

# TRACT 6130 - CANYON CREEK

# LANDSCAPE IMPROVEMENT PLAN FRESNO, CALIFORNIA

- SEE CIVIL ENGINEERS DRAWINGS FOR GRADING AND DRAINAGE INFORMATION NOT SHOWN IN THESE DRAWINGS
- UPON EXECUTION OF THE CONTRACT, PROVIDE THE LANDSCAPE ARCHITECT AND OWNER WITH A CRITICAL PATH SCHEDULE TO INCLUDE EACH ITEM. LEAD TIME, ORDER AND INSTALLATION DATE FOR SUBSTANTIAL COMPLETION.
- PROVIDE FOR POSITIVE DRAINAGE. NOTIFY LANDSCAPE ARCHITECT IF SITE CONDITIONS ARE OTHERWISE. MAINTAIN FLOWLINES AND DRAINAGE PATTERNS AS INDICATED ON ENGINEER'S GRADING DRAWINGS

- CHECK DIMENSIONS, FRAMING CONDITIONS AND SITE CONDITIONS BEFORE STARTING WORK. ANY DISCREPANCIES OR  ${f POSSIBLE}$  DEFICIENCIES BETWEEN THE DRAWINGS AND THE SPECIFICATIONS WITH FIELD CONDITIONS SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE LANDSCAPE ARCHITECT AND THE OWNER.

- FORMS AND ALIGNMENT OF PAVING SHALL BE REVIEWED AND APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO POURING
- FOR SUBMITTALS, SAMPLES AND SHOP DRAWINGS REQUESTED, SUBMIT IN TRIPLICATE TO LANDSCAPE ARCHITECT WITH ONE COPY TO THE OWNER UNLESS OTHERWISE SPECIFIED.
- DIMENSIONS ARE FROM OUTSIDE FACE OF THE BUILDING, PAVING AND WALLS UNLESS OTHERWISE NOTED. ANGLES ARE 90
- COORDINATE AND COOPERATE WITH CONTRACTORS OF ATTACHED. ADJOINING AND INTERFACING WORK OF OTHER TRADES.
- MATERIALS AND WORKMANSHIP, CONFORM TO LATEST UNIFORM BUILDING CODES AND APPLICABLE GOVERNING AGENCY CODES AND ORDINANCES. NO PART OF CONTRACT DOCUMENTS TO BE IN VIOLATION OF CODES. IF DISCREPANCIES EXIST NOTIFY LANDSCAPE ARCHITECT AND OWNER

### **CONSTRUCTION NOTES**

- CONCRETE, MINIMUM COMPRESSIVE STRENGTH OF 2500 P.S.I. AT TWENTY EIGHT (28) DAYS.
- CEMENT: CONFORM TO A.S.T.M. C150 AND AGGREGATE SHALL CONFORM TO A.S.T.M. C33.
- CONCRETE SLUMP: MAXIMUM SLUMP 4 INCHES, EXCEPT FOR FOUNDATIONS WHICH MAY HAVE A 5 INCH MAXIMUM SLUMP.
- REBAR AND FOOTING SIZES, IF SHOWN, ARE FOR BIDDING PURPOSES ONLY. VERIFY WITH OWNER'S STRUCTURAL OR SOILS

- PRIOR TO LAYOUT IF UNDERGROUND IMPROVEMENTS, REFER TO PLANTING PLANS FOR TREE LOCATIONS. STAKE TREES AND

- ATTENTION OF THE OWNER AND THE LANDSCAPE ARCHITECT.
- CONFORM TO LATEST UNIFORM BUILDING CODE AND APPLICABLE GOVERNING AGENCY CODES AND ORDINANCES. NO PART OF
- 13. COORDINATE AND COOPERATE WITH CONTRACTORS OF ATTACHED, ADJOINING AND INTERFACING WORK OF OTHER TRADES.







# **VICINITY MAP**

OWNER / CLIENT Bonadelle Neighborhoods 7030 N. Fruit Ave. #101 Fresno, California 93711 (559) 435-9700 Contact: John Bonadelle

LANDSCAPE ARCHITECT Landscape Development, Inc. 2202 Zeus Court Bakersfield, California 93308 (661) 295-1970

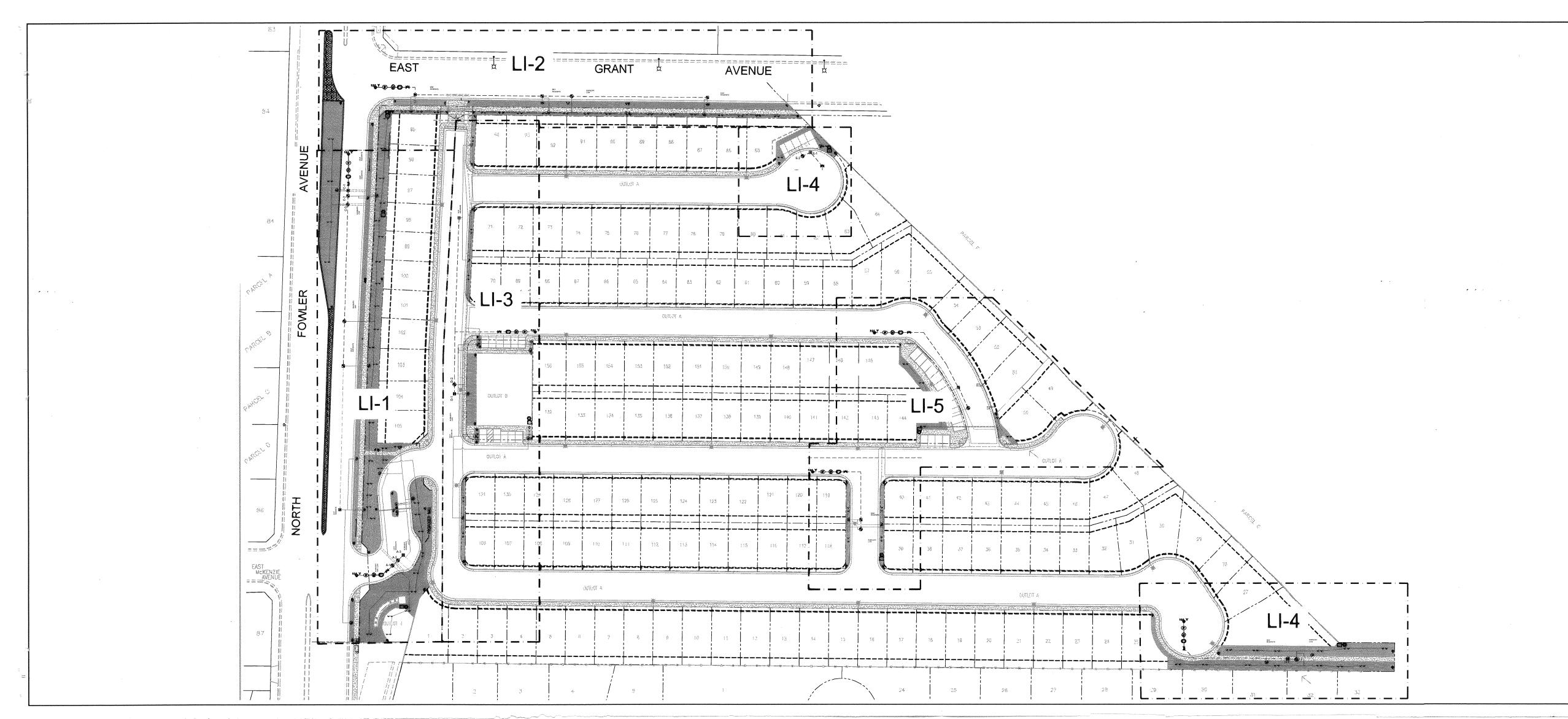
Contact: Michael McDonnell

# LANDSCAPE SHEET INDEX

DRAWING TITLE **COVER SHEET** LI-KM IRRIGATION KEY MAP LI-1 - LI-5 IRRIGATION PLAN **IRRIGATION CALCS/NOTES** LP-KM PLANTING KEY MAP PLANTING PLAN/NOTES **IRRIGATION & PLANTING DETAILS** IRRIGATION SPECIFICATIONS LS-3 PLANTING SPECIFICATIONS 23

LDI JOB #:

