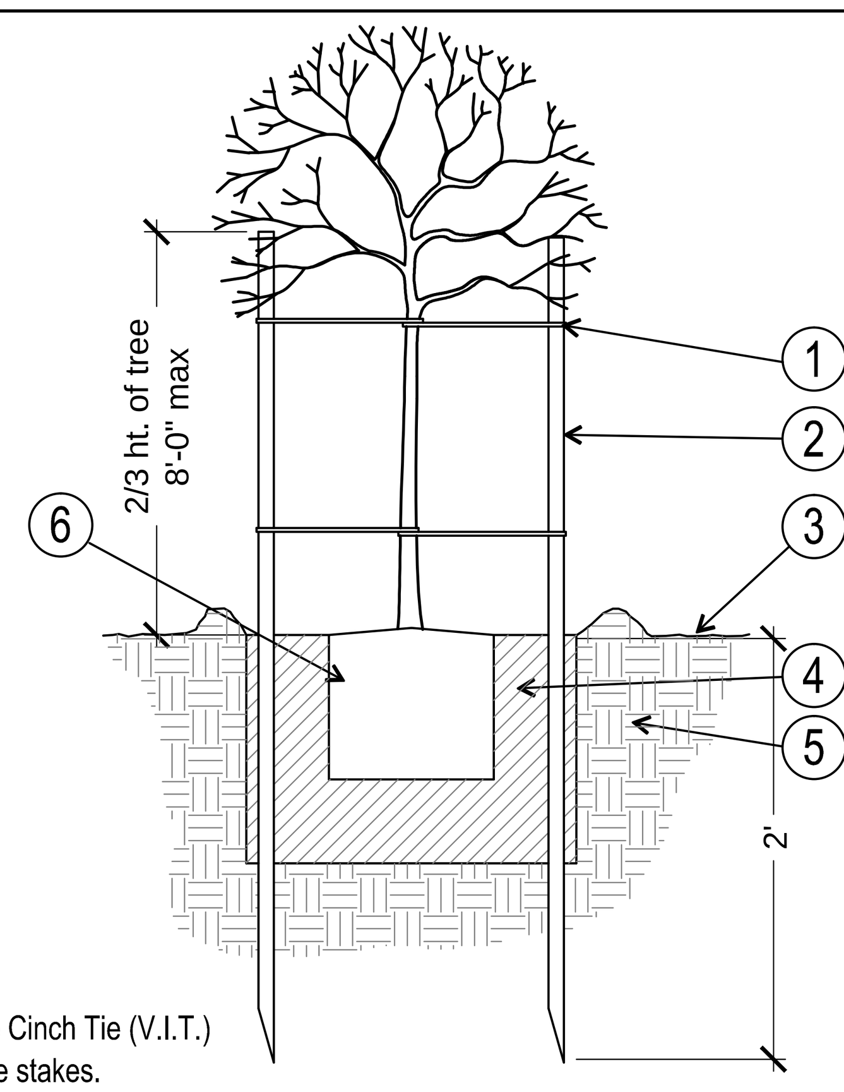


LEGEND:

1. Shrub / Ground Cover
2. Curb, Wall, Pavement, or edge of bed.

4 Triangular Spacing Diagram

Scale: N.T.S.

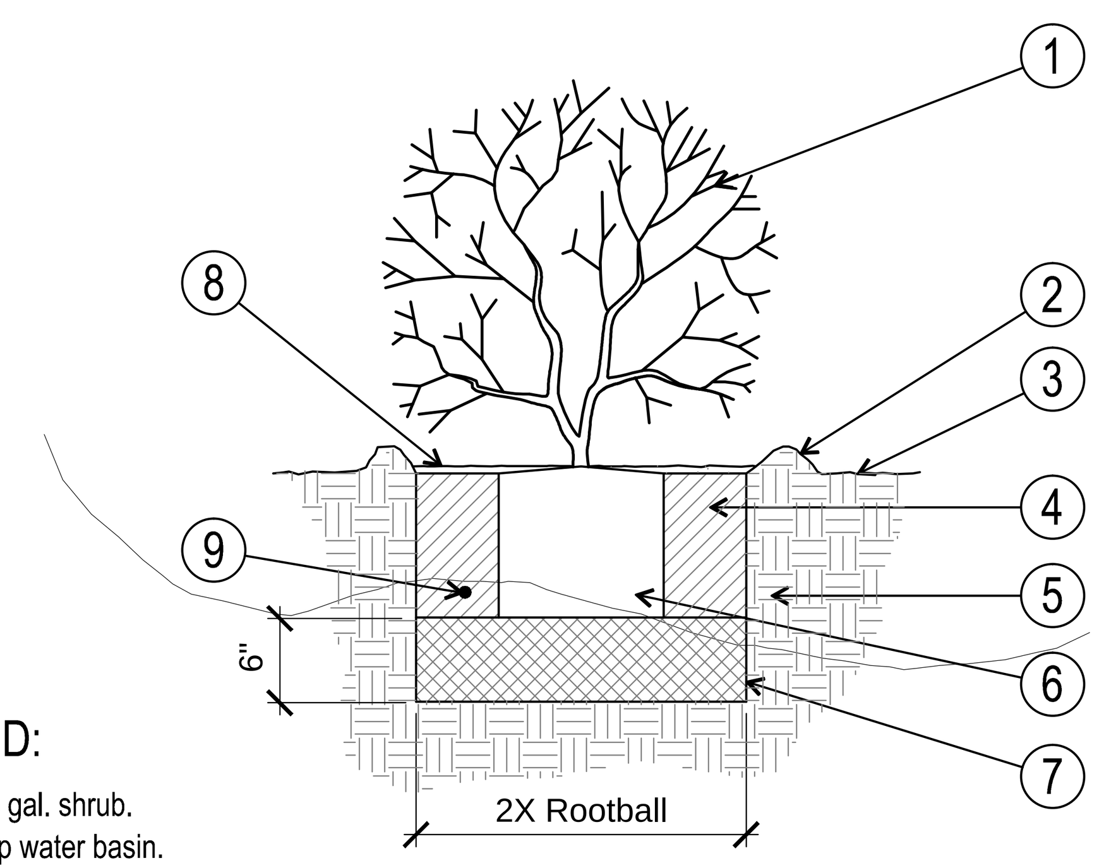


LEGEND:

1. 1/2" I.D. reinforced rubber hose Cinch Tie (V.I.T.)
2. 2" dia. x 10' long lodgepole pine stakes. Place stakes at outer edge of rootball.
3. Finish grade.
4. Plant pit.
5. Rootball.
6. Undisturbed soil.

3 Tree Staking Detail

Scale: N.T.S.



LEGEND:

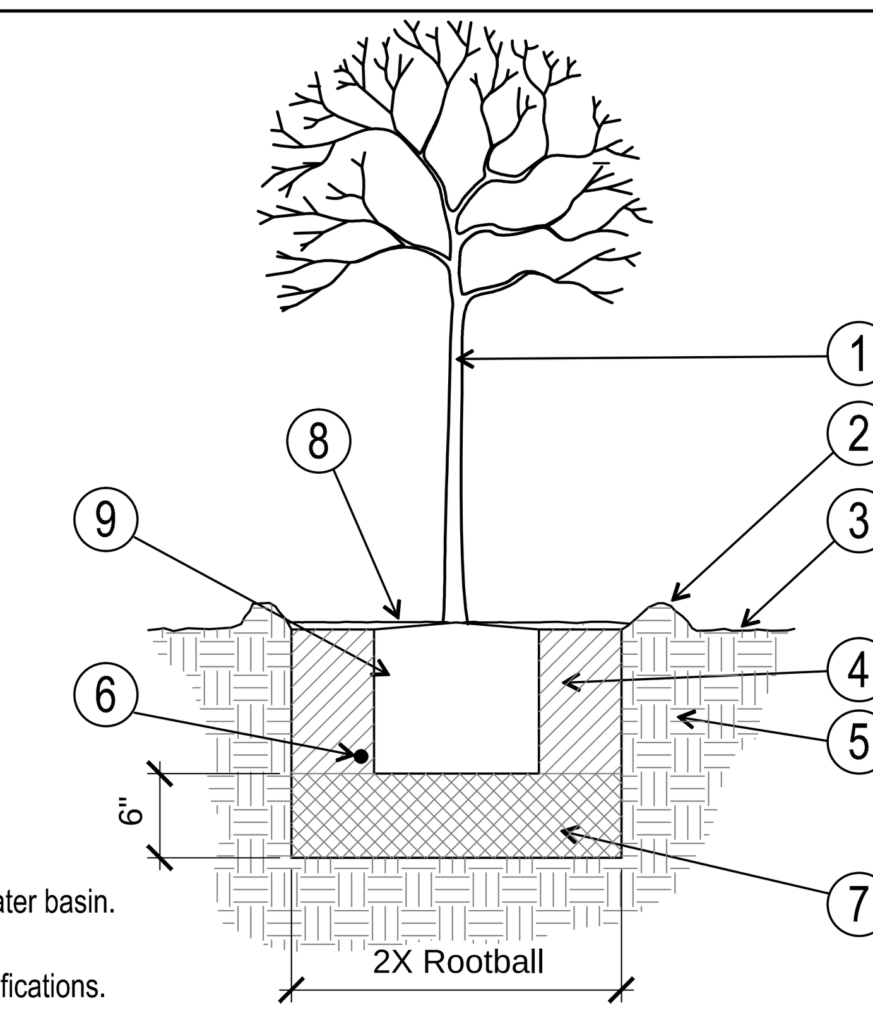
1. 1 to 15 gal. shrub.
2. 4" deep water basin.
3. Finish grade.
4. Backfill mix, see specifications.
5. Undisturbed soil.
6. Rootball, size varies. Set 1" above grade.
7. 6" deep compacted backfill below rootball unless stated otherwise in the specs or a agronomic report.
8. 1" approved mulch, see specifications.
9. Plant tablets, see specifications.

NOTES:

1. Scarify the sides and bottom of planting pit.
2. Prior to plant placement, fill all backfill pits with water and allow to percolate into subsoil.
3. Plant rootball and backfill mix must be thoroughly watered indirectly after planting.

2 Shrub Planting Detail

Scale: N.T.S.



LEGEND:

1. Tree
2. 4" deep temporary water basin.
3. Finish grade.
4. Backfill mix, per specifications.
5. Undisturbed soil.
6. Planting tablets, per specifications.
7. 6" compacted backfill below rootball unless stated otherwise in the specs. or a agronomic report.
8. 1" approved mulch per specs.
9. Rootball, size varies. Set 1" above grade.

NOTES:

1. Scarify the sides and bottom of planting pit.
2. Prior to plant placement, fill all backfill pits with water and allow to percolate into subsoil.
3. Plant rootball and backfill mix must be thoroughly watered indirectly after planting.

1 Tree Planting Details

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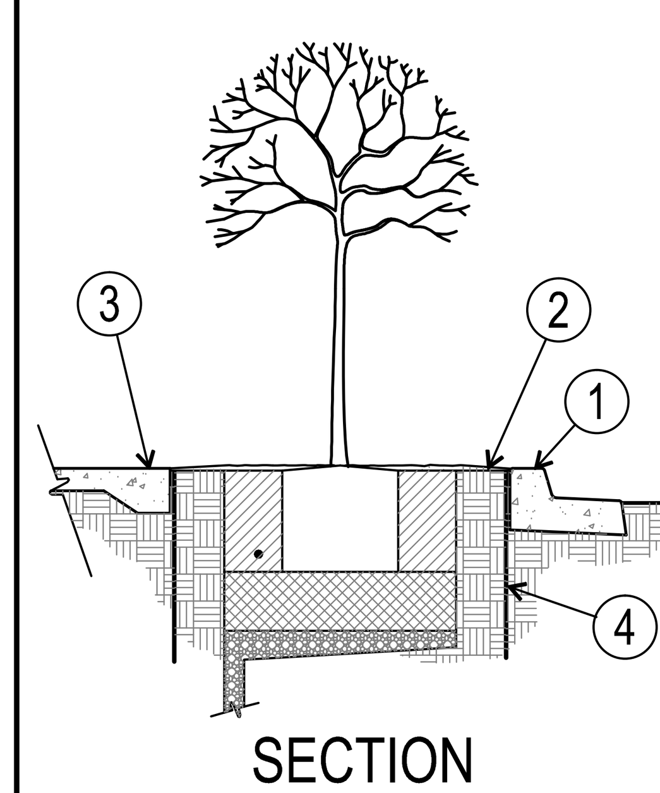
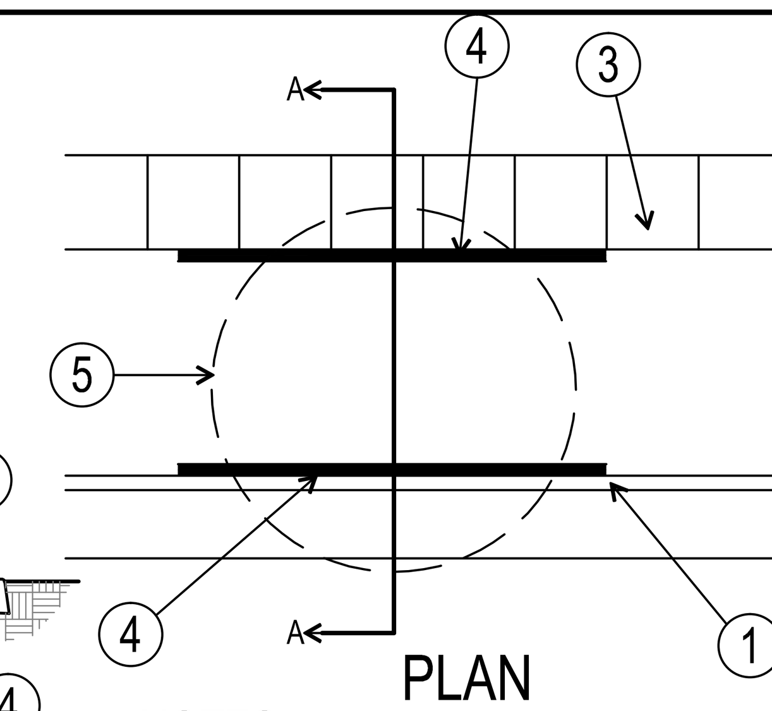




LEGEND:

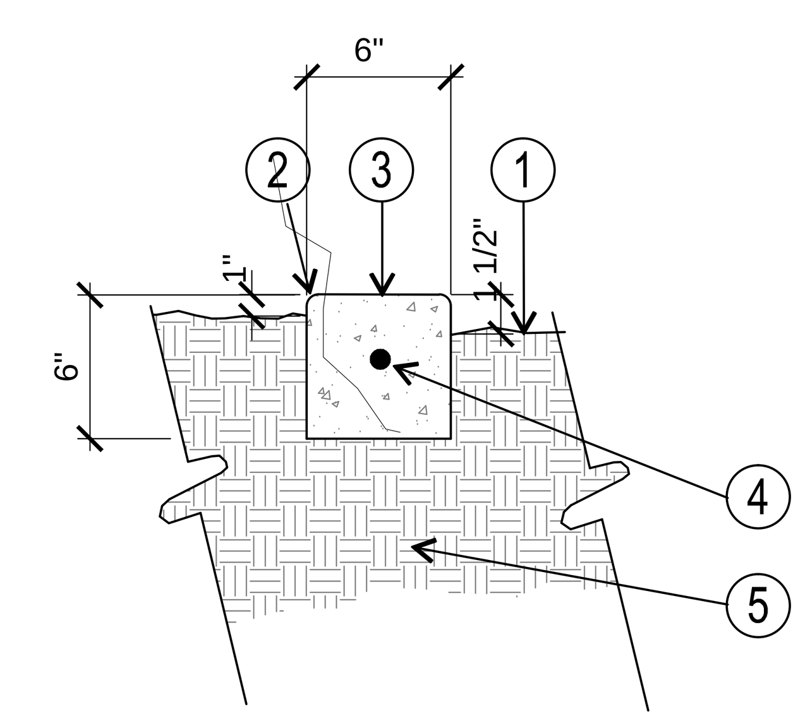
1. Concrete curb.
2. Finished grade.
3. Sidewalk.
4. Root barrier.
5. Drip line of tree (defined by the minimum spacing distance in the Root Barrier Notes

NOTES:

A. Position barrier as close to curb or sidewalk as possible. Raised root protectors shall be facing towards the tree.
B. Top of barrier shall be 1" above finished grade.
C. Length of root barrier shall be 10' in each direction of tree tunk.
D. Apply a mastic sealer to joint between concrete surfaces and root control barrier.
E. Root barriers are to be used on trees within 6'-0" of a curb, sidewalk or wall.
F. Installation of panels within soil preparation area will be rejected.
G. Install per manufacturer's recommendations.
H. For planting, see Tree Planting Details this sheet.

12 Root Barrier Detail

Scale: N.T.S



LEGEND:

1. Finished grade, adjacent planting area
2. 1/2" radius, typical.
3. Poured in place concrete curb.
4. #3 rebar continuous.
5. Compacted subgrade per soils engineer's report.

5 Concrete Mow Curb

Scale: 1 1/2" = 1'-0"

HUNTER LANDSCAPE

711 S. Fee Ana Street
Placentia,California 92870
Ph: 714.986-2400
Fax: 714.986-2408

REGISTERED LANDSCAPE ARCHITECT
THOMAS K. HAYES
1/31/2021
STATE OF CALIFORNIA

Project Name:
660 Baker Landscape Improvement
660 Baker Street
Costa Mesa, Ca.