PW FILE NO. PROJ. ID. FUND NO.. ORG NO. DEPARTMENT OF PUBLIC WORKS **CITY OF FRESNO** 





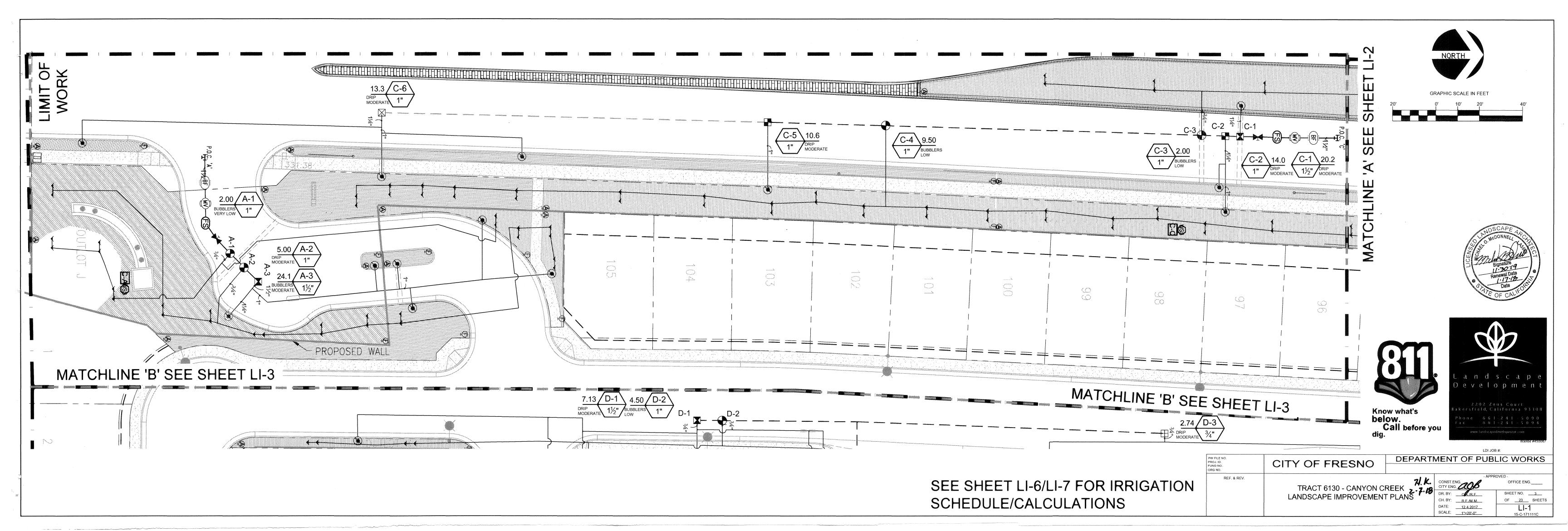


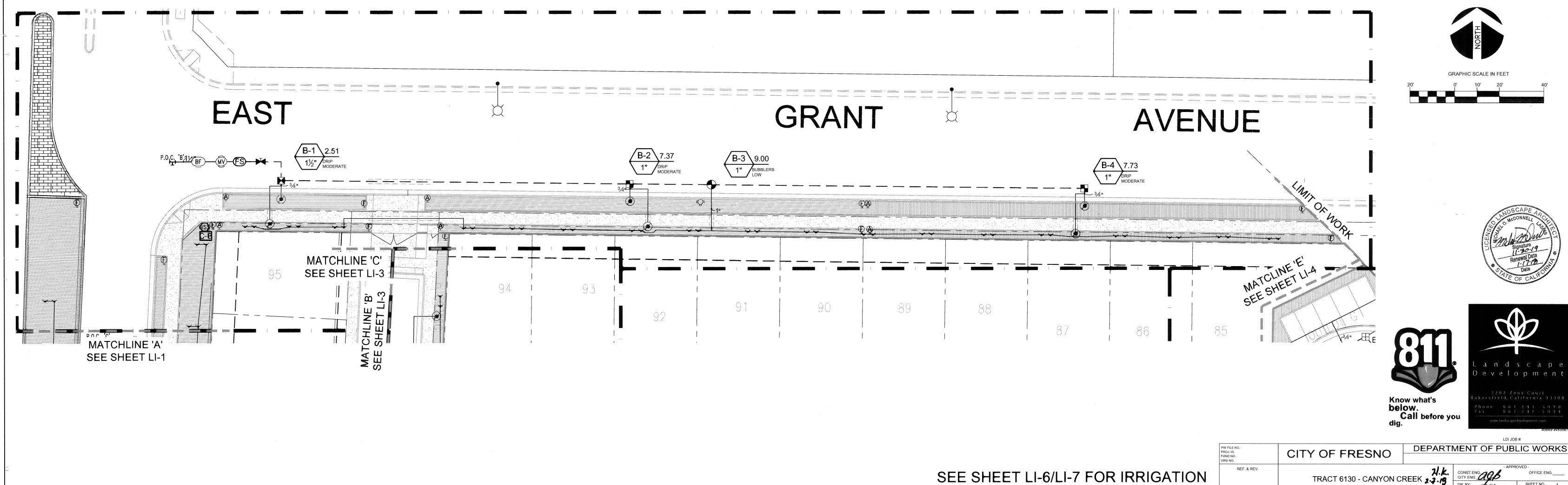




tandscape
Development
2202 Zeus Court Bakersfield, California 93308
Phone 661241-5090 Fax 661-241-5094
www.landscapedevelopment.com
license #450087
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- APPROVED -
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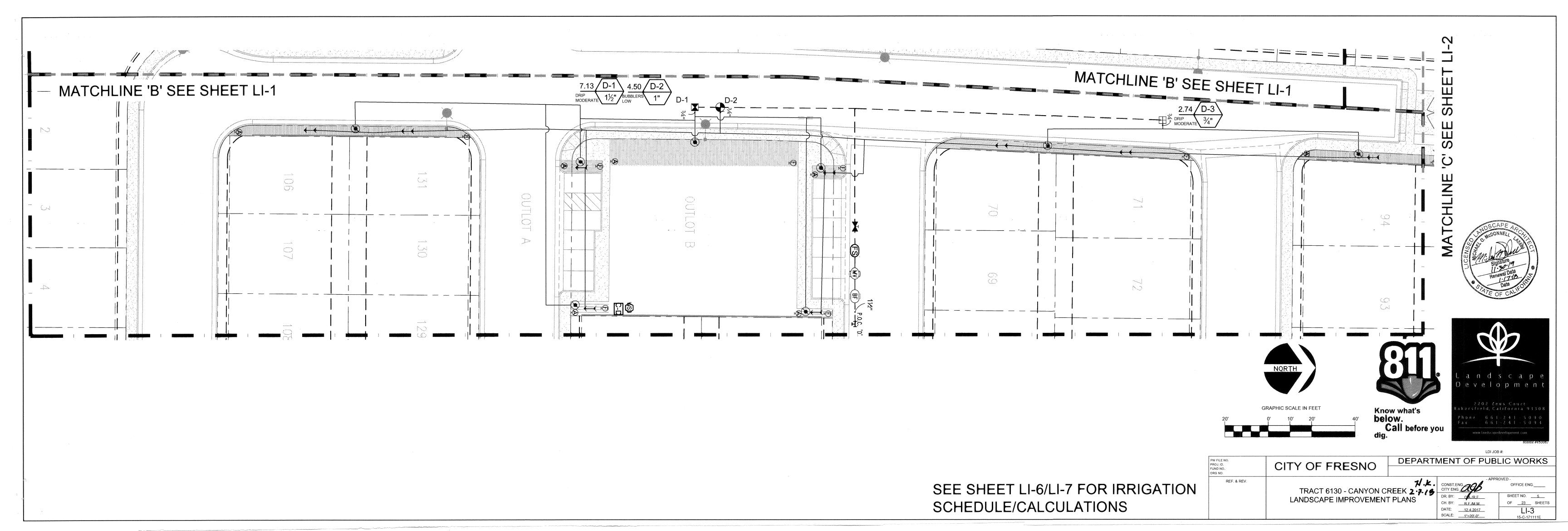
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PW FILE NO. PROJ. ID. FUND NO ORG NO.	CITY OF FRESNO	DEPART	MENT OF PUB	LIC WORKS
REF. & REV.	TRACT 6130 - CANYON C LANDSCAPE IMPROVEMEN	T.K. REEK 2.7.19 TPLANS	- APPR CONST.ENG CITY ENG.  DR. BY:  CH. BY:  R.E./M.M.  DATE:  12.4.2017  SCALE:  N.T.S.	OVED - OFFICE ENG. SHEET NO2 OF23

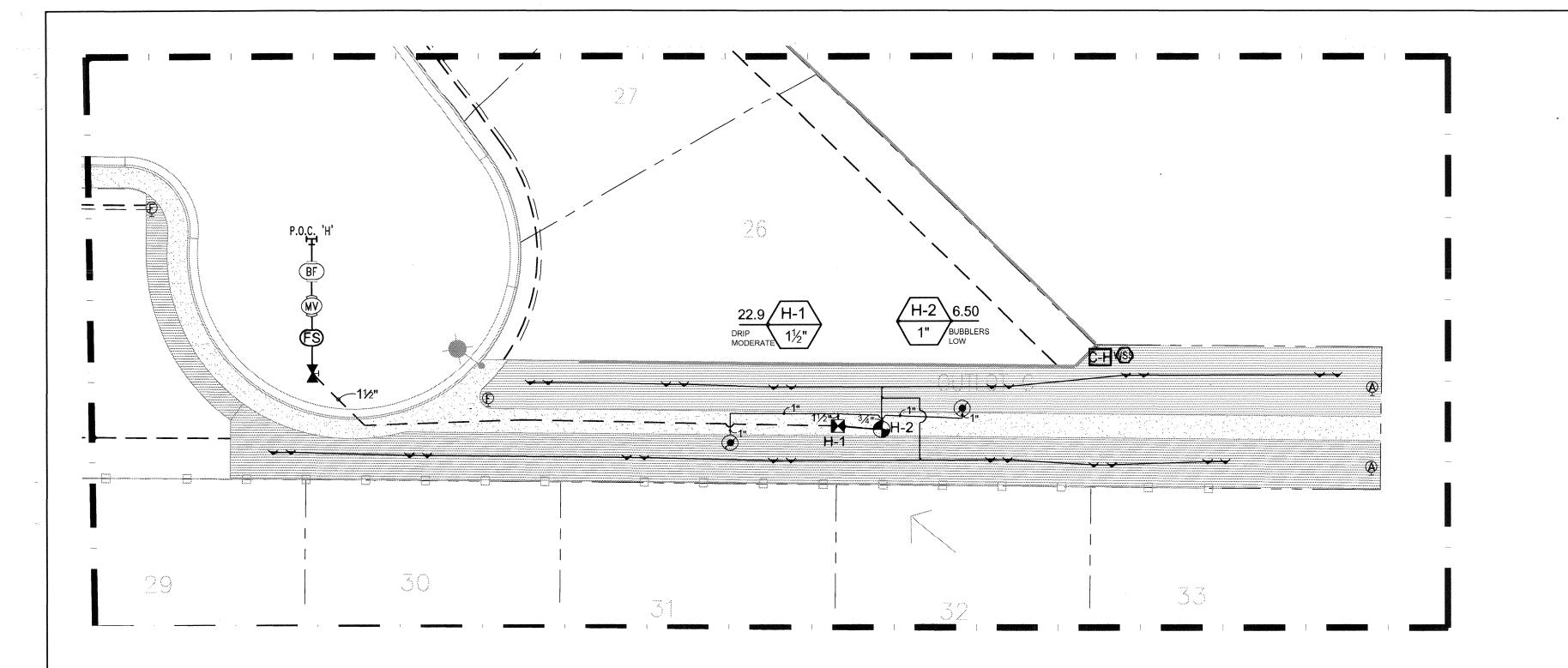


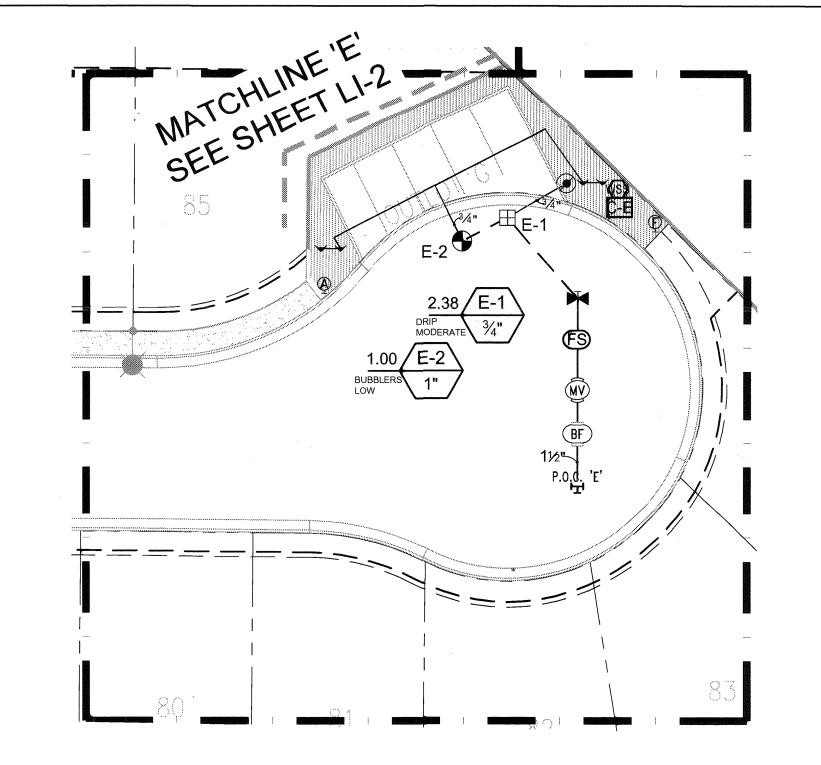


SCHEDULE/CALCULATIONS

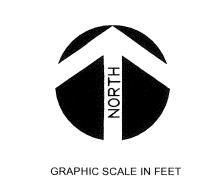
SHEET NO. \_\_4\_ OF \_\_23\_\_ SHEETS \_\_\_\_\_\_15-C-171111D



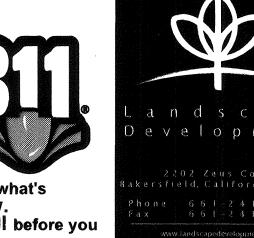












Know what's below.
Call before you

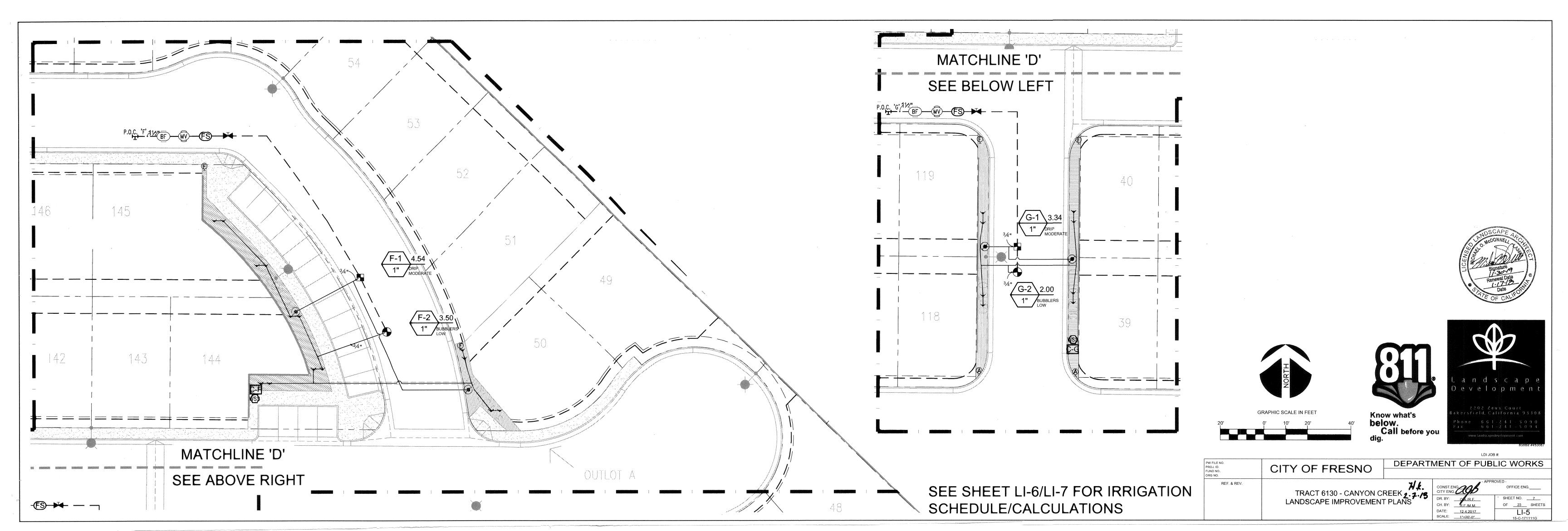
DEPARTMENT OF PUBLIC WORKS

SEE SHEET LI-6/LI-7 FOR IRRIGATION SCHEDULE/CALCULATIONS

	PROJ. ID. FUND NO ORG NO.	CITY OF FRE
<b>A</b> I	REF. & REV.	
N		TRACT 6130 -

TRACT 6130 - CANYON CREEK 2. LANDSCAPE IMPROVEMENT PLANS

-4 1	APPR	OVED -
A.K.	CONST.ENG.	OFFICE ENG
·+·/3	DR. BY: CA./R.F.	SHEET NO6
5	CH. BY: R.F./M.M.	OF <u>23</u> SH
	DATE: 12.4.2017	11-4



# IRRIGATION SCHEDULE

		********************************			·	
SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY	<u>PSI</u>	X	NIBCO T-113	8
1401 1402 1404 1408	RAIN BIRD RWS-B-C ROOT WATERING SYSTEM WITH 4.0" DIAMETER X 36.0" LONG WITH LOCKING GRATE, SEMI-RIGID MESH TUBE,	180	20		CLASS 125 BRONZE GATE SHUT OFF VALVE WITH WHEEL HANDLE, SAME SIZE AS MAINLINE PIPE DIAMETER AT VALVE LOCATION. SIZE RANGE - 1/4" - 3"	
	AND CHECK VALVE. RAIN BIRD BUBBLER OPTION AS INDICATED: 1401 0.25 GPM, 1402 0.5 GPM, 1404 1.0 GPM, 1408 2.0 GPM.			<b>(N)</b>	RAIN BIRD PESB 1" 1", 1-1/2", 2" PLASTIC INDUSTRIAL VALVES. LOW FLOW OPERATING CAPABILITY, GLOBE CONFIGURATION. WITH SCRUBBER TECHNOLOGY FOR RELIABLE PERFORMANCE IN DIRTY WATER IRRIGATION APPLICATIONS.	8
SYMBOL	MANUFACTURER/MODEL/DESCRIPTION  RAIN BIRD XCZ-100-PRF	QTY 6		BF	FEBCO 825Y 1"	8
	MEDIUM FLOW DRIP CONTROL KIT, 1" DV VALVE, 1" PRESSURE REGULATING FILTER, 40PSI PRESSURE REGULATOR. 3GPM - 15GPM.	0		C-A	REDUCED PRESSURE BACKFLOW PREVENTER  HUNTER IC-0600-PED  MODULAR CONTROLLER C STATIONS OUTPOOR MODEL	1
X	RAIN BIRD XCZ-150-PRB-COM	5			MODULAR CONTROLLER, 6 STATIONS, OUTDOOR MODEL, METAL PEDESTAL. NO MODULE REQUIRED. COMMERCIAL USE.	
	HIGH FLOW CONTROL ZONE KIT, FOR LARGE COMMERCIAL DRIP ZONES. 1-1/2" PESB VALVE WITH TWO 1" PRESSURE REGULATING (40PSI) QUICK-CHECK BASKET FILTERS. FLOW RANGE: 15-40GPM.			C-B	HUNTER IC-0600-PED MODULAR CONTROLLER, 6 STATIONS, OUTDOOR MODEL, METAL PEDESTAL. NO MODULE REQUIRED. COMMERCIAL USE.	1
	RAIN BIRD XCZ-075-PRF LOW FLOW DRIP CONTROL KIT, 3/4" LOW FLOW VALVE, 3/4" PRESSURE REGULATING RBY FILTER, AND 30PSI PRESSURE REGULATOR. 0.2GPM-5GPM.	2		C-C	HUNTER IC-0600-PED MODULAR CONTROLLER, 6 STATIONS, OUTDOOR MODEL, METAL PEDESTAL. NO MODULE REQUIRED. COMMERCIAL USE.	1
	RAIN BIRD XCZ-100-PRB-LC WIDE FLOW DRIP CONTROL KIT, FOR LIGHT COMMERCIAL USES. 1" PEB VALVE, WITH 1" PRESSURE REGULATING 40PSI BASKET FILTER. 0.3GPM TO 20GPM.	1		C-D	HUNTER IC-0600-PED MODULAR CONTROLLER, 6 STATIONS, OUTDOOR MODEL, METAL PEDESTAL. NO MODULE REQUIRED. COMMERCIAL USE.	1
•	PIPE TRANSITION POINT ABOVE GRADE PIPE TRANSITION POINT FROM PVC LATERAL TO DRIP TUBING WITH RISER TO ABOVE GRADE INSTALLATION.	34		C-E	HUNTER IC-0600-PED  MODULAR CONTROLLER, 6 STATIONS, OUTDOOR MODEL, METAL PEDESTAL. NO MODULE REQUIRED. COMMERCIAL	1
Ф	NETAFIM TL050MFV-1 AUTOMATIC FLUSH VALVE, 1/2" MALE PIPE THREAD.	33		C-F	USE.	
<b>(A)</b>	RAIN BIRD ARV050 1/2" AIR RELIEF VALVE, MADE OF QUALITY RUST-PROOF MATERIALS, WITH A 6.0" DRIP VALVE BOX (SEB 7XB EMITTER BOX). USE WITH INSTALLATION BELOW SOIL.	31			HUNTER IC-0600-PED MODULAR CONTROLLER, 6 STATIONS, OUTDOOR MODEL, METAL PEDESTAL. NO MODULE REQUIRED. COMMERCIAL USE.	1
	THE VALVE WILL ALLOW AIR TO ESCAPE THE PIPELINE, THUS PREVENTING WATER HAMMER OR BLOCKAGE.			<b>C</b> -G	HUNTER IC-0600-PED MODULAR CONTROLLER, 6 STATIONS, OUTDOOR MODEL, METAL PEDESTAL. NO MODULE REQUIRED. COMMERCIAL	1
	AREA TO RECEIVE DRIPLINE NETAFIM TLCV-06-18 (24) TECHLINE PRESSURE COMPENSATING LANDSCAPE DRIPLINE WITH CHECK VALVE. 0.6GPH EMITTERS AT 18.0" O.C. DRIPLINE LATERALS SPACED AT 24.0" APART, WITH EMITTERS OFFSET FOR TRIANGULAR PATTERN. 17MM.	40,693 S.F	· .	C-H	HUNTER IC-0600-PED MODULAR CONTROLLER, 6 STATIONS, OUTDOOR MODEL, METAL PEDESTAL. NO MODULE REQUIRED. COMMERCIAL USE.	1
SYMBOL	MANUFACTURER/MODEL/DESCRIPTION  RAIN BIRD PEB 1", 1-1/2", 2" PLASTIC INDUSTRIAL VALVES. LOW FLOW OPERATING CAPABILITY, GLOBE CONFIGURATION.	<u>QTY</u> 9		<b>(S</b> )	HUNTER WSS WIRELESS SOLAR, RAIN FREEZE SENSOR WITH OUTDOOR INTERFACE, CONNECTS TO HUNTER PCC, PRO-C, AND I-CORE CONTROLLERS, INSTALL AS NOTED. INCLUDES 10 YEAR LITHIUM BATTERY AND RUBBER MODULE COVER, AND GUTTER MOUNT BRACKET.	8
	S. L. CTING SALABIETT, SEGDE SOM TOOTATION.				WODDLE GOVEN, AND GUTTEN WOUNT DRACKET.	

FS	HUNTER HFS-100 FLOW SENSOR FOR USE WITH ACC CONTROLLER, 1" SCHEDULE 40 SENSOR BODY, 24 VAC, 2 AMP.	8
P.O.C. 'B'	POINT OF CONNECTION 1-1/2"	1
P.O.C., 'C'	POINT OF CONNECTION 1"	1
P.O.C. 'D'	POINT OF CONNECTION 1-1/2"	1
P.O.C. 'E'	POINT OF CONNECTION 1"	1
P.O.C. 'F'	POINT OF CONNECTION 1"	1
P.O.C. 'G' P.O.C. 'H'	POINT OF CONNECTION 1"	1
ļ <b>T</b> i	POINT OF CONNECTION 1"	1
P.O.C. 'A'	POINT OF CONNECTION 1-1/2"	1
	IRRIGATION LATERAL LINE: PVC SCHEDULE 40	4,915 L.F.
	IRRIGATION MAINLINE: PVC SCHEDULE 40	1,784 L.F.
	PIPE SLEEVE: PVC SCHEDULE 40  'alve Callout	224.3 L.F.





LDI JOB #:

PW FILE NO. PROJ. ID. FUND NO ORG NO.	CITY OF FRESNO	DEPARTMENT OF PUBLIC W				
REF. & REV.	TRACT 6130 - CANYON C LANDSCAPE IMPROVEMEN	7.K. REEK 2.7.13 T PLANS	CONST.ENG. CITY ENG.  DR. BY: CH. BY: RE./M.M. DATE: 12.4.2017	OVED - OFFICE ENG  SHEET NO 8 OF 23 SHEET: LI-6		
			SCALE: N/A	15-C-171111H		

CRITICAL ANALYSIS		CRITICAL ANALYSIS		CRITICAL AN	ALYSIS	CRITICAL ANALYSIS		
Generated:	2017-10-11 13:51	P.O.C. NUMBER: 03 Water Source Information:		P.O.C. NUMBER: 05 Water Source Information:		P.O.C. NUMBER: 07 Water Source Information:		
P.O.C. NUMBER: 01 Water Source Information:		FLOW AVAILABLE Point of Connection Size:	1"	FLOW AVAILABLE Point of Connection Size:	1"	FLOW AVAILABLE Point of Connection Size:	1"	
FLOW AVAILABLE Point of Connection Size: Flow Available:	1-1/2" 47.66 gpm	Flow Available: PRESSURE AVAILABLE	20.24 gpm	Flow Available: PRESSURE AVAILABLE	20.24 gpm	Flow Available: PRESSURE AVAILABLE	20.24 gpm	
PRESSURE AVAILABLE Static Pressure at POC:	60.00 psi	Static Pressure at POC: Pressure Available:	60.00 psi 60.00 psi	Static Pressure at POC: Pressure Available:	60.00 psi 60.00 psi	Static Pressure at POC: Pressure Available:	60.00 psi 60.00 psi	
Pressure Available: DESIGN ANALYSIS	60.00 psi	DESIGN ANALYSIS Maximum Station Flow: Flow Available at POC:	20.22 gpm 20.24 gpm	DESIGN ANALYSIS Maximum Station Flow: Flow Available at POC:	2.38 gpm 20.24 gpm	DESIGN ANALYSIS Maximum Station Flow: Flow Available at POC:	3.34 gpm 20.24 gpm	
Maximum Station Flow: Flow Available at POC:	24.14 gpm 47.66 gpm	Residual Flow Available:	0.02 gpm	Residual Flow Available:	17.86 gpm	Residual Flow Available:	16.90 gpm	
Residual Flow Available: Critical Station:	23.52 gpm A-2	Critical Station: Design Pressure: Friction Loss:	C-6 20.00 psi 1.96 psi	Critical Station: Design Pressure: Friction Loss:	E-1 20.00 psi 0.08 psi	Critical Station: Design Pressure: Friction Loss:	G-1 20.00 psi 0.15 psi	
Design Pressure: Friction Loss: Fittings Loss:	20.00 psi 1.92 psi 0.19 psi	Fittings Loss: Elevation Loss: Loss through Valve:	0.20 psi 0.00 psi 13.27 psi	Fittings Loss: Elevation Loss: Loss through Valve:	0.01 psi 0.00 psi 7.48 psi	Fittings Loss: Elevation Loss: Loss through Valve:	0.01 psi 0.00 psi 3.10 psi	
Elevation Loss: Loss through Valve: Pressure Req. at Critical Station:	0.00 psi 9.99 psi 32.11 psi	Pressure Req. at Critical Station: Loss for Fittings: Loss for Main Line:	35.43 psi 0.23 psi 2.34 psi	Pressure Req. at Critical Station: Loss for Fittings: Loss for Main Line:	27.58 psi 0.00 psi 0.01 psi	Pressure Req. at Critical Station: Loss for Fittings: Loss for Main Line:	23.27 psi 0.00 psi	
Loss for Fittings: Loss for Main Line:	0.11 psi 1.08 psi	Loss for POC to Valve Elevation: Loss for Backflow:	0.00 psi 11.74 psi	Loss for POC to Valve Elevation: Loss for Backflow:	0.00 psi 11.80 psi	Loss for POC to Valve Elevation: Loss for Backflow:	0.05 psi 0.00 psi 11.80 psi	
Loss for POC to Valve Elevation: Loss for Backflow: Loss for Master Valve:	0.00 psi 10.70 psi 4.02 psi	Loss for Master Valve: Critical Station Pressure at POC: Pressure Available:	2.16 psi 51.90 psi 60.00 psi	Loss for Master Valve: Critical Station Pressure at POC: Pressure Available:	1.44 psi 40.83 psi 60.00 psi	Loss for Master Valve: Critical Station Pressure at POC: Pressure Available:	1.53 psi 36.65 psi 60.00 psi	
Critical Station Pressure at POC: Pressure Available: Residual Pressure Available:	48.02 psi 60.00 psi 11.98 psi	Residual Pressure Available:	8.10 psi	Residual Pressure Available:	19.17 psi	Residual Pressure Available:	23.35 psi	
	, , , , , , , , , , , , , , , , , , ,	P.O.C. NUMBER: 04 Water Source Information:		P.O.C. NUMBER: 06 Water Source Information:		P.O.C. NUMBER: 08 Water Source Information:		
P.O.C. NUMBER: 02 Water Source Information:		FLOW AVAILABLE Point of Connection Size:	1-1/2"	FLOW AVAILABLE Point of Connection Size:	1"	FLOW AVAILABLE Point of Connection Size:	1"	
FLOW AVAILABLE Point of Connection Size: Flow Available:	1-1/2" 47.66 gpm	Flow Available: PRESSURE AVAILABLE	47.66 gpm	Flow Available: PRESSURE AVAILABLE	20.24 gpm	Flow Available: PRESSURE AVAILABLE	20.24 gpm	
PRESSURE AVAILABLE Static Pressure at POC:	60.00 psi	Static Pressure at POC: Pressure Available:	60.00 psi 60.00 psi	Static Pressure at POC: Pressure Available:	60.00 psi 60.00 psi	Static Pressure at POC: Pressure Available:	60.00 psi 60.00 psi	
Pressure Available: DESIGN ANALYSIS	60.00 psi	DESIGN ANALYSIS Maximum Station Flow: Flow Available at POC:	7.13 gpm 47.66 gpm	DESIGN ANALYSIS Maximum Station Flow: Flow Available at POC:	4.54 gpm 20.24 gpm	DESIGN ANALYSIS Maximum Station Flow: Flow Available at POC:	22.88 gpm _20.24 gpm	
Maximum Station Flow: Flow Available at POC: Residual Flow Available:	9.00 gpm 47.66 gpm 38.66 gpm	Residual Flow Available:  Critical Station:	40.53 gpm	Residual Flow Available:  Critical Station:	15.70 gpm	Residual Flow Available:  Critical Station:	-2.64 gpm	
Critical Station:	B-4	Design Pressure: Friction Loss:	20.00 psi 0.24 psi	Design Pressure: Friction Loss:	20.00 psi 0.43 psi	Design Pressure: Friction Loss:	20.00 psi 1.42 psi	
Design Pressure: Friction Loss: Fittings Loss:	20.00 psi 0.31 psi 0.03 psi	Fittings Loss: Elevation Loss: Loss through Valve:	0.02 psi 0.00 psi 7.84 psi	Fittings Loss: Elevation Loss: Loss through Valve:	0.04 psi 0.00 psi 3.83 psi	Fittings Loss: Elevation Loss: Loss through Valve:	0.14 psi 0.00 psi 9.69 psi	
Elevation Loss: Loss through Valve: Pressure Reg. at Critical Station:	0.00 psi 6.50 psi 26.85 psi	Pressure Req. at Critical Station: Loss for Fittings: Loss for Main Line:	28.10 psi 0.01 psi 0.07 psi	Pressure Req. at Critical Station: Loss for Fittings: Loss for Main Line:	24.30 psi 0.01 psi 0.10 psi	Pressure Req. at Critical Station: Loss for Fittings: Loss for Main Line:	31.26 psi 0.24 psi 2.42 psi	
Loss for Fittings: Loss for Main Line:	0.08 psi 0.82 psi	Loss for POC to Valve Elevation: Loss for Backflow:	0.00 psi 11.80 psi	Loss for POC to Valve Elevation: Loss for Backflow:	0.00 psi 11.80 psi	Loss for POC to Valve Elevation: Loss for Backflow:	0.00 psi 10.85 psi	
Loss for POC to Valve Elevation: Loss for Backflow: Loss for Master Valve:	0.00 psi 12.13 psi 1.75 psi	Loss for Master Valve: Critical Station Pressure at POC: Pressure Available:	1.47 psi 41.45 psi 60.00 psi	Loss for Master Valve: Critical Station Pressure at POC: Pressure Available:	1.65 psi 37.86 psi 60.00 psi	Loss for Master Valve: Critical Station Pressure at POC: Pressure Available:	3.68 psi 48.45 psi 60.00 psi	
Critical Station Pressure at POC: Pressure Available: Residual Pressure Available:	41.63 psi 60.00 psi 18.37 psi	Residual Pressure Available:	18.55 psi	Residual Pressure Available:	22.14 psi	Residual Pressure Available:	11.55 psi	