Owner/Developer:
Dunbar
841 Apollo Street, Ste 334
El Segundo, CA 90245

Sheet Title:
Planting Details

	Date	Remarks
	3.25.19	Courtyard Revision
	5.2.19	Door Revision

Scale:

Date: 03/25/19

Drawn by: TH

Job Number: 18-049

Sheet No: LP-2

LANDSCAPE CONSTRUCTION

1. SCOPE

The scope of this section includes all labor, materials and equipment required to complete work indicated on the drawings. The work shall be performed in accordance with the best standards practiced relating to the various trades and under the continuous supervision of a competent foreman, capable of interpreting the drawings and these specifications. The work included in this section is as follows: Finish Grading for Planting; Soil Preparation; Fertilization; Planting, including Lawn; Maintenance; Inspection and Certifications; Guarantees; Cleanup; Staking; Guying; Espaliering; and Miscellaneous Allowance.

2. APPROVALS

A. All sprinkler work shall be inspected and approved prior to the start of any work.

B. Prior to excavation for planting or placement of stakes, locate all utilities, electric cables, conduits, sprinklers lines, heads, valves and valve control wires, and all utility lines so that proper precautions may be taken not to damage such improvements. In the event of a conflict between such lines and plant locations, promptly notify Landscape Architect (LA) who shall arrange for relocation for one or the other. Failure to follow this procedure places upon Contractor the responsibility for, at his own expense, making any and all repairs for damages resulting from work hereunder.

3. QUANTITIES AND TYPES

Plant materials shall be furnished in the quantities and /or spacing as shown noted for each location, and shall be of the species, kinds, sizes, etc. as symbolized and/or described in the "Plant Materials Legend", as indicated on the drawings. The LA has prepared this list only as a convenience to Contractor and assumes no responsibility for its accuracy. The Landscape Contractor is to verify all sizes and quantities

4. VERIFICATION OF DIMENSIONS AND QUANTITIES

Dimensions are approximate before proceeding with any work. Contractor shall verify all dimensions and quantities and shall immediately inform LA and Owner of any discrepancies between the drawings and/or specifications and actual conditions. No work shall be done in any area where there is such a discrepancy until approval for same has been given by LA and owner.

5. INSPECTION

A. All inspections shall be made by LA and Owner. Contractor shall request inspection at least two (2) days in advance of the time inspection is required.

B. Inspection will be required for the following parts of the work.

(1) During finish grading and soil preparation.
(2) Plants, after delivery to site and prior to planting.
(3) When vines, shrubs and trees are spotted for planting. But planting holes are not excavated.
(4) Specimen trees at source before delivery.
(5) Lawn areas prior to planting.
(6) Planting areas prior to planting.
(7) All landscape construction items, prior to the start of the calendar day maintenance period ("final inspection")
(8) At completion of calendar day maintenance period ("Final Maintenance Inspection").
(9) Inspection reports shall be made for each inspection by the LA and one copy shall be submitted to Owner and Contractor.

6. CERTIFICATION

Prior to job acceptance written certifications shall be submitted to the LA for the following:

A. Quantity and Quality for Commercial Fertilizer and Organic Fertilizer.

B. Quantity and Quality of all Soil Amendments called for by Plans and Specifications

7. MATERIALS

Plant materials indicated on the drawings and herein specified shall conform to the following:

A. Nomenclature - Plant names indicated on the drawings conform to "Standard Plant Names" established by the American Joint Committee on Horticulture. Except for names covered therein, the established custom of the nursery followed.

B. Condition - Plants shall be symmetrical, typical for variety and species, sound, healthy, vigorous. free from plant diseases, insect pests, or their eggs, and shall have healthy, normal root systems, well filling their containers, but not to the point of being root bound. Plants shall not be pruned prior to delivery, except as authorized by the LA or his representative. In no case shall trees be topped before delivery.

C. Dimensions - The height and spread of all plant material shall be measured with branches in their normal position, and shall be as indicated on the drawings. The caliper of all trees shall be measured 4'-0" above the surface of the ground. Where caliper other dimensions of any plant materials are omitted from the "Plant Legend", it shall be understood that these plant materials shall be normal stock for type listed

D. Inspection - All plant materials must have been previously inspected at the nursery by the County Horticultural Department shall be subject to the inspection and approval of the LA before planting.

E. Plant List - is indicated on drawings.

F. Size of Plants - Shall be as stated on the plan. Container stock (1 - gallon, 5 gallon and 15 - gallon), shall have been grown in containers for at least one (1) year, but not over two years.

G. Substitutions - Substitutions for the indicated plant materials will be permitted provided the substituted materials are approved in advance by the LA, and the substitutions are made at no additional cost to Owner. Except for authorized variations, all substitute plant materials shall conform to the requirements of these specifications. If the accepted substitute plant materials are of a less value than those indicated or specified, the Contract price will be adjusted in accordance with the provisions of the Contract.

H. Plants Not Approved - Plants not approved are to be removed from site immediately and replaced with suitable plants The LA and/or Owner reserves the right to reject entire Lots of plant represented by defective samples.

8. FERTILIZERS AND SOIL CONDITIONERS

Samples of all soil amendments , sod and plants shall be submitted for inspection and stored on the site until furnishing of materials is completed. Delivery may begin upon approval of samples or as directed by LA and the Owner.

A. Organic fertilizer shall be processed sewage sludge with a minimum content of 1% Nitrogen and 2% Phosphoric Acid similar to "Nitrohumius". Method of processing shall not destroy normal bacterial content.

B. Nitrogen stabilized sawdust shall be bulk, with the following nitrogen content based on dry weight:

0.5% for redwood Sawdust
0.7% for Fir Sawdust
1.0% for Bark or Pine Bark or Mixture

Salinity - the saturation extract conductivity shall not exceed 3.5 millmhos/cm at 25

C. Commercial fertilizer shall be delivered in sacks with manufacturer's label showing weight and analysis attached to each sack.

9. STAKING MATERIALS

A. Tree staking shall be as per plan.

B. Ties for holding trees shall be as per plan.

10. GRADING AND SOIL PREPARATION

A. Contractor is to finish grade to with 1/10th of a foot or 1" below paving where paving exists.

B. Moisture Content - the soils shall not be worked when the moisture content is so great that excessive compaction will occur; and not when it is so dry that dust will form in the air or that clods will not break readily. Water shall be applied if necessary to provide ideal moisture content for tilling and for planting.

C. Preliminary Grading - Preliminary grading shall be done in such manner as to anticipate the finish grading. Excess soils is to be replaced by plants and mulch, allowance shall be made so that when finish grading has begun, there shall be no deficiency in the specified depth of mulched planting beds.

D. Weeding - Before and during preliminary and finish grading, all weed and grassed shall be dug out by the roots and disposed of off site (except those weeds and grasses not of the perennial type, less than 2-1/2" high and not bearing seeds, which may be turned under). Oats more than 2'1/2" high and not bearing seeds may be turned under. Perennial weeds and grasses to be removed include, but are not limited to, the following: Nut Grass, Puncture Vine, Dallas Grass, Mustard Plant, St. August, Alfalfa, Johnson Grass, Wire Weed, Morning Glory.

E. All planting areas shall be scarified to a depth of 12 inches below grade with the spacing of the ripper teeth no greater than 12 inches on center prior to placing conditioners and fertilizers. All rock and debris more than 2" in diameter shall be removed from the site.

F. Trenches - If irrigation system is installed after grading and fertilizing is completed, the upper' portion of the backfill shall be retilled and fertilized to the depth specified for the area required, to conform to the specifications.

11. SOIL CONDITIONERS (To be revised per soils report)

A. Turf, Ground Cover and Shrub Area: With the exception of the slopes the areas to be landscaped should be cross-ripped or otherwise tilled to a depth of 6 inched. For turf and ground cover planting, the following amendments should be uniform by broadcast and thoroughly incorporated to a depth of 6 inches by means of rototilling or equal; AMT Per 1,000 Square Feet 6 cu. yrds. nitrogen stabilized organic amendment derived form redwood sawdust, fir sawdust or cedar sawdust 12 lb. 16-20-0 ammonium phosphate (to be incorporated to the 6" depth following leaching). Following amending and prior to planting, including trees and shrubs, leaching irrigation should be made in a manner that will pass the minimum of 12 inches of water through the surface sold zone. When the leaching program has been completed, additional samples should be collected for soil fertility analysis only.

B. Slopes

300 lbs./acre 16-20-0 ammonium phosphate
300 lbs/acre urea formaldehyde
Mulch Silva Fiber Plus, 2,000 lb./acre
Binding agent (per contractor's accepted procedure)

While the urea formaldehyde is a slow release nitrogen fertilizer, it will probably be necessary to make dry supplemental fertilizer applications, particularly during the establishment period. If this is the case, the 16-20-0 should be uniformly broadcast over dry slope areas to the rate of 6 pounds per 1,000 square feet and followed with normal irrigation at each fertilizing period.