#### **VALVE LOCATION NOTE:**

ELECTRIC CONTROL VALVES AND ISOLATION VALVE LOCATIONS ON THIS DRAWING ARE APPROXIMATE. THE LANDSCAPE CONTRACTOR SHALL STAKE OUT EACH ELECTRICAL CONTROL VALVE AND ISOLATION VALVE LOCATION FOR REVIEW AND APPROVAL BY OWNER PRIOR TO INSTALLATION OF ALL VALVES. FINAL LOCATION AND EXACT POSITIONING FOR ELECTRIC CONTROL VALVES AND ISOLATION VALVES SHALL BE DETERMINED BY THE OWNER. MINOR MODIFICATIONS OF ELECTRIC CONTROL VALVES AND ISOLATION VALVE LOCATIONS AS REQUESTED BY THE OWNER SHALL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER FAILURE TO OBTAIN OWNER'S APPROVAL PRIOR TO THE INSTALLATION SHALL CAUSE THE CONTRACTOR TO MAKE OWNER DIRECTED REVISIONS AT NO ADDITIONAL COST TO THE OWNER. IN GENERAL, UNLESS OTHERWISE DIRECTED BY OWNER, ALL VALVES SHALL BE INSTALLED THREE FEET FROM EDGE OF HARDSCAPE, WALK OR **CURB IN SHRUB PLANTING AREAS** 

#### NOTES:

MAINLINE SHOWN WITHIN PAVING FOR CLARITY ONLY, ACTUAL MAINLINE LOCATION TO BE A MINIMUM OF 18" OFF ADJACENT HARDSCAPE AND OTHER OBSTACLES TYP.

ALL LATERAL LINES WITH GREATER THAN FIVE FEET OF ELEVATION CHANGE SHALL HAVE THE KING BROS. MOD NO. KSC-(XXX)-S (APPROPRIATE LINE SIZE) SWING CHECK VALVE INSTALLED AT EVERY FIVE (5) FEET OF ELEVATION CHANGE MINIMUM. CONTRACTOR SHALL VERIFY ALL SWING CHECK VALVE LOCATIONS WITH OWNER'S AUTHORIZED REPRESENTATIVE PRIOR TO COMMENCING WORK.

ALL RCV'S CONTROLLING IRRIGATION HEADS ON SLOPE SHALL BE INSTALLED WITH A LINE SIZED KING PROS. MOD. NO. KSC-(XXX)-S (APPROPRIATE LINE SIZE) SWING CHECK VALVE. INSTALL SWING CHECK VALVE DIRECTLY DOWN STREAM OF THE RCV TO PREVENT DRAINAGE OF WATER IN PVC LATERAL INTO VALVE BOX DURING RCV MAINTENANCE.

IRRIGATION SLEEVES SHOWN FOR MAJOR STREET, DRIVEWAY AND HARDSCAPE CROSSINGS FOR CLARITY ONLY CONTRACTOR SHALL INSTALL SLEEVING BELOW ALL PAVING, HARDSCAPE, ETC. AND AS DIRECTED BY OWNER'S AUTHORIZED REPRESENTATIVE.

ALL PIPING, MAINLINE AND LATERAL. AND WIRE SHALL BE SLEEVED UNDER PAVING. ALL SLEEVES TO BE MINIMUN 2X DIAMETER OF IRRIGATION PIPE SLEEVES. ALL MAINLINE SHALL BE ACCOMPANIED WITH A MINIMUM 2-INCH DIAMETER WIRE SLEEVE. SLEEVING TO EXTEND MINIMUM 12 INCHES BEYOND PAVING.

INSTALL NO. 14 POLYETHYLENE COATED COPPER TRACER WIRE WITH ALL NON-METALLIC IRRIGATION PIPE SLEEVES, PAIGE P7079D, CONTRACTOR SHALL INSTALL TRACER WIRE ON TOP OF PIPE SLEEVING, AND SHALL BE COVERED WITH T. CHRISTY "CAUTION TAPE - IRRIGATION MAINLINE BELOW". THE WIRE SHALL BE INSTALLED INTO A 6" GRAY LOCKABLE VALVE BOX AT THE ENDS OF SLEEVES. EACH WIRE SHALL BE MARKED WITH A T. CHRISTY CUSTOM I.D. TAG EXPLAINGING THE WIRE IMPORTANCE, ALONG WITH A 3M-DBR WIRE CONNECT ON EACH END OF THE WIRE.

BUBBLERS AND LATERAL LINES ARE SHOWN WITHIN PAVING AND BUILDINGS FOR CLARITY ONLY, ACTUAL LOCATION TO BE WITHIN PLANTER. BUBBLERS SHALL BE ALIGNED WITH TREES AND AS DIRECTED BY OWNER'S AUTHORIZED REPRESENTATIVE. CONFIRM ALL LAYOUT IN FIELD WITH OWNER'S AUTHORIZED REPRESENTATIVE PRIOR TO COMMENCING WORK.

#### **WATER PRESSURE NOTE:**

CONTRACTOR SHALL VERIFY P.O.C. STATIC PRESSURE IN FIELD PRIOR TO BEGINNING ANY WORK. NOTIFY LANDSCAPE ARCHITECT FOR ANY DISCREPANCIES NOT SIMILAR TO STATIC PRESSURE GIVEN BY WATER PURVEYOR.

## **PSI: 50 PSI**

CONTRACTOR TO VERIFY STATIC PRESSURE PRIOR TO COMMENCEMENT OF CONSTRUCTION, NOTIFY LANDSCAPE ARCHITECT OF ANY DISCREPANCIES.

ALL TURF & SHRUB SPRAY, ROTARY, ROTORS & BUBBLER HEADS SHALL BE PLACED 2'-0" FROM IMPERVIOUS SURFACE PER AB 1881 GUIDELINES

#### NOTE A:

POINT OF CONNECTION A, B & D SHALL BE A 1-1/2" DOMESTIC WATER MÉTÉR WITH A 1-1/2" SERVICE LINE. POINT OF CONNECTION C, E, F, G & H SHALL BE A 1" DOMESTIC WATER METER WITH A 1-1/2" SERVICE LINE. VERIFY THE ACTUAL LOCATION, SIZE AND WATER PRESSURE IN THE FIELD PRIOR TO STARTING WORK. IF ANY OF THE POC INFORMATION SHOWN ON THESE DRAWING IS FOUND TO BE DIFFERENT THAN THE ACTUAL POC INFORMATION GATHERED IN THE FIELD IMMEDIATELY NOTIFY THE LANDSCAPE ARCHITECT. SHOULD THE CONTRACTOR FAIL TO VERIFY THE POC INFORMATION ANY CHANGES REQUIRED BY LOW PRESSURE OR VOLUME SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

STATIC WATER PRESSURE	60 PSI
DESIGN WATER PRESSURE	20 PSI
MAXIMUM SYSTEM DEMAND	24.14 GF
RESIDUAL PRESSURE	8.10 PSI

CONTROLLER 'C-A, B, C, D, E, F, G & H' SHALL BE A HUNTER IC-0600, 6 STATION CONTROLLER ASSEMBLY INSTALLED AS AN OUTDOOR PEDESTAL AS PART OF CONTROLLER ASSEMBLY. TOTAL STATIONS USED: 'C-A': 3. 'C-B': 4. 'C-C': 6. 'C-D': 3 'C-E': 2, 'C-F': 2, 'C-G': 2, 'C-H': 2 FINAL LOCATION OF CONTROLLERS AND ELECTRICAL P.O.C SHALL BE CONFIRMED WITH OWNER'S AUTHORIZED REPRESENTATIVE PRIOR TO

## NOTE:

COMMENCING WORK.

THIS DESIGN IS DIAGRAMMATIC. ALL EQUIPMENT SHOWN IN PAVED AREAS IS FOR DESIGN CLARITY ONLY AND IS TO INSTALLED WITHIN PLANTING AREAS.

I AGREE TO COMPLY WITH THE REQUIREMENTS OF THE WATER EFFICIENT LANDSCAPE ORDINANCE AND SUBMIT A COMPLETE LANDSCAPE DOCUMENTATION PACKAGE. (AB 1881 SEC. 492.3).

MICHAEL MCDONNELL, LANDSCAPE ARCHITECT

evelopmen 2202 Zeus Court one 661241509 x 661241509

PW FILE NO. PROJ. ID.	CITY OF FRESNO	DEPARTI	MENT OF PUBLIC WORKS
FUND NO ORG NO.	CITTOFFRESNO		
REF & REV		ما ام	APPROVED -

DATE

CH. BY: R.F./M.M.

HYDROZONE INFORMATION TABLE

6,897

6.537

41 413

0.1449%

16.6542%

1.7313%

6.8167%

0.1304%

5.3341%

13.9473%

9.6926%

0.0580%

0.2753%

7.3383%

3.1686%

3.4071%

1304% .8883% 1.6420%

0.0290%

3.1343%

0.1014%

2.3012% 0.0580%

15.7849%

0.1739%

Irrigation Method

S = Spray

R = Rotor

D = Drip

O = Other

B = Bubbler

MS = Micro Sprav

HYDROZONE\* ZONE OR IRRIGATION AREA (Sq. Ft) % OF LANDSCAPE AREA

VALVE METHOD

A-2

A-3

H-2

HW = High Water Use Plants

LW = Low Water Use Plants

MW = Medium Water Use Plants

LW

MW

MW

DATE: 12.4.2017

OF 23 SHEETS LI-7

TRACT 6130 - CANYON CREEK 2.7.18 LANDSCAPE IMPROVEMENT PLANS

Annual Eto (inches/yr) → 54.3

Estimated Irrigation Hydrozone or Irrigation Plant Factor (PF) Efficiency ETAF (PF/IE) ETAF x Area | Total Water Planting Method Area (sqft.) Description Regular Landscape Areas 0.09 Drip 0.81 0.1 24 A-1 0.81 0.09 Very Low Drip 0.81 0.5 6,897 0.4 Mod./Ave. Drip SUBTOTAL → 6,981 3,415 Estimated Total Water Use (ETWU) → 114,978

**ETAF Calculations** Regular Landscape Areas Total ETAF x Area 3,415 6,981 Total Area 0.49 Average ETAF All Landscape Areas 3,415 Total ETAF x Area 6,981 Total Area

Sitewide ETAF

ETWU meets MAWA requirement. Average ETAF meets requirement for this site type. Calculator developed July 27, 2015. This calculator is for estimating purposes only. Hunter assumes no liability for use of this calculator.

Maximum Allowed Water Allowance (MAWA) → 129,262

Site Information

Site Name → Tract 6130 LMD P.O.C. 'B' Site Type → Residential Annual Eto (inches/yr) → 54.3

ი 49

Hydrozone or Planting Description	Plant Factor (PF)		Irrigation Method	Irrigation Efficiency (IE)	ETAF (PF/IE)	Hydrozone Area (sqft.)	ETAF x Area	Estimated Total Water Use (gal./yr.)
Regular Landsca	ape Areas							
B-1	0.4	Mod./Ave.	Drip	0.81	0.5	717	354	11,920
B-2	0.4	Mod./Ave.	Drip	0.81	0.5	2,823	1,394	46,933
B-3	0.2	Low	Drip	0.81	0.2	54	13	449
B-4	0.4	Mod./Ave.	Drip	0.81	0.5	2,209	1,091	36,725
					SUBTOTAL →	5,803	2,852	96,027
Estimated Total Water Use (ETWU) →							96,027	
Maximum Allowed Water Allowance (MAWA) →								107,450

**ETAF Calculations** Regular Landscape Areas Total ETAF x Area 2,852 5,803 **Total Area** 0.49 Average ETAF All Landscape Areas 2,852 Total ETAF x Area 5.803 Total Area Sitewide ETAF N 49

ETWU meets MAWA requirement. Average ETAF meets requirement for this site type.

Calculator developed July 27, 2015. This calculator is for estimating purposes only. Hunter assumes no liability for use of this calculator. Site Information

Site Name → Tract 6130 LMD P.O.C. 'C' Site Type → Residential

Annual Eto (inches/yr) → 54.3

Hydrozone or Irrigation Estimated Efficiency Plant Factor (PF) ETAF (PF/IE) ETAF x Area | Total Wate Planting Method Description Regular Landscape Areas C-1 0.4 Mod./Ave. Drip 0.81 0.5 5,776 2,852 96,027 4,014 0.5 1,982 66,733 C-2 0.4 Mod./Ave. Drip 0.81 C-3 0.2 Low Drip 0.81 0.2 24 6 C-4 0.81 0.2 0.2 114 28 Drip Low 50,524 C-5 0.4 Mod./Ave. Drip 0.81 0.5 3.039 1,501 63,12 C-6 0.4 0.81 0.5 3,797 1,875 Mod./Ave. Drip 8,244 277,557 16,764 SUBTOTAL → Estimated Total Water Use (ETWU) → 277,557

**ETAF Calculations** Regular Landscape Areas 8,244 Total ETAF x Area 16,764 **Total Area** 0.49 Average ETAF

All Landscape Areas 8,244 Total ETAF x Area 16,764 Total Area 0.49 Sitewide ETAF

ETWU meets MAWA requirement. Average ETAF meets requirement for this site type. Calculator developed July 27, 2015. This calculator is for estimating purposes only. Hunter assumes no liability for use of this calculator.

Maximum Allowed Water Allowance (MAWA) → 310,407

Site Information Site Name → Tract 6130 LMD P.O.C. 'D' Site Type → Residential Annual Eto (inches/yr) → 54.3

Hydrozone or Planting Description	Plant Factor (PF)		Irrigation Method	Irrigation Efficiency (IE)	ETAF (PF/IE)	Hydrozone Area (sqft.)	ETAF x Area	Estimated Total Water Use (gal./yr.)		
Regular Landscape Areas										
D-1	0.4	Mod./Ave.	Drip	0.81	0.5	1,411	697	23,458		
D-2	0.2	Low	Drip	0.81	0.2	54	13	449		
D-3	0.4	Mod./Ave.	Drip	0.81	0.5	782	386	13,001		
					SUBTOTAL →	2,247	1,096	36,908		
					Estimated	Total Water L	Jse (ETWU) →	36,908		
								41.606		

ETAF Calculations Regular Landscape Areas Total ETAF x Area 1,096 2,247 **Total Area** Average ETAF 0.49 All Landscape Areas 1,096 Total ETAF x Area 2,247 Total Area Sitewide ETAF 0.49

Notes: ETWU meets MAWA requirement. Average ETAF meets requirement for this site type. Calculator developed July 27, 2015. This calculator is for estimating purposes only. Hunter assumes no liability for use of this calculator. Site Information Site Name → Tract 6130 LMD P.O.C. 'E' **Site Type** → Residential Annual Eto (inches/yr) → 54.3

Hydrozone or Planting Description	Plant I	Factor (PF)	Irrigation Method	Irrigation Efficiency (IE)	ETAF (PF/IE)	Hydrozone Area (sqft.)	ETAF x Area	Estimated Total Water Use (gal./yr.)
Regular Landsc	ape Areas							•
E-1	0.4	Mod./Ave.	Drip	0.81	0.5	680	336	11,305
E-2	0.2	Low	Drip	0.81	0.2	12	3	100
•					SUBTOTAL →	692	339	11,405
					Estimated	Total Water U	se (ETWU) →	11,405
				Maxi	mum Allowed V	Vater Allowan	ce (MAWA) →	12,813

**ETAF Calculations** Regular Landscape Areas 339 Total ETAF x Area 692 Total Area Average ETAF 0.49 All Landscape Areas 339 Total ETAF x Area 692 Total Area 0.49 Sitewide ETAF

Average ETAF meets requirement for this site type. Calculator developed July 27, 2015. This calculator is for estimating purposes only. Hunter assumes no liability for use of this calculator.

ETWU meets MAWA requirement.

Site Information Site Name → Tract 6130 LMD P.O.C. 'F' **Site Type** → Residential Annual Eto (inches/yr) → 54.3

Hydrozone or Planting Description	Plant F	actor (PF)	Irrigation Method	Irrigation Efficiency (IE)	ETAF (PF/IE)	Hydrozone Area (sqft.)	ETAF x Area	Estimated Total Water Use (gal./yr.)
Regular Landsca	pe Areas							
F-1	0.4	Mod./Ave.	Drip	0.81	0.5	1,298	641	21,579
F-2	0.2	Low	Drip	0.81	0.2	42	10	349
					SUBTOTAL →	1,340	651	21,929
					Estimated	Total Water L	se (ETWU) →	21,929
				Maxii	mum Allowed V	Nater Allowan	ce (MAWA) →	24,812

**ETAF Calculations** Regular Landscape Areas Total ETAF x Area 651 1,340 Total Area 0.49 Average ETAF All Landscape Areas Total ETAF x Area 651 1,340 **Total Area** 0.49 Sitewide ETAF

ETWU meets MAWA requirement. Average ETAF meets requirement for this site type. Calculator developed July 27, 2015. This calculator is for estimating purposes only. Hunter assumes no liability for use of this calculator. Hydrozone or Irrigation Estimated Irrigation Planting Plant Factor (PF) Efficiency ETAF (PF/IE) ETAF x Area | Total Water Method Area (sqft.) Description Use (gal./yr.) Regular Landscape Areas 0.4 G-1 Mod./Ave. Drip 0.81 0.5 953 471 15,844 G-2 0.2 0.81 Low Drip 0.2 977 SUBTOTAL → 477 16,043 16,043 Estimated Total Water Use (ETWU) →

Site Name → Tract 6130 LMD P.O.C. 'G'

Site Type → Residential

Annual Eto (inches/yr) → 54.3

**ETAF Calculations** Regular Landscape Areas Total ETAF x Area 477 977 Total Area 0.49 Average ETAF All Landscape Areas Total ETAF x Area 477 Total Area 977 0.49 Sitewide ETAF

Site Information

ETWU meets MAWA requirement. Average ETAF meets requirement for this site type. Calculator developed July 27, 2015. This calculator is for estimating purposes only. Hunter assumes no liability for use of this calculator.

Maximum Allowed Water Allowance (MAWA) → 18,090

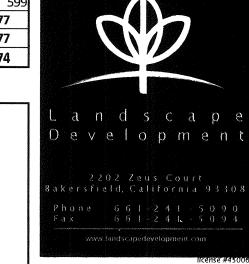
Site Information Site Name → Tract 6130 LMD P.O.C. 'H' Site Type → Residential Annual Eto (inches/yr) → 54.3

REF. & REV.

ydrozone or Planting Description		actor (PF)	Irrigation Method	Irrigation Efficiency (IE)	ETAF (PF/IE)	Hydrozone Area (sqft.)	ETAF x Area	Estimated Total Water Use (gal./yr.)
egular Lands	cape Areas							
H-1	0.4	Mod./Ave.	Drip	0.81	0.5	6,537	3,228	108,679
H-2	0.2	Low	Drip	0.81	0.2	72	18	599
					SUBTOTAL →	6,609	3,246	109,277
					Estimated	Total Water U	se (ETWU) →	109,277
				Maxin	num Allowed V	Nater Allowan	ce (MAWA) →	122.374

**ETAF Calculations** Regular Landscape Areas Total ETAF x Area 3,246 Total Area 6.609 0.49 Average ETAF All Landscape Areas Total ETAF x Area 3,246 Total Area 6.609 0.49 Sitewide ETAF PW FILE NO. PROJ. ID. FUND NO.. ORG NO.

ETWU meets MAWA requirement. Average ETAF meets requirement for this site type. Calculator developed July 27, 2015. This calculator is for estimating purposes only. Hunter assumes no liability for use of this calculator.

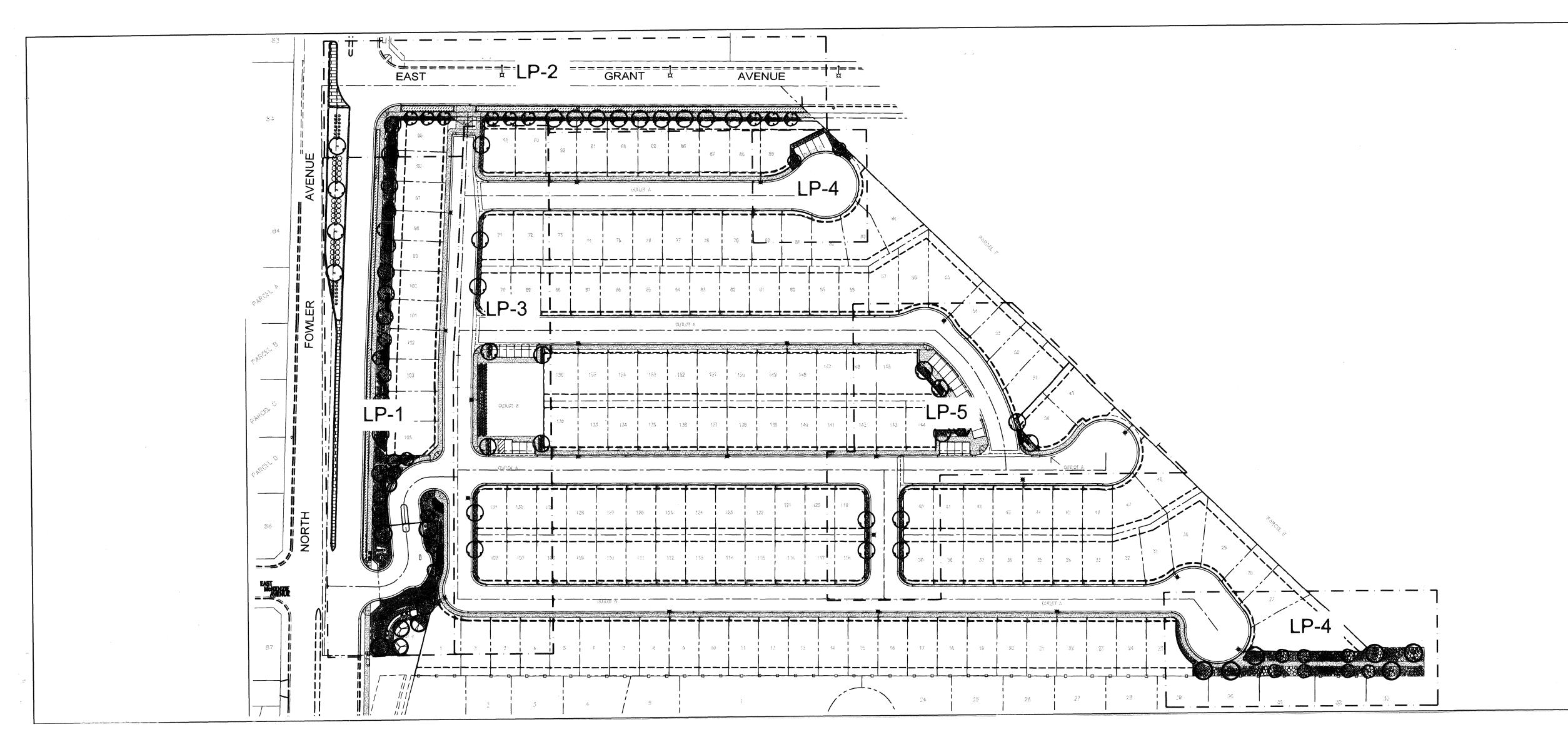


**DEPARTMENT OF PUBLIC WORKS** 

CITY OF FRESNO TRACT 6130 - CANYON CREEK 2.2.13 LANDSCAPE IMPROVEMENT PLANS

CH. BY: R.F./M.M.