C. Planting Pots - Tree and Shrub, All areas including slopes: Planting pits shall be excavated twice the diameter and twice the depth of the rootball. Backfill shall then be added as specified.

(1) A chemically suitable sandy textured import soil meeting the following specifications should be used for backfill to the depth of the rootball. For trees, shrub and vines (other than azaleas, ferns and palms).

Silt plus clay content to the import soil shall not exceed 30% by weight with a minimum 95% passing the 2.0 millimeter seeve. The sodium absorption ratio (SAR) shall not exceed 6 and the electrical conductivity (ECe) shall not exceed 3.0 millimhos per centimeter at 25 degrees centigrade. The boron content shall be no greater than 1 ppm as measured on the saturation extract. In order to insure conformance, samples of the import soil should be submitted to the laboratory for analysis prior to and follow backfilling. The backfill mix for use are in the the follows: should be prepared as follows:
6 parts be volume sandy textured import soil
4 parts by volume nitrogen stabilized wood residual
1 lb. 16-20-0 per cu. yd. of mix
2 lb. iron sulfate per cu. yd. of mix
The above materials should be thoroughly blended prior to use for backfill purposes. Also, the iron sulfate should not contact cement surfaces since severe staining could occur. Apply planting tablets as per manufacture's recommendations. If the 16-20-0 is incorporated preplant as recommended the post plant maintenance can consist primarily of a nitrogen-only fertilizer program. Beginning approximately 30 days after planting, ammonium sulfate should be applied at the rate of 5 lbs./1000 s.f. or ammonium nitrate at the rate of 3 lbs./1000 s.f. on a monthly basis. However, in order to ensure continuing adequate soil phosphorus and potassium nutrition, Best Fertilizer Company's 16-2--8 or equal should be substituted for the nitrogen materials twice a year at the rate of 6 pounds per 1000 square feet. Also, when plants have become well established , the frequency of fertilizer applications can be decreased.

D. The prepared soil shall be uniformly blended in an area adjacent to the plant work and shall be accurately proportioned using a suitable measuring container. Excavation soil shall be removed from site. Protect the mix from water until to has been placed in backfill around plants.

12. FINISH GRADING

When preliminary grading, including weeding and fertilizing, has been completed and the soil has dried sufficiently to be readily worked, all lawn and planting areas shall be graded to the elevation indicated on the drawings. Grades not otherwise indicated shall be uniform levels or slopes between points where elevations are given. Minor adjustments of finish grades shall be made at the direction of the LA, if required

Finish grade shall be a smooth, even and uniform plane without abrupt change of surface. Soil areas adjacent to buildings to allow a natural run-off of water , and surface drainage shall be directed as indicated on the drawings by remodeling surfaces to facilitate the natural "run-off" of water. Low spots and pockets shall be one inch below grade of adjacent pavement of any kind. Grading shall be done when soil is at optimum moisture content for working.

13. METHOD OF PLANT AND WORK PROCEDURE

A. No planting shall be done until all operations in conjunction with the installation of the irrigation system have been completed, final grades have been established, the planting areas have been properly graded and prepared as specified, and the work approved by the LA.

B. The relative position of all trees and plants is subject to approval by LA and Owner, and they shall, if necessary, be relocated as directed as part of the contract.

C. All plants shall be removed form their container and set so that, when settled, they bear the same relation to the required grade that they bore to the natural grade before being transplanted. Each plant shall be planted in the center of the pit and backfilled unless otherwise specified, with the prepared soil. No soil in muddy condition shall be used for backfilling. No filling will be permitted around trunks or stems. All broken or frayed roots shall be properly cut off.

D. LA and/or Owner shall supervised the placing and planting of all plants.

E. In the event the underground construction work or obstructions are encountered in the planting operation, alternate locations for plant material will be selected by LA and Owner; operation will be done at no extra cost to Owner.

14. PLANTING OF TREES

A. Position plants in plant location as indicated on drawings and secure approval before excavating pits, making necessary adjustments as indicated.

B. All pits for trees shall be dug square with bottoms level, the length of sides equal to 2 1/2 times the diameter of the tree ball. Compacted solid at sides and bottoms shall be loosened by scarifying or other approved method. Pits shall be backfilled with "prepared soil" to the required grade , and the balance of the pit filled with "prepared soil" thoroughly settled by water application.

C. Set plant in center of pit, in a vertical position, so that crown of ball will be level with finish grade after allowing for watering and settling and shall bear the same relationship to the finish grade that it did to the soil surface in the container.
Prepare depressed water basin as wide as plant balls at each plant. Water thoroughly, backfilling any voids with additional prepared plant mix.

15. PLANTING VINES SHRUBS AND GROUND COVERS

A. Vines and shrubs shall be planted in pits at least 18" greater than their ball of earth and at least 12" below the bottom of the ball. Compacted soil at bottom of pit shall be loosened and the pit filled with "prepared soil" to the bottom of the ball. When the plant has been properly set, the pit shall be filled to the required grade with "prepared soil" and thoroughly settled by taping and watering. All vines shall be removed from stakes, untied, and securely fastened in an approved manner to the wall, fence or other surface next to which they are planted.

B. Prepare a depressed water basin as wide as plant balls at each plant. Water thoroughly. backfilling any voids with additional prepared planting mix

C. Ground Covers

(1) Pits for flat sized plants to be at lest 6"x6"x6". Ground cover areas shall be moistened prior to planting. No flat plants shall be planted in dry soil.

(2) Set plants in center of pits so that crown of plant will be level with finished grade after settling of soil, then backfill and water

(3) Flatted plants shall be well -rooted with runners at least 4" but not more than 6" in length.

16. TREES AND VINES OCCURRING IN LAWN

Trees and vines occurring in lawn shall be planted before final preparation of those areas.

17. CARE OF PLANTS BEFORE AND DURING PLANTING

Plants shall not be allowed to dry out before or while being planted. Keep moist by means of wet sawdust, peat moss or burlap at all times during planting operations. Do not expose roots to the air except while being placed in the ground. Wilted plants, whether in place or not, will not be accepted and shall be replaced at the Contractor's expense.

18. WATERING BASINS

A. Construct a firmly compacted mound of soil around each tree and plant to form a watering basin at the edge of and following the shape of the planting pit area. Mounds or trees and for vines from -5 gallon or larger containers, shall be at least 4" high. Mounds for all other trees. vines or plants not otherwise specified shall be at least 2" high. Excavated earth if capable of retaining water, may be used. Any settlement within the basins retaining water shall be refilled to the required grade with prepared soil, and additional nitrogen stabilized sawdust worked into the surface as required to restore the mulch condition.

B. At the end of the day maintenance period all watering basins in lawn areas shall be leveled to finish grade and the area shall be sodded with the specific sod.

19. SODDED LAWN

A. Cultivate all lawn areas to a depth of 8". Rocks and debris larger than 1" in diameter which are brought to the surface by cultivation shall be removed from the site. If cultivation does not break lumps, a spike tooth harrow shall be pulled behind a mechanical seeder or tractor.

B. Areas to be planted in lawn shall be finished smooth to present a neat and uniform grade prior to installation of sod. The lawn bed shall be inspected by the LA to determine suitability for planting prior to sodding. Contractor shall obtain such approval before sodding

C. All sodded areas shall be thoroughly watered. Lawns are to be kept continuously moist by watering as often as required.

Any lawn areas that do not show a prompt catch of grass shall be re-sodded at ten day intervals until an acceptable stand of grass is assured.

20. WATERING

A. Immediately after planting, water shall be applied to each tree by means of a hose. the water shall be applied in a moderate stream in the planting holes until the material about the roots is completely saturated from the bottom of the hole to the top of the ground.

B. Plants which can not be watered efficiently with the existing water system shall be watered by means of a hose.

C. Apply water in sufficient quantities, and as often as seasonal conditions require, to keep the ground wet at all times, well below the root system of grass and planting. Care is to be taken in watering slopes so as not to case erosion damage.

D. Following the planting of ground cover plants furnished in flats, each plant shall be immediately and thoroughly watered by means of a hose with a slow running stream of water.

21. TREE STAKING

A. Stake all non-guyed trees at time of planting by placing stake in the prepared hole and driving it 18" into solid ground. Plant the tree as close to the stake as possible without crowding the roots. Fasten the tree to the upper end of stake in at least three places using "cinch ties". (see drawings)

B. Tree 36" box size or larger, shall be immediately guyed after planting with not less than three guys per tree, or as directed by the LA

(1) Protect bark of tree by covering wire with green 1/2" diameter rubber hose.
(2) Guys to be anchored by 2"x2"x2" redwood driven flush with finish grade or 1"x2' galvanized pipe in rocky areas.
(3) Guy wires shall be #12 Ga. galvanized wired. Mark guys with 3'-0" long 1/2" dia. while PVC pipe.
(4) Guy lines are to be tightened to firm tension.