DATE: 12.4.2017









Landscape Development

2202 Zeus Court

Bakersfield, California 93308

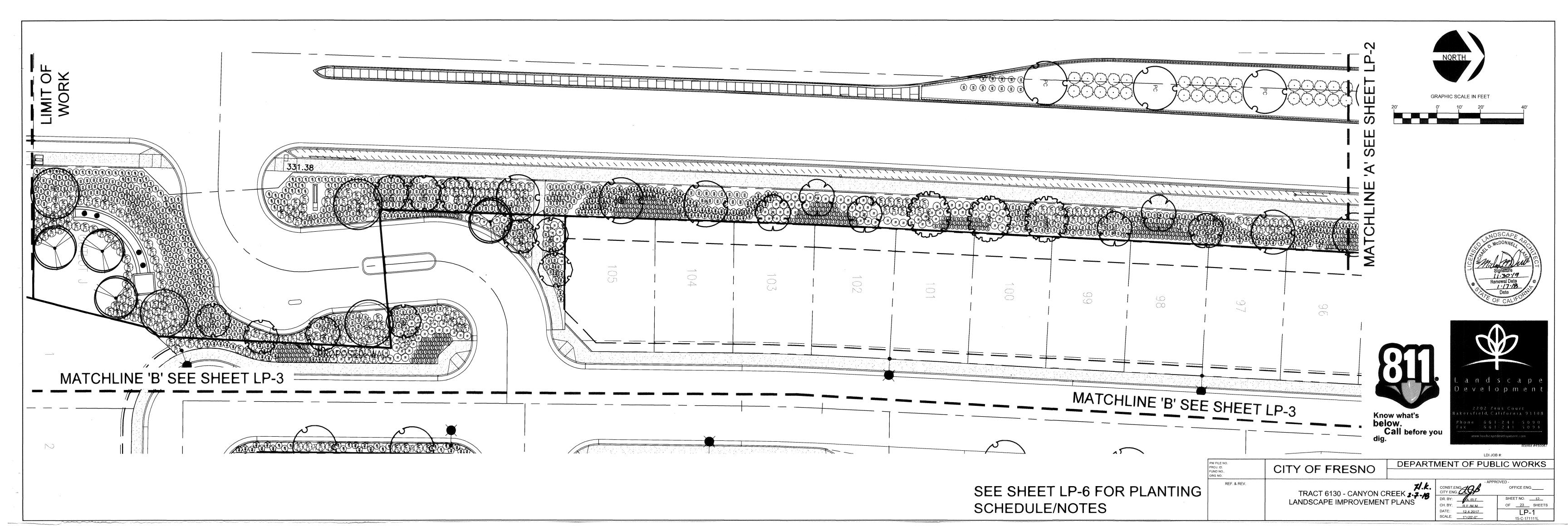
Phone 6612415090

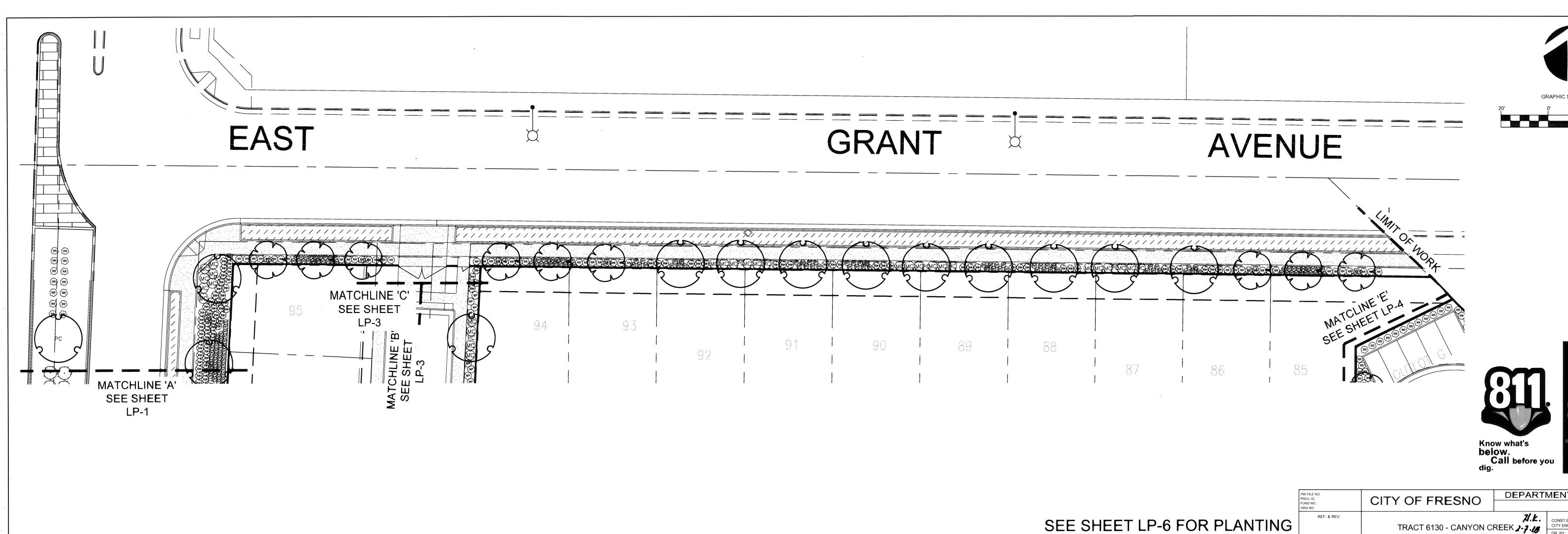
Fax 6612415094

Www.landscapedevelopment.com

IICENSE #450067

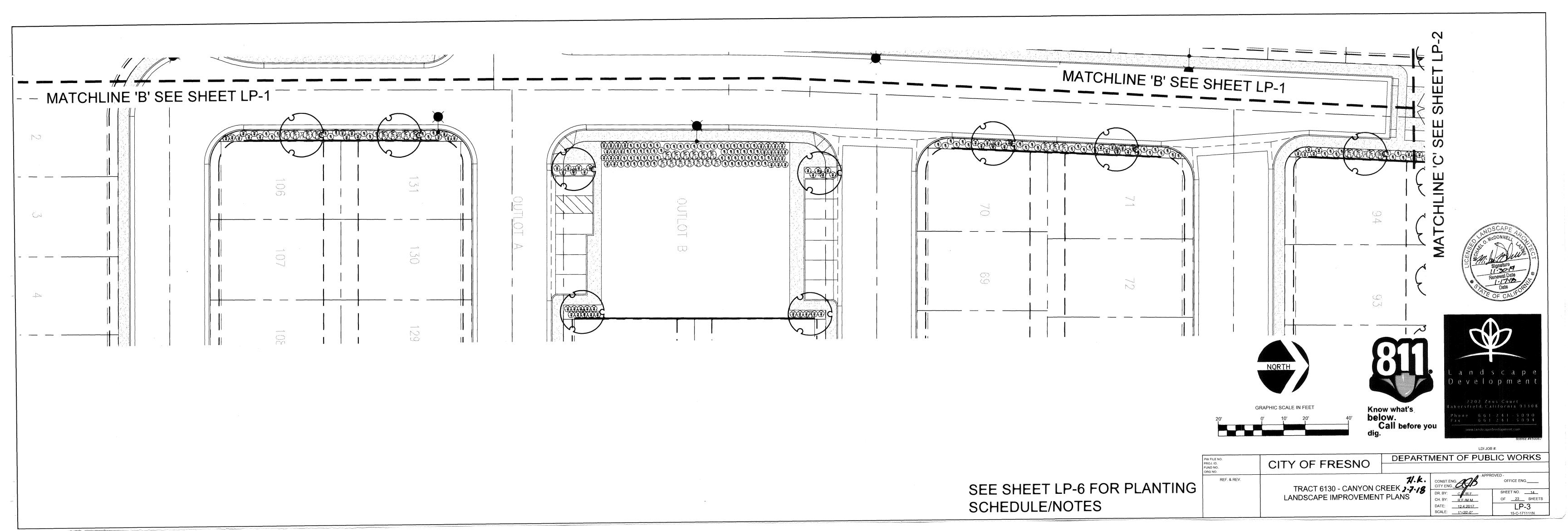
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PW FILE NO. PROJ. ID. FUND NO ORG NO.	CITY OF FRESNO	DEPARTI	MENT OF PUB	LIC WORKS
REF. & REV.	TRACT 6130 - CANYON C LANDSCAPE IMPROVEMEN	H.K. REEK 1.7.18 TPLANS	CONST.ENG.	OFFICE ENG  SHEET NO11 OF23 SHEET  LP-KM 15-C-171111K