22. ESPALIER OF VINES

All trellises and stakes are to be removed form plants and the plants shall be fastened and trained against fences or walls as directed by the LA

23. CERTIFICATES

In addition to any other certificates specified, Contractor shall furnish a certificate with each delivery of bulk material, stating the source, quantity and type of material and that the material conforms to the specification requirements. For bulk delivered organic fertilizer, the certificate shall also state the volume, net weight, percent of Nitrogen and percent of Phosphoric acid. For each fertilizer and soil conditioner, in containers, a similar certificate or invoice shall be furnished stating total quantities by weight and volume for each material. These certificates shall be submitted to the LA and Owner prior to the start of the maintenance period.

24. PROTECTION

Contractor shall carefully and continuously protect all areas included in the Contract, including plant materials, fences, supports, etc., until final acceptance of the work by the LA and Owner.

25. MAINTENANCE

A. Contractor shall maintain a sufficient number of men and adequate equipment to perform the work here in specified. Plant maintenance work shall consist of applying water, weeding, caring for plants, including ground covers, shrubs and trees, edging, aerating and mowing of lawns, fertilizing and control of pests and diseases.

B. Damage to any planted area shall be repaired immediately. Depressions caused by vehicles or foot traffic shall be filled with topsoil, leveled and replanted. Exterminate gophers and moles, and repair damage.

C. The entire project shall be maintained for a period of 60 days commencing from the time all items of work have been completed to the satisfaction of LA and Owner.

D. The project shall be cared for in a neat, clean condition at all times to the satisfaction of Owner and LA

26. LAWN MAINTENANCE

A. Watering - Water every day once per day for two weeks and thereafter gradually reduce frequency of watering to three times per week. Contractor shall continue to maintain the lawn until final acceptance by the LA and Owner.

B. Fertilizing - Apply 16-6-8 at the rate of 5 ponds per 1000 square feet three weeks after installation and water immediately thereafter.

C. Diseases and Pest Control - Two weeks after installation of lawn, apply a granular mercurail fungicide of 1.8% mercurous chloride as per manufacturer's recommendation.

D. Mowing - The lawn shall be mowed at a height of 1 1/2" with a rotary mower, equipped with rollers, before it reaches 2" in height. Collect grass clipping during mowing operations and remove from the site.

27. GROUND COVER AND SHRUB AREA MAINTENANCE

A. Watering - New plants shall be watered once per day for two (2) weeks after installation. Reduce watering to every other day for the next two (2) weeks. Water thereafter three (3) times per week until final acceptance.

B. Fertilize - Fertilize three (3) weeks after planting with 5 pounds 16-6-8 per 1000 square feet; fertilize thereafter every thirty (30) days.

C. Disease and Pest Control - For control of slugs and sails, apply pelletized tricalciaum arsinate 5% by weight and metaldehyde 5% by weight as per manufacturer's recommendations two (2) weeks after installation.

D. Pruning - All shrubs and trees shall be pinch pruned as necessary to encourage new growth and to eliminate rank sucker growth. Old flowers, and dead foliage and limbs shall be removed. No major pruning shall be done without the approval of the LA

E. Weeding - all planting areas including lawn, ground cover and shrub areas shall be kept weed free at all times. Weed shall be dug out by the roots and disposed of off site, Upon completion of the day maintenance period, the Contractor shall fertilize per #26 - lawn Maintenance and #27 Ground Covers and Shrub Area maintenance of these specifications.

28. GUARANTEE AND REPLACEMENTS

A. All shrub and ground cover shall be guaranteed by Contractor as to growth and health for a period of ninety (90) days after completion of the specified maintenance period, and/or final acceptance by the LA. All trees up to 20" box size shall be guaranteed by by Contractor to live and grow in a acceptable upright position for a period of six (6) months after completion of the specified maintenance period, and/or final acceptance upright position for a period of one (1) year after completion of the specified maintenance period, and/or final acceptance by the LA

B. All plants that show signs of failing growth at any time during the life of the Contract, including the maintenance period, or those plants injured of damaged as to render them unsuitable for the purpose intended shall be guaranteed as specified for the original guaranteed materials.

29. CLEAN-UP
Upon completion of the work in this section, Contractor shall remove all rubbish, trash and debris resulting from the operations; remove disused equipment and implements of service; leave entire area involved in a neat and acceptable condition such as to meet the approval of the Landscape Architect (LA).

HYDROSEED

1. GENERAL

A. Equipment must have minimum capacity of 1500 gallons and a positive displacement pump with the ability to agitate and properly mix the specified materials. Pump must be capable of creating 100 pounds psi pressure with sufficient volume to distribute above slurry evenly over 12,000 sq. ft. within a 15 minute period.

B. Vendor furnished label: Vendor agrees to furnish not less then two (2) employees during all hydromulching applications.

C. The vendor shall fully guarantee his work and services and shall be fully insured and be prepared to furnish satisfactory evidence of such insurance upon demand.

2. SLOPE & PLANTING AREA PREPARATION

A. Scarification - Prior to installation of the irrigation system, the surface of all slopes shall be cleaned and grubbed to prepare the slope surface for weeding.

B. Mulch - shall be Silva Fiber Plus (at 2,000 pounds per acre), a green colored, fibrous mulch, no growth or germination inhibiting factors. Silva Fiber Plus is manufactured in such a manner that after addition of seed, fertilizer, water and additives in a special 1500-gallon slurry tank, the fibers and above materials will become uniformly mixed to form a homogeneous slurry; and using the green color to facilitate proper distribution, the slurry shall be hydraulically sprayed onto the ground forming a blotter-like ground cover which after application will allow the absorption and retention of moisture. Suppliers shall be prepared to certify that laboratory and field testing of their product has been accomplished, and that it meets all of the foregoing requirements, based on testing, Weight specifications of these material from suppliers, and for all application, shall refer only to air dry weight of the fiber material. Absolute air dry weight based on the normal standards of the Technical Association of the Pulp Industry for Silva Fiber Plus is considered equivalent to 10% moisture. Each package of Silva Fiber Plus shall be marked by the manufacturer to show the air dry weight content.

C. Seed Mixes

Turf Seed Mix: "Marathon" by Southland Sod

Slope seed Mix: applied at lb. per acre

Fuel Modification Seed Mix:

D. Weed Abatement Program - Upon completion of the irrigation system and after all existing weeds have been removed form the planting areas, the following weed preservation shall be used:

Apply fertilizer mixture by spray per acre as follows:

300 lb. 12-12-12 commercial fertilizer
300 lb. urea formaldehyde
1000 lb. agricultural gypsum

Apply pre-emergent herbicide as recommended by a licensed pest control advisor to be compatible with the seeded plant varieties.

Apply mixture per the following time schedule:

Fertilize/water	21 days
Wait	2 days
Spray the pre-emergent per Pest control Advisor recommendations	7-10 days
Fertilize/water	14 days
Spray Weed Mixture	7 days
Fertilize/water	14 days
Spray Weed Mixture	7 days
Grub/Clean all areas to prepare for Seeding	2 days
Plant	23 days maximum
TOTAL	100 days maximum

3. PLANTING

A. Trees and Shrubs - Trees and shrubs can be planted after weed germination and during the contact kill of weeds, as specified.

B. Hydroseeding

(1) When all weeds have been eliminated to the satisfaction of the landscape architect and Owner's authorized representative, the hydroseeding operation may begin.

(2) The materials for seeded areas shall be machine mixed before application.

(3) The mixture of stolons or seed and additives are to be applied by a Hydro-Mulching machine. The nozzle height shall be between 6' and 10' above the ground level. Discharged pressure at the nozzle shall be 100 psi.

(4) Spraying shall be done in a sweeping motion allowing the slurry to fall evenly and eventually build up a consistent matting.

(5) Soil moisture: Area to be planted shall be irrigated to obtain 12 inched of penetration. Spraying shall be done 4 to 7 days prior to planting.

C. Mixture

(1) Commercial fertilizer shall be applied at the following rates: 50 lb/acre 16-20-0 (Best Fertilizer Company Crop maker or equal)

(2) Fiber material (Conwed 2000) at the rate of 2,000 lb/acre.

(3) Water with mixture of 3,000 gallons/acre.

(4) Stabilizing binder - 120 lb/acre for slopes, 80 lb/acre for flat areas

D. Watering - Immediately after planting, the slopes and other planting areas shall be watered with a fine spray, care being taken to avoid erosion, and the planted area kept moist until the seed has germinated (or the plants have become established).

E. Cleanup - After completion of the work, all rubbish and surplus material shall be removed from the site, and it shall be left neat and clean.