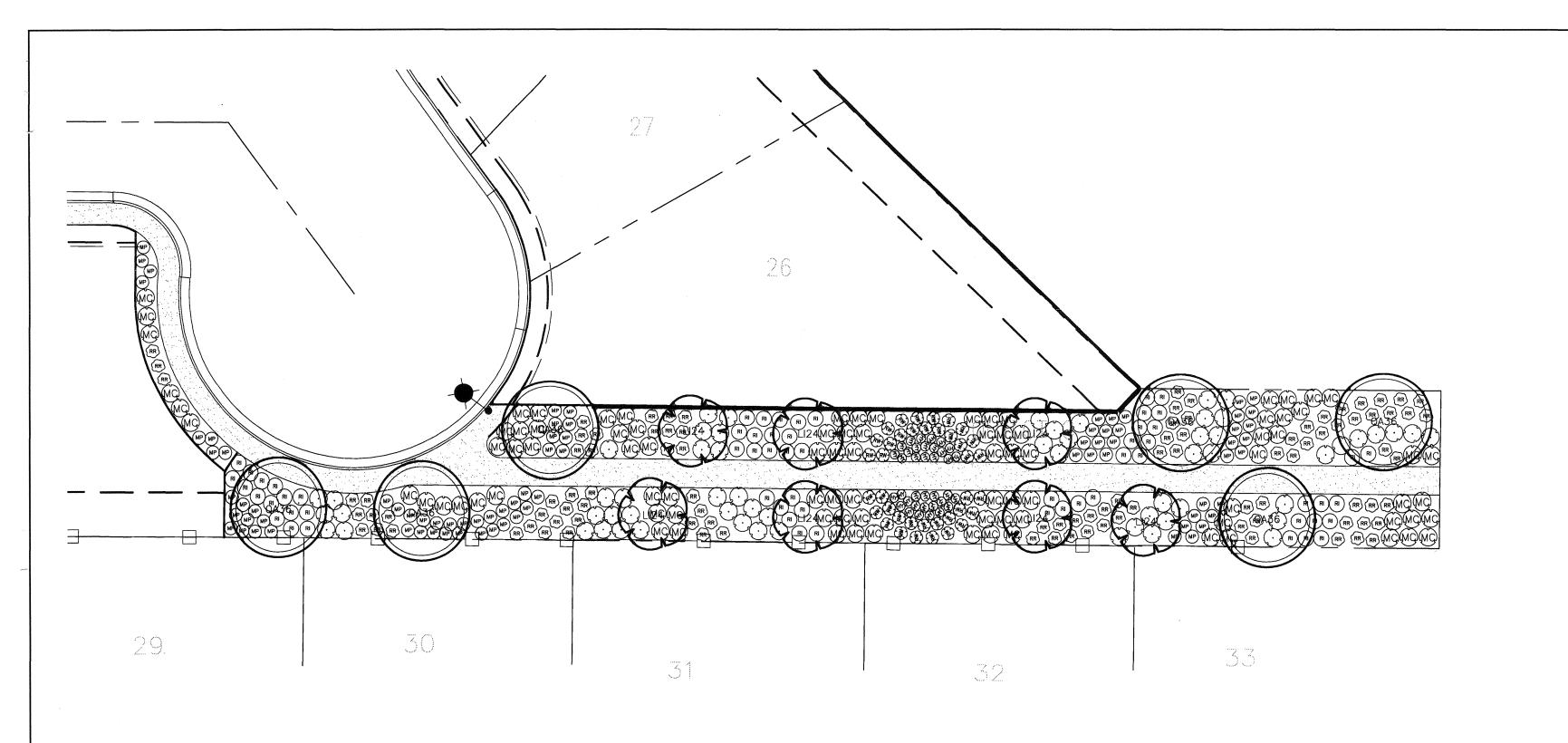


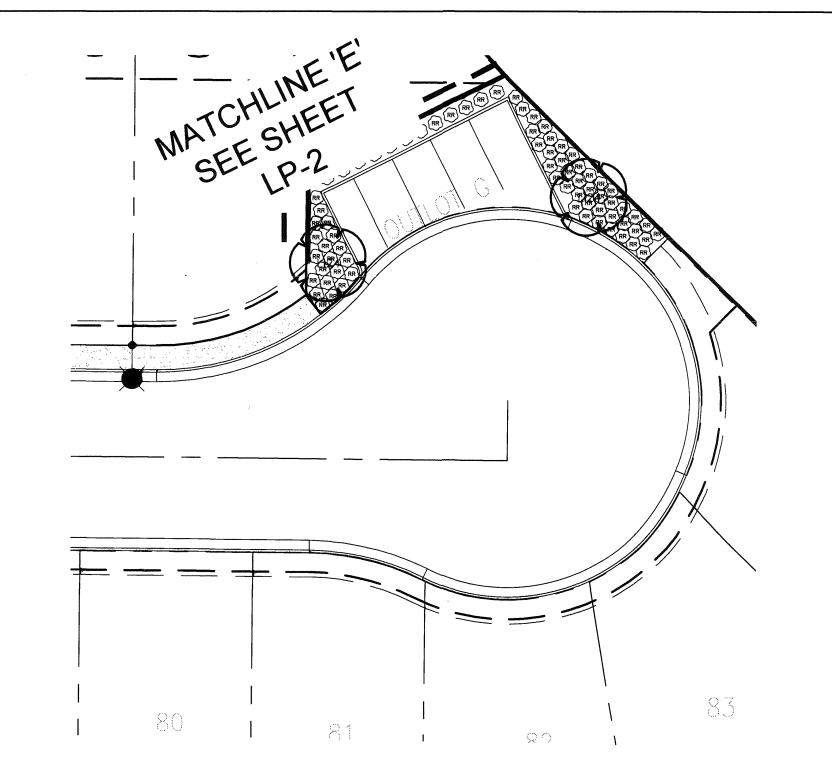


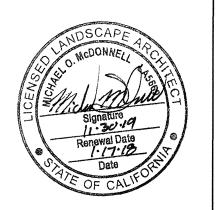
DEPARTMENT OF PUBLIC WORKS TRACT 6130 - CANYON CREEK 2-7-16
LANDSCAPE IMPROVEMENT PLANS LP-2

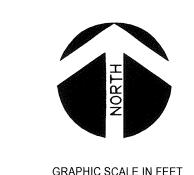
SCHEDULE/NOTES











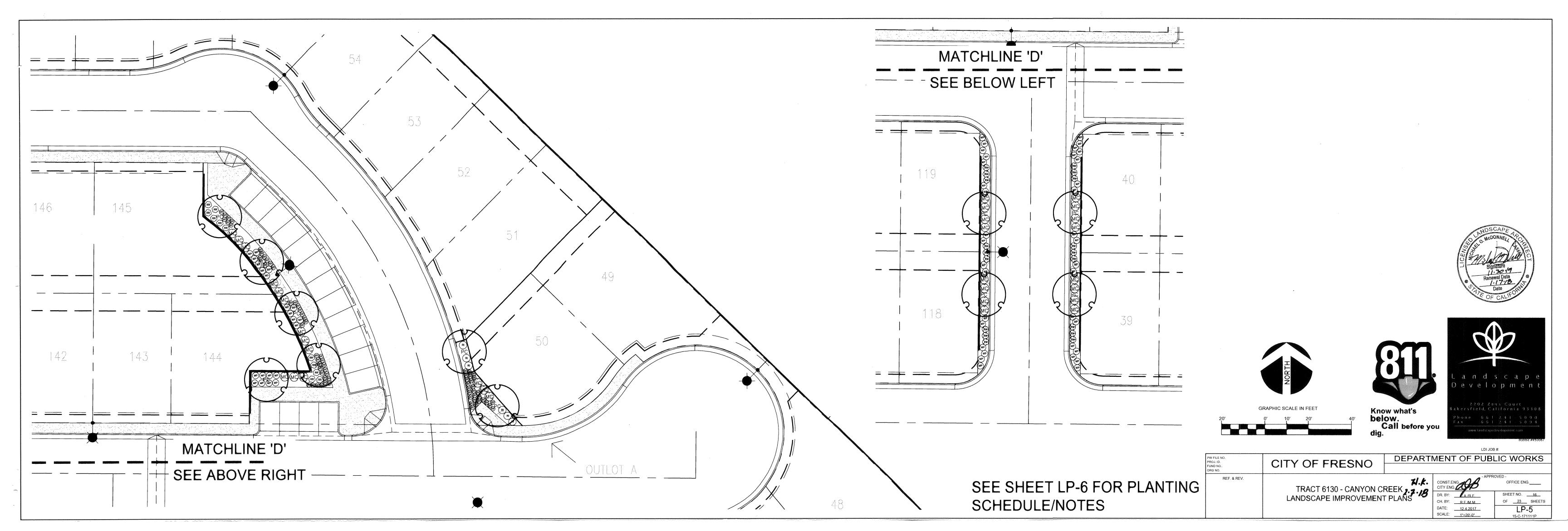




SEE SHEET LP-6 FOR PLANTING SCHEDULE/NOTES

DEPARTMENT OF PUBLIC WORKS CITY OF FRESNO

TRACT 6130 - CANYON CREEK 2.7.18
LANDSCAPE IMPROVEMENT PLANS



#### PLANT SCHEDULE BOTANICAL NAME CONT WUCOLS TYPE QTY LI24 LAGERSTROEMIA INDICA LAVENDER **DECIDUOUS** 24"BOX LOW CRAPE MYRTLE MULTI-TRUNK LI36 LAGERSTROEMIA INDICA 'LAVENDER 36"BOX LOW **DECIDUOUS** CRAPE MYRTLE MULTI-TRUNK PISTACIA CHINENSIS 'KEITH DAVEY' DECIDUOUS 24"BOX LOW KEITH DAVEY CHINESE PISTACHE PLATANUS X ACERIFOLIA 36"BOX MODERATE DECIDUOUS LONDON PLANE TREE QUERCUS AGRIFOLIA 24"BOX VERY LOW EVERGREEN COAST LIVE OAK **QUERCUS AGRIFOLIA 36** 36"BOX VERY LOW EVERGREEN COAST LIVE OAK QTY SHRUBS **BOTANICAL NAME** WUCOLS CONT HEMEROCALLIS X 'EVERGREEN YELLOW' MODERATE 1 GAL DAYLILY MUHLENBERGIA CAPILLARIS 'REGAL MIST' TM 5 GAL LOW MYOPORUM PARVIFOLIUM 'PROSTRATUM' 378 1 GAL MYOPORUM PITTOSPORUM TOBIRA 'WHEELER'S DWARF' MODERATE 5 GAL DWARF PITTOSPORUM RHAPHIOLEPIS INDICA 5 GAL MODERATE INDIAN HAWTHORN 204 RHAPHIOLEPIS INDICA 'JACK EVANS' 5 GAL MODERATE INDIAN HAWTHORN ROSA X 'NOARE' 5 GAL MODERATE 761 FLOWER CARPET RED GROUNDCOVER ROSE 409 5 GAL MODERATE ROSA X 'NOASCHNEE' FLOWER CARPET WHITE GROUNDCOVER ROSE GROUND COVERS BOTANICAL NAME WUCOLS SPACING QTY TRACHELOSPERMUM ASIATICUM MODERATE 1 GAL 36" o.c. 559 11111 STAR JASMINE

## **PLANTING NOTES**

- 1. REFER TO PLANTING PLANS, PLAN NOTES, PLANT LEGEND, AND PLANTING DETAILS FOR ADDITIONAL PLANTING INFORMATION. REFER TO IRRIGATION PLANS, NOTES AND DETAILS FOR RELATED LANDSCAPE WORK.
- 2. NOTIFY OWNER'S REPRESENTATIVE (REP.) 48 HOURS MINIMUM PRIOR TO COMMENCEMENT OF WORK TO COORDINATE PROJECT INSPECTION SCHEDULE.
- 3. VERIFY ALL EXISTING CONDITIONS, DIMENSIONS AND ELEVATIONS BEFORE PROCEEDING WITH THE WORK. IMMEDIATELY NOTIFY OWNER'S REPRESENTATIVE OF FIELD CONDITIONS THAT VARY FROM THOSE SHOWN ON DRAWINGS AND SEEK CORRECTIONS AND DIRECTIONS BEFORE PROCEEDING WITH WORK. ASSUME FULL RESPONSIBILITY FOR ALL NECESSARY CORRECTIONS DUE TO FAILURE TO REPORT KNOWN DISCREPANCIES.
- 4. LOCATE AND MARK ALL EXISTING UTILITIES WHETHER SHOWN HEREON OR NOT. PROTECT FROM DAMAGE ALL UTILITIES, AREAS AND STRUCTURES IN AND AROUND LANDSCAPE WORK AREAS. ASSUME FULL RESPONSIBILITY AND EXPENSE FOR REPAIR AND REPLACEMENT OF DAMAGES CAUSED BY CONTRACTOR.
- 5. LOCATION OF N.I.C. CONSTRUCTION ELEMENTS SUCH AS LIGHTS, SIGNS, VENTS, HYDRANTS TRANSFORMERS, AND OTHER STRUCTURES OR ELEMENTS ARE APPROXIMATE. CONTRACTOR SHALL VERIFY FIELD CONDITIONS WHETHER SHOWN HEREON OR NOT. WHEN SHOWN ITEMS DO NOT CORRESPOND TO FIELD CONDITIONS, REPORT DISCREPANCIES TO OWNER'S REP. FOR CLARIFICATIONS AND INSTRUCTIONS PRIOR TO PROCEEDING WITH WORK.

#### 6. PLANTING ACCESSORIES & MATERIAL

- A. TREE TIE: CINCH TIE, BY V.I.T. PRODUCTS, 800-729-1314 OR APPROVED EQUAL. B. TREE GUARD (IN TURF AREAS): 4" DIA. X 9" HT. PLASTIC TRUNK PROTECTOR, "ARBOR GUARD" BY DEEP ROOT PARTNERS, 800-458-7668 OR APPROVED EQUAL.
- C. FERTILIZER TABLETS: AGRIFORM 20-10-5, THREE 20-GRAM TABLETS OR APPROVED EQUAL FOR 15 GALLON OR LARGER SIZE TREES. TWO 10-GRAM TABLETS FOR 5 GALLON SIZE PLANTS, ONE 10-GRAM TABLET FOR 1 GALLON SIZE.
- D. ROOT BARRIER: UB-24"x10' ROOT BARRIER PANELS OR APPROVED EQUAL.
- E. MULCH: 3" LAYER CONIFEROUS BARK MULCH IN ALL PLANTER AREAS. SUBMIT SAMPLE FOR APPROVAL.

#### 7. PRE-PLANTING PREPARATION:

PLANTS WITH MATCHING SPECIES, SIZE AND FORM.