4. PLANT ESTABLISHMENT

A. Irrigation - The irrigation will be operated to provide an optimum amount of surface moisture for germination of the seeded varieties avoiding all run-off and deep saturation of water.

B. Fertilization - The area shall be hydro-fertilized every 30 days after planting with the following combination of materials: 250 lb. acre 16-6-8 (Best Fertilizer Company Crop Maker or equal)

C. Pre-Emergent Herbicide - Sixty (60) days after planting, apply a broad spectrum pre-emergent herbicide as recommended by an experience licensed pest control advisor.

5. MAINTENANCE

A. Maintenance of the project shall be for a period of 60 days.

B. Maintenance shall include all watering, fertilization, mowing, weeding, cultivation, spraying and pruning necessary to keep the plant materials in a healthy growing condition and to keep the planted areas neat and attractive throughout the maintenance period.

C. Protect all planted areas against damage, including erosion and trespassing, by providing and maintaining proper safeguards.

D. During the maintenance period, all planted areas shall be kept well watered and weed free at all times.

E. From the time any planting is done, until the end of the maintenance period, the Contractor shall maintain a sufficient number of men and adequate equipment to perform the work herein specified.

F. The Contractor will be relieved from maintenance work when the final plant establishment and maintenance work had been completed to the satisfaction of the Owner.

G. Damage to planting areas shall be replaced immediately at the Contractor's expense.

H. Depressions caused by vehicles, bicycles, or foot traffic, shall be filled and leveled. Replant damaged areas.

I. Exterminate gophers and moles, ground squirrels, and repair damaged as above.

J. All paved areas will be washed and maintained in a neat and clean condition at all times, as directed by the Owner.

K. Pinch-prune all shrubs and trees to encourage new growth and to eliminate rank sucker growth. remove all old flowers and dead foliage and limbs. Do no major pruning without the approval of the Owner. Remove damaged branches on tree back to point of growth. Treat cuts over 2" in diameter with an approved tree wound dressing.

L. During the maintenance period, should the appearance of any plant indicate weakness and probability of dying, immediately replace that plant with a new and healthy plant of the same type and size without additional cost to the Owner.

M. At the end of the maintenance period, all plant material shall be in a healthy growing condition.

N. Contractor shall continue the maintenance period past the specified data at no additional cost to the Owner until all deficiencies have been corrected.

HUNTER LANDSCAPE

711 S. Fee Ana Street
Placentia,California 92870
Ph: 714.986-2400
Fax: 714.986-2408

Project Name:
660 Baker Landscape Improvement
660 Baker Street
Costa Mesa, Ca.

Owner/Developer:
Dunbar
841 Apollo Street, Ste 334
El Segundo, CA 90245

Sheet Title:
Specifications

	Date	Remarks
1	3.25.19	Courtyard Revision
2	5.2.19	Door Revision

Scale:

Date: 03/25/19

Drawn by: TH

Job Number: 18-049

Sheet No: LS-1

IRRIGATION

1. SCOPE

Furnish all materials, tools, equipment and labor required to install a complete operable irrigation system as indicated on the drawings, as specified and as necessary to complete the contract, including, but not limited to, these major items:

A. Irrigation system and related appurtenances.

B. Connections to water and electrical utilities.

C. Excavation and backfill of pipe trenches.

D. Record drawings and guarantees.

E. Permits and licenses.

F. Testing of completed systems.

G. Cleanup

2. QUALITY ASSURANCE

A. Qualifications of Installers - Provide at least one person who shall be present at all times during execution of this portion of the work and who shall be thoroughly familiar with the type of materials being installed and the material manufacturers' recommended methods of installation and who shall direct all work performed under this section.

B. Codes and Standards - In addition to complying with all pertinent codes and regulation, comply with the latest rules of the National Electrical Code and the Electrical Safety Orders of the State of California, Division of Industrial Safety Orders of the State of California, Division of Industrial Safety, for all electrical work and materials.

3. SUBMITTALS

A. Materials List - Within thirty-five (35) calendar days after award of contract, and before any irrigation system materials are delivered to the job site, submit to the Owner a complete list of all irrigation system materials proposed to be furnished and installed.

(1) Show manufacturer's name and catalog number for each item; furnish the manufacturer's recommendations as to method of installation.

(2) Upon approval by the Owner, the manufacturer's recommendations shall become the basis for acceptance or rejection of actual methods of installation used in the work.

(3) Do not permit any irrigation system component to be brought onto the job site until it has been approved by the Owner or his representative.

(4) Approval of any item or alternate item indicates only that it apparently meets the requirements of the drawings on the basis of the information submitted, and does not relieve Contractor of any responsibility.

B. As-Built Drawings

(1) During the course of installation, carefully show in red line on a print of the irrigation system drawings all changes made to the irrigation system during installation.

(2) Dimension from easily identifiable permanent features (buildings, monuments, sidewalks, pavement, etc.) points of connection (water and electrical), wire routing, sprinkler main routing, valve locations and other related equipment as directed by Owner.

(3) Upon completion of the irrigation system installation, carefully transfer the as-built data to reproducibles as specified in the General Conditions and submit one legible copy as described under "As-Builts" below, to the Owner.

C. Submittal of "As-Builts" - Upon completion of the irrigation system installation, and as a condition of it's acceptance, deliver to the Owner the As-Built drawings referred to above. The delivery of the As-Built Drawings shall not relieve the Contractor of the responsibility of furnishing required information that may have been omitted.

4. Product Handling

A. Protection - Use all means necessary to protect irrigation system materials before, during, and after installation and to protect the installed work and materials of all other trades.

B. Replacements - In the event of damage, immediately make all repairs and replacements necessary to the approval of the Owner and at no additional cost to the Owner.

(1) Exercise care in handling, loading, unloading, and storing plastic pipe and fittings under cover until ready to install; transport plastic pipe only on a vehicle with a bed long enough to allow the pipe to lay flat to avoid undue bending and concentrated external load.

(2) Repair all dented or damaged pipe by cutting out the dented or damaged section and rejoining with a coupling.

C. Connection to Utilities

(1) Source of water and power supply: Verify and be familiar with the location, size and detail of stubouts provided as the source of water and electrical supply to the irrigation system, as shown on the plans. Source of supply and point of connection shall be existing stub-outs at approximate locations as shown on plans (unless otherwise noted).

(2) Existing utilities and conditions: Prior to cutting into the soil, locate all cables, conduits, sewer septic tanks, and other utilities as are commonly encountered underground and take proper precautions not to damage or disturb such improvements. If a conflict exists between such obstacles and the proposed work, promptly notify the Owner who will arrange for relocations. Proceed in the same manner if rock layer or any other conditions encountered underground make changes advisable.

a. Where investigation of subsurface conditions has been made by a qualified body in areas in which local materials may be obtained, the Contractor may request the use of such information but will be directly responsible for its verification and accuracy.

D. Inspection

(1) At all times permit the Owner or his authorized agents to visit and observe the work or any part thereof. Maintain proper facilities and provide safe access for such observations to all parts of the work. Where the specifications require work to be tested, it shall not be covered up until tested or approved by the Owner and governing agencies. The Contractor shall be solely responsible for notifying the Owner and required agency (48 hours notice minimum required), where and when such work is in readiness for testing. Should any such work be covered without such test or approval, it shall, if so ordered, be uncovered at the Contractor's expense.

(2) Observations Required

a. Prestart Meeting
b. Layout of control equipment and heads.
c. Main line pressure test and trench depth check.
d. Lateral trench depth check.
e. Coverage test and prefinal observation.
f. Final observation.

E. Standard of Installation - Material and workmanship shall be in accordance with local codes and ordinances of legally constituted authorities, except that where provisions of these specifications exceed such requirements, these specifications shall govern.

F. Preservation and Cleaning - Cleanup all work as it progresses. At frequent intervals, and at all times when directed by the Owner, remove and dispose of accumulations of rubbish and debris of all kinds. At the time of completion, the entire site shall be cleared of tools, equipment, rubbish, etc., all of which shall be left in proper, clean condition ready for acceptance.

G. Completion - The work shall be accepted in writing when the entire scope of work has been completed satisfactorily to the Owner. In judging the work, no allowance for deviation from the original plans and specifications will be made unless previously approved by the Owner.

(1) When any item appears on the plan and not in the specifications, or in the specifications and not on the plan, it shall be considered in both.

(2) The Owner or his authorized representative shall have the final authority on all items of the project.

H. Equipment to the Furnished - Irrigation equipment, operating keys and spare parts shall be furnished to the Owner as shown on the plans.

I. Service by the Contractor - 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. If requested by the Owner, the Contractor shall furnish the Owner with a schedule of service fees.

J. Final Acceptance - Within 10 days of the Contractor's notification that the installation is complete, the Owner and required agencies will observe the installation and, if final acceptance is not given, will prepare a "punch list" which, upon completion by the Contractor, and approved by the Owner, will signify final acceptance by the Owner.

K. Irrigation Guarantee

(1) The entire irrigation system shall be unconditionally guaranteed by the Contractor as to material and workmanship, including setting of backfilled areas below grade for a period of one year following the date of final acceptance of the work.

(2) If, within one year from the date of completion, settlement occurs and adjustments in pipe, valves, and irrigation heads, sod or paving to the proper level of the permanent grades, the Contractor as part of the work under this Contract, shall make all adjustments without extra cost to the Owner, including complete restoration of all damage planting, paving or other improvements.

(3) Should any operational difficulties in connection with the irrigation system develop within the specified guarantee period, which in the opinion of the Owner may be due to inferior material or workmanship, said difficulties shall be immediately repaired at no additional cost to the Owner, including any and all other damage caused by such defects.

L. Permits and Licenses - Unless otherwise stated, secure the required licenses and permits including payments of charges and fees, give required notices to public authorities, and verify permits secured or arrangements made by others affecting the work of this section.

5. MATERIALS

Materials listed in this section encompass the general items encountered. If products listed below are not used for the project being installed, they are to be omitted.

6. PIPE

A. PVC

(1) PVC Pressure Rated Pipe - Type 1220 (PVC Class 200 and 315 and PVC Schedule 40-1120.

a. Type I Grade II pressure rated pipe.
b. Materials shall meet requirements set forth in the ASTM current standards.
c. Outside diameter of pipe shall be the same size as iron pipe.
d. Pipe shall be marked at intervals not to exceed 5 feet with the following information:
Manufacturer's name, nominal pipe size, PVC type and grade (i.e. PVC 1220), S.D.R. rating class, NSF approval and commercial standard designation CS 256-63.
e. PVC pipe shall comply with standards set forth in CS 256-63.
f. PVC Type I shall not be threaded.
g. PVC fittings shall be Schedule 40 or 80, PVC Type II.
h. Solvent shall be #715 Gray NSF approved as manufactured by Industrial Polychemical Service, Gardena, California, or approved equal.
i. Caution shall be utilized in handling Type I pipe due to the possibility of cracking or splitting when dropped or handled carelessly.
j. Where called for on drawings, pipe shall be bell end, conforming to ASTMD-2672. Install concrete thrust blocks as recommended in Johns-Mansville installation guide No. TR-624, where conditions dictate.

(2) PVC High Impact Pipe - Type 2110 (PVC Schedule 40 and 80)

a. Type II Grade I High Impact Pipe.
b. Outside diameter of pipe shall be the same size as iron pipe.
c. Pipe shall be marked at intervals not to exceed 5 feet with the following information:
Manufacturer's name, nominal pipe size, PVC type and grade (i.e. PVC 2110), schedule, NSF approval and commercial standard designation CS 207-60.
d. PVC pipe shall comply with standards set forth in CS 207-60.
e. PVC schedule 40 shall not be threaded.
f. Fittings shall be PVC Schedule 40 or 80, Type II, NSF approved, as required.
g. All threaded PVC pipe shall be Schedule 80, Type 2110.
h. Solvent shall be #175 or #710 Gray, NSF approved as manufactured by Industrial Polychemical Service, Gardena, California, or approved equal.

(3) UVR - PVC - "Brownline" pipe.
Where called for - on grade pipe shall be UVR - PVC pipe anchored at 10' intervals with re-bar. All UVR - PVC pipe shall be installed per manufacturer's recommendations.

(4) When connection is plastic to metal, male adapters shall be used. The male adapter shall be hand tightened, plus one turn with a strap wrench. Joint compound shall be nonhardening sealing compound compatible to plastics. Compound must not lubricate the joint.

B. Brass Pipe

(1) Where indicated on the drawings, brass pipe shall be red brass screwed pipe conforming to Federal Specification #WW-P-351.

(2) Fittings shall be red brass conforming to federal specification WW-P-460.

C. Galvanized Pipe

(1) Where indicated on the drawings, galvanized steel pipe shall be ASA Schedule 40, mild steel screwed pipe.

(2) Fittings shall be medium galvanized screwed beaded malleable iron. Galvanized couplings may be merchant coupling.

(3) All galvanized pipe and fittings installed below grade shall be painted with two (2) coats of Koppers #50 Bitumastic and wrapped with 20 mil tape.

(4) All nondomestic galvanized pipe installed on grade shall be stenciled or identified with green tape at all connections and continuously along its length.

D. Copper Pipe and Fittings - Where indicated on the drawings, copper pipe shall be type "K" sweat soldered pipe.

7. Risers

All sprinkler heads shall have risers as shown in the detail drawings.

8. Valves

A. Gate Valves

(1) Gate valves 3" and smaller shall be 125 lb. SWP bronze gate valve with screw-in bonnet, nonrising stem and solid wedge disc.

(2) Gate valves 3" and smaller shall have threaded ends and shall be equipped with a bronze hand wheel or operating nuts.

(3) Gate valves 3" and smaller shall be similar to those manufactured by Kennedy or approved equal.

(4) All gate valves shall be installed per detailed drawings.

B. Quick Coupling Valves - Quick coupling valves shall be of manufacturer shown on the drawings or approved equal. Each quick coupler shall have a molded vinyl locking cover. Upon completion of the contract and prior to final acceptance, supply the Owner with quick coupler keys and hose ells of the quantity called for on the plans. The quick coupler keys and hose ells shall be of the same manufacturer as the coupling valve. All Quick coupling valves shall be installed per detailed drawings.

C. Remote Control Valves

(1) The electric remote control valves shall be of the type and manufacturer shown on the drawings, or approved equal, and installed per detailed drawings and manufacturer's recommendations.

(2) Valves shall be installed minimum 6" from all fixed objects and 12" apart.

D. Pressure Regulating Valves - Pressure regulating valves shall be of the type and manufacturer shown on the drawings, or approved equal, and installed per detailed drawings and manufacturer's recommendations.

E. Check Valves - Anti-drain valves shall be of heavy duty virgin PVC or brass construction with F.I.P. thread inlet and outlet. Internal parts shall be stainless steel and neoprene. Anti-drain valves shall be field adjustable against drain out from 5 to 40 feet of head. The anti-drain valve, where indicated on the plans, shall have an excess flow feature which will automatically stop the flow of water when it exceeds the GPM preset by the manufacturer. The anit-drain and excess flow valve shall be similar to the Valcon ADV-XS, Rain Bird SM-1 or approved equal. Sprinkler heads having check valves in heads will not require additional check valves.

9. VALVE BOXES

All valves, including pressure regulating valves, remote control valves and gate valves shall be installed in suitable valve boxes as shown in details. (RCV boxes shall have locking covers.)

10. CONTROLS

A. Automatic Controller - Automatic controllers shall be of the type and manufacturer shown on the drawings or approved equal and installed per manufacturer's recommendations and detailed drawings.

B. Low Voltage Control Wire - All wiring to be used for connecting the automatic controller to the electric solenoid actuated remote control valve shall be Type UF-600v,7-strand or solid copper, PVC insulation, single conductor, UL approved underground feeder cable. Each pilot or "hot" wire shall be black with the common wire being white. Field splices between the controller and electric valves are not permitted. Control wire shall be of the gauge indicated on the detailed drawings.

C. Communication Cable - Communication cable from the central computer to the field control units shall be Toro P-716-D A1 cable.

D. 110 Volt Wire to Controller - 110 volt wire shall be per local code as to type and quality. Install in conduit 24" below grade.

11. BACKFLOW PREVENTION UNITS

Backflow prevention units shall be of size and type as indicated on the drawings. All backflow prevention units shall be installed in accordance with detailed drawings and the requirements set forth by local codes and/or the County Health department.

12. IRRIGATION HEADS

A. Sprinkler heads shall be of the types and sizes with the diameter (or radius) of throw, pressure, discharge and other designations necessary to determine the types and sizes as indicated on the plans. They shall be constructed of bronze, brass, stainless steel and/or high impact plastic.

B. All heads of a particular type of function in the system shall be of the same manufacturer and shall be marked with the manufacturer's name and identification in such a position that they can be identified without being removed from the system.

13. OTHER MATERIALS

All other materials not specifically described but required for a complete and proper irrigation system installation, shall be new, first quality of their respective kinds, and subject to the approval of the Owner.

14. EXECUTION

A. Inspection

(1) Prior to all work of this section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.

(2) Verify that the irrigation system will be installed in strict accordance with all pertinent codes and regulations, the original design, the reference standard and the manufacturer's recommendations.

(3) Verify all field conditions including property lines, rights of way, tract boundaries, easements and any other legal or physical element as required for the successful completion of the project.

B. Discrepancies

(1) In the event of discrepancy, immediately notify the Contractor or his authorized representative.

(2) Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

15. FIELD MEASUREMENTS

Make all necessary measurements in the field to ensure precise fit of items in accordance with the original design.

16. TRENCHING AND BACKFILLING

A. Trenching

(1) Excavation shall be open vertical construction sufficiently wide to provide free working space around the work installed and to provide ample space for backfilling and compacting.

(2) Trenches for pipe shall be cut to required grade lines, and trench bottom shall be compacted to provide an accurate grade and uniform bearing for the full length of the pipe run.

(3) When two pipes are to be placed in the same trench, maintain a six-inch space between pipes as a minimum. No pipe shall be installed directly over another.

B. Backfilling

(1) Backfill material shall be approved soil. Unsuitable material, including clods and rocks over 2 1/2" in size, shall be removed from the premises and disposed of legally at no cost to the Owner.

(2) All Backfilling shall be done carefully and shall be properly compacted.

(3) Depth of trenches shall be sufficient to provide a minimum cover above the top of the pipe as follows:

a. 14" over non-pressure rotor pop-up lines (minimum).
b. 12" over non-pressure lateral lines (minimum).
c. 18" over 24 volt conduit and non-potable irrigation main line 3" and smaller (minimum).
d. 24" cover over pipe serving potable water to a backflow preventer and 120V conduit (minimum).
e. 30" cover over pipe crossing under paving (minimum).
f. Surplus earth remaining after backfilling shall be disposed of on the premises as directed by the Owner.

17. INSTALLATION OF PIPE

A. General

(1) The irrigation piping layout is schematic. Contractor can make minor adjustments to the system as required to avoid physical elements or conform to other site conditions. In all cases there should be no conflicts between the irrigation system, planting, and structural elements. The Contractor is responsible for maintaining coverage as indicated, prior approval of any such adjustment from the Owner and for recording of any such change.

(2) Prior to installation, pressure, meter size, size of service to meter, at each point of connection. Make final connections allowing for possible minor deviations from locations shown on plans due to site conditions. Any deviation from design criteria shall be brought to the attention of the Owner. Continuation of work shall be at Contractor's risk and expense.

(3) Verify the static pressure, meter size, size of service to meter, at each point of connection. Make final connections allowing for possible minor deviations from locations shown on plans due to site conditions. Any deviation from design criteria shall be brought to the attention of the Owner. Continuations of work shall be at Contractor's risk and expense.

B. Under Existing Pavement

(1) Pipe required under existing pavement shall be installed by jacking, boring or hydraulic driving except that no hydraulic driving will be permitted under asphaltic concrete pavement.

(2) Where cutting or breaking of existing pavement is necessary, secure permission from the Owner before cutting or breaking the pavement and then make all necessary repairs and replacements to the approval of the Owner and at no additional cost to the Owner.

C. Inspection of Pipe and Fittings - Carefully inspect all pipe and fittings before installation, removing all dirt, scale, and burrs and reaming as required; install all pipe with all markings up for visual inspection and verification.

D. PVC Pipe

(1) PVC pipe shall be installed in a manner which will provide for expansion and contraction as recommended by the pipe manufacturer. Routing is diagrammatic and shall be installed in such a manner as to conform with the details per the drawings.

(2) In joining, use only the specified or manufacturer's recommended solvent and make all joints in strict accordance with the manufacturer's recommended methods; give solvent welds at least 15 minutes set up time before moving or handling and 24 hours curing time before filling with water.

18. INSTALLATION OF EQUIPMENT

A. Automatic Controller Location and Installation

(1) Automatic controller(s) shall be installed at the location(s) shown on the drawings.

(2) The controller location is essentially diagrammatic and shall be specifically located by the Owner or his representative.

(3) All local and applicable codes shall take precedence in the furnishing and/or connecting of 110V electrical service to the controller.

(4) Adequate coverage (18" minimum) of the 24V service wire leading from the controller shall be installed from the bottom of the controller to trenches.

(5) Controllers shall be installed within vandal-resistant enclosures as called for on the drawings.

B. Control Wires

(1) All electrical equipment and wiring shall comply with local and State Codes and be installed by those skilled and in the trade. Unless the governing code specifies otherwise, low voltage control wire may be installed by the irrigation Contractor.

(2) Connecting and splicing of wire at the valves shall be made using DBY direct burial splices as manufactured by 3M Corporation or approved equal.

C. Communication Cable

(1) Communication cable shall be installed from the field control unit to the area called for on the plans.

(2) Install cable in PVC conduit and stub in valve box as indicated on the plans. Ends of cable shall be sealed with an approved water tight connectors as specified. (See Section 18-B-2 above.)

(3) Field splices are not permitted, except where tying in to cable which has been stubbed out by others. Splices shall be made using a Paige Splice Kit No. P7162D-1 and in accordance with the manufacturer's recommendations.

(4) Install all communication cable in approved PVC electrical conduit.

D. Electrical Work - All electrical work shall be installed per code requirements.

E. Quick Coupling Valves - Quick coupling valves shall be set approximately 12" from walks, curbs, header boards, or paved areas where applicable per detail drawings.

F. Valves

(1) All valves shall be installed as shown in the details and in accordance with manufacturer's recommendations.

(2) All automatic valves shall be sized as shown on plans. Gate Valves shall be line size.

(3) Install each control valve in a separate valve box with a minimum of 12" between valves and 6" from any walk or structure.

G. Valve Boxes

(1) Valve boxes installed near walks, curbs, header boards and paving shall abut those items and the top surfaces shall be flush with items listed above.

(2) All valve boxes shall be installed as shown in the details in accordance with manufacturer's recommendations.

19. TESTING AND INSPECTION

A. General

(1) Furnish all necessary testing equipment and personnel.

(2) Correct all leaks and retest until acceptance by the Owner.

B. Covering up Uninspected Work - Do not allow or cause any of the work of this section to be covered up or enclosed until it has been inspected, tested and approved by the Owner and authorized agencies. (See Section 4-D-2)

C. Flushing - Before backfilling the main line, and with all control valves in place but before lateral pipes are connected, completely flush and test the main line and repair all leaks; flush out each section of lateral pipe before irrigation heads are attached.

D. Testing

(1) Make all necessary provisions for thoroughly bleeding the line of air and debris.

(2) Before testing, fill the line with water for a period of at least 24 hours.

(3) Prior to installation of control valves, test all live water lines for leaks at a pressure of 150 PSI for a period of two hours, with all couplings exposed and with all pipe sections center loaded.

(4) Adjust remote control valves so that the most remote sprinkler heads operate at the pressure recommended by the head manufacturer. Adjust remote control valves so a uniform distribution of water is applied by the sprinkler heads to the planting area for each individual valve system.

E. Final Inspection

(1) Thoroughly clean, adjust and balance all systems.

(2) Demonstrate the entire system to the Owner, his authorized agent and/or governing agencies to show that all remote control valves are properly balanced, all heads are properly adjusted for radius and arc of coverage, and that the installed system is workable, clean and efficient.

20. OPERATIONAL AND MATERIALS MANUALS

A. Operational and Product Manuals - Prepare and deliver to the Owner, prior to approved final inspection, all required and necessary descriptive material in complete detail and sufficient quantity, operation and product manual. The manual shall describe the material installed and shall be in sufficient detail to permit operating personnel to understand, operate and maintain all equipment. Spare parts lists and related manufacturer information shall be included for each equipment item installed.

B. Each complete, bound manual shall include the following information:

(1) Index sheet stating Contractor's address and telephone number.

(2) Duration of guarantee period.

(3) List of equipment with names and addresses of local manufacturer representatives.

(4) Complete operating and maintenance instructions on all major equipment.

C. In addition to the above manuals, provide the maintenance personnel with instructions for major equipment and show written evidence to the Owner, at the conclusion of the project, that this service has been rendered.

D. INSPECTION

(1) At all times permit the Owner or his authorized agents to visit and observe the work or any part thereof. Maintain proper facilities and provide safe access for such observations to all parts of the work. Where the specifications require work to be tested, it shall not be covered up until tested or approved by the Owner and governing agencies. The Contractor shall be solely responsible for notifying the Owner and required agency (48 hours notice minimum required), where and when such work is in readiness for testing. Should any such work be covered without such test or approval, it shall, if so ordered, be uncovered at the Contractor's expense.

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HUNTER LANDSCAPE
711 S. Fee Ana Street
Placentia,California 92870
Ph: 714.986-2400
Fax: 714.986-2408

REGISTERED LANDSCAPE ARCHITECT
THOMAS K. HAYES, ASLA
Expires 1/31/2021
STATE OF CALIFORNIA

Project Name:
660 Baker Landscape Improvement
660 Baker Street
Costa Mesa, Ca.

Owner/Developer:
Dunbar
841 Apollo Street, Ste 334
El Segundo, CA 90245

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Courtyard Revision	3.25.19
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