- A. PROCEED WITH PLANTING WORK ONLY AFTER IRRIGATION WORK IS COMPLETED. TESTED, AND APPROVED BY OWNER'S REP. PROTECT IRRIGATION SYSTEM FROM DAMAGE.
- B. ROUGH GRADE PLANTING AREAS UNIFORMLY SMOOTH, DEVOID OF DEPRESSIONS, TO CONFORM TO THE GRADING PATTERNS ESTABLISHED BY CIVIL ENGINEERING DRAWINGS. ENSURE POSITIVE WATER REMOVAL TO DRAINAGE ELEMENTS OR STRUCTURES PROVIDED BY OTHERS. NOTIFY OWNER'S REP. WHEN ADDITIONAL AREA DRAINS AND SUBSURFACE DRAINAGE ARE REQUIRED FOR PROPER DRAINAGE OF PLANTING AREAS.
- C. ENSURE POSITIVE DRAINAGE AWAY FROM BUILDING WALLS AND FOUNDATIONS FOR PLANTING AREAS ADJACENT SUCH STRUCTURES.
- D. REMOVE ALL ROCKS GREATER THAN 2" DIAMETER AND ALL DEBRIS AND DELETERIOUS MATERIAL FROM PLANTING AREAS.
- E. PREPARE PLANTING BEDS PER SOIL TEST REPORT'S RECOMMENDATIONS, ADDING AMENDMENTS, FERTILIZER, AND OTHER MATERIAL AS SPECIFIED TO SITE TOP SOIL. F. CONTRACTOR SHALL AUGER 24"x10' DEEP THROUGH HARDPAN FOR ALL TREES.
- 8. PLANTS: ALL PLANTS OF THE SAME SPECIES/CULTIVAR/VARIETY SHALL HAVE MATCHING FORM, FLOWER COLOR, AND SIZE, IN HEALTHY AND THRIVING CONDITION, FREE FROM INJURIES, DISEASES, PESTS AND ROOT-BOUND OR GIRDLING ROOTS. REPLACE REJECTED

#### 9. PLANTING:

- A. IRRIGATE PLANTING AREAS TO BRING TOP 6" OF SOIL TO FIELD CAPACITY. ALLOW SOIL TO DRAIN. DO NOT WORK SOIL UNTIL IT RETURNS TO A MOIST FRIABLE CONDITION. TREE EXCAVATIONS MAY REQUIRE ADDITIONAL IRRIGATION. FLOOD TREE PITS AS REQUIRED TO MOISTEN SUBGRADE.
- B. PLACE PLANTS IN THEIR CONTAINERS AT THE LOCATIONS PER PLANS FOR APPROVAL BY OWNER'S REP. MAKE MINOR ADJUSTMENTS AS REQUIRED BY FIELD CONDITIONS AND TO ALLOW OPTIMAL IRRIGATION COVERAGE.
- C. PLANT QUANTITIES GIVEN ON PLANT LEGEND ARE FOR GENERAL GUIDANCE ONLY. PROVIDE THE SPECIFIED PLANT SPECIES IN THE QUANTITIES AT THE REQUIRED SPACING TO ACHIEVE THE DESIGN EFFECT/INTENT SHOWN ON THE PLANS.
- D. PLANT GROUND COVER AND SHRUB MASSES ACCORDING TO TRIANGULATED SPACING DIAGRAM UNLESS OTHERWISE SHOWN OR NOTED.
- E. FOR TREES WITHIN 5 FEET OF PAVEMENT AND SLAB FOUNDATIONS, PRIOR TO TREE PLACEMENT, INSTALL 10' LONG ROOT BARRIER ADJACENT TO HARDSCAPE.
- F. PLANT TREES, SHRUBS, VINES, AND GROUND COVERS AS SHOWN ON DETAILS.
- G. INSTALL 3" DEEP CONIFEROUS BARK MULCH IN SHRUB BEDS.
- 10. WARRANTY: WARRANT TREES AND IRRIGATION SYSTEM FOR ONE YEAR FROM FINAL ACCEPTANCE OF COMPLETED WORK. REPLACE DEAD OR DYING TREES AND BROKEN IRRIGATION COMPONENTS WITHIN THIS PERIOD.
- 11. MAINTENANCE: MAINTAIN LANDSCAPE AND IRRIGATION FOR 90 DAYS.

#### **SOIL AMENDMENT NOTES:**

SOIL PREPARATION PER 1,000 S.F. 3 CU. YDS. NITROLIZED WOOD SHAVINGS OR EQUAL 15 LBS. 15-15-15 FERTILIZER ROTO-TILL TO DEPTH OF 8" (FOR SLOPES 3:1 AND LESS)

#### BACKFILL MIX

6 PARTS OF NATIVE ON-SITE SOIL 4 PARTS OF NITROLIZED SHAVINGS OR EQUAL 18 LBS. OF GRO-POWER PLUS PER CUBIC YARD OF MIX

**GROW-POWER PLANTING TABLETS** ONE (1) per each 1-GALLON PLANT TWO (2) per each 5-GALLON PLANT THREE (3) per each 15-GALLON PLANT FIVE (5) per each 24"-BOX PLANT

FOR BID PURPOSES ONLY, CONTRACTOR TO OBTAIN SOILS TEST AND RECOMMENDATIONS.

REF. & RE





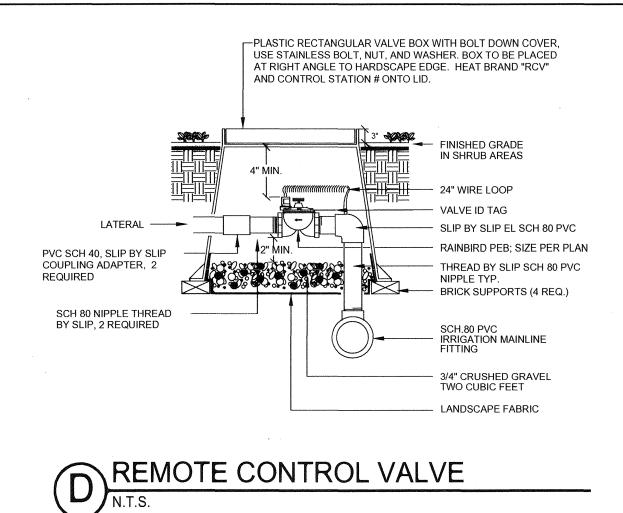


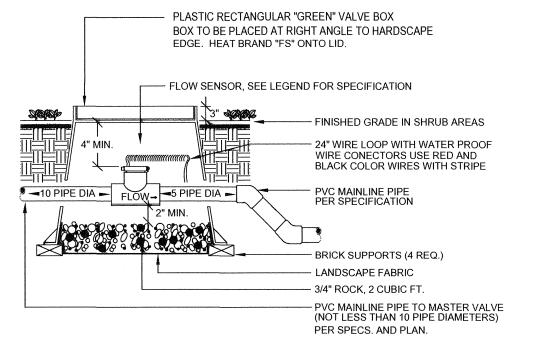
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	CITY OF EDECNO	DEPARTI	MENT OF PUB	BLIC WORKS
	CITY OF FRESNO			
REV.	TRACT 6130 - CANYON C	A.K.	CONST.ENG.	ROVED - OFFICE ENG
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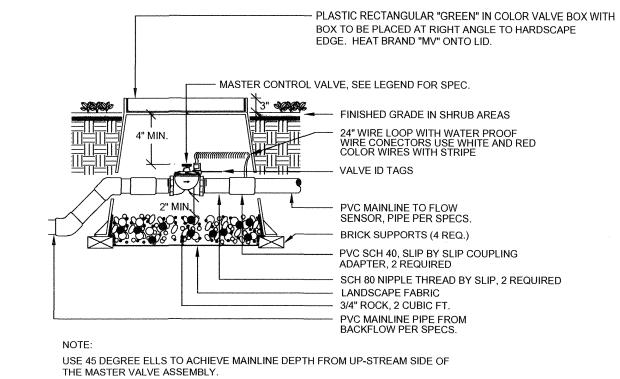
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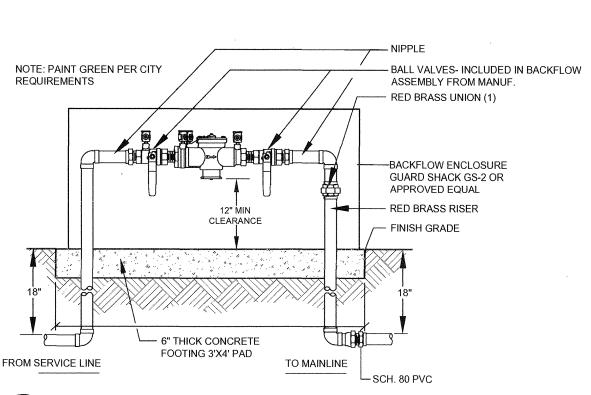
OF 23 SHEETS LP-6



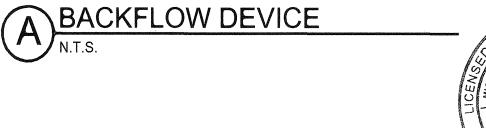


INSTALL FLOW SENSOR AS PER THE MANUFACTURER'S RECOMMENDATIONS, WIRE TO IRRIGATION CONTROLLER. USE 45 DEGREE ELLS TO ACHIEVE MAINLINE DEPTH ON THE DOWN-STREAM SIDE OF THE FLOW SENSOR.



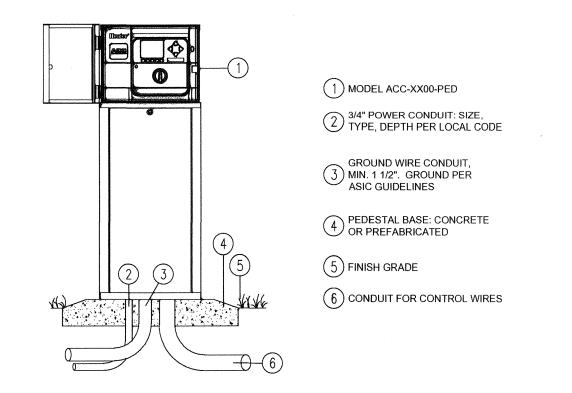


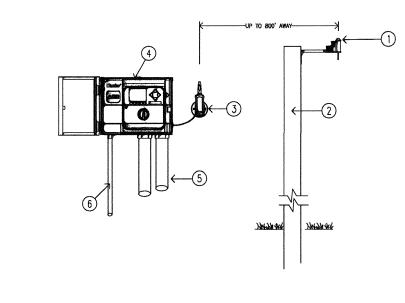
B MASTER VALVE N.T.S.



FLOW SENSOR

N.T.S.





MODEL: WIRELESS SOLAR SYNC 1) SENSOR, MOUNT UP TO 800' FROM RECEIVER

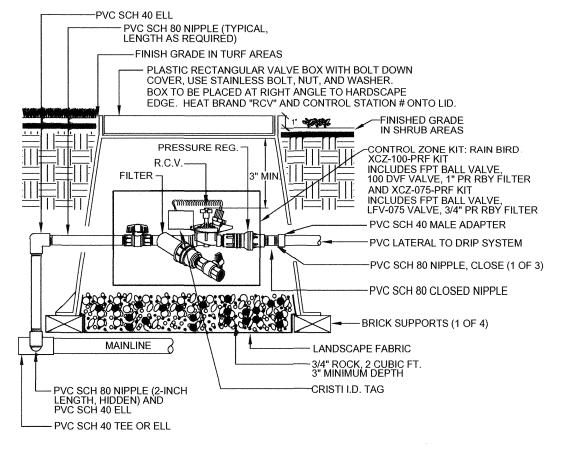
2) SUITABLE POST, POLE, OR GUTTER MOUNT. MOUNT IN LOCATION WHERE SENSOR CAN RECEIVE FULL SUN, IS OPEN TO RAINFALL AND OUT OF SPRINKLER SPRAY PATTERN

(3) WIRELESS SOLAR SYNC RECEIVER MOUNTED ON THE WALL NEXT TO THE CONTROLLER

(4) HUNTER I-CORE CONTROLLER

5 VALVE CONTROL WIRE CONDUIT

(6) POWER SOURCE



PW FILE NO. PROJ. ID. FUND NO.. ORG NO. REF. & REV. LDI JOB #:

SHEET NO. 18

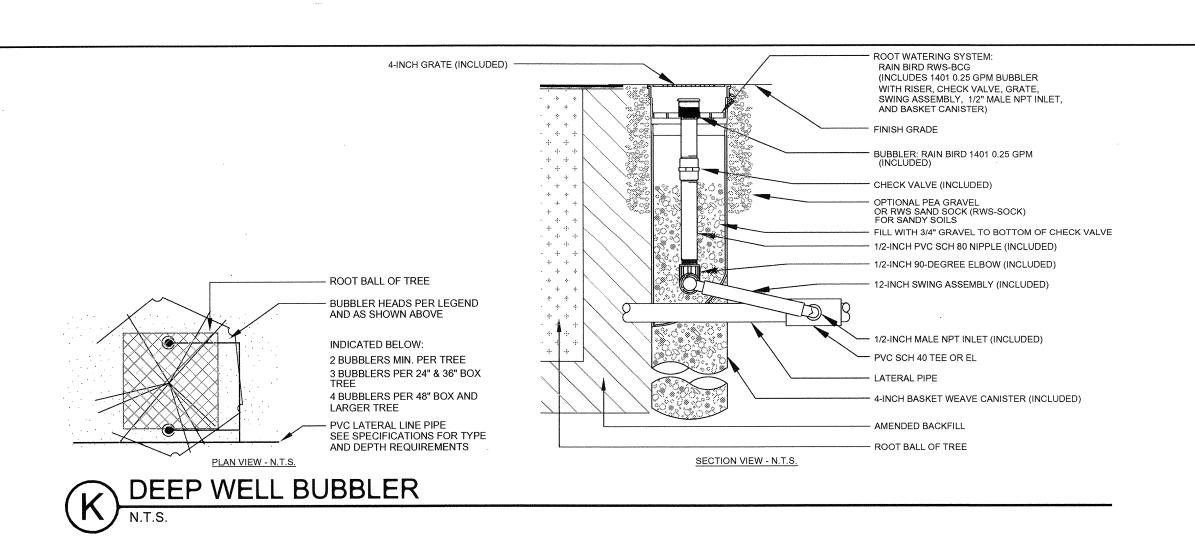
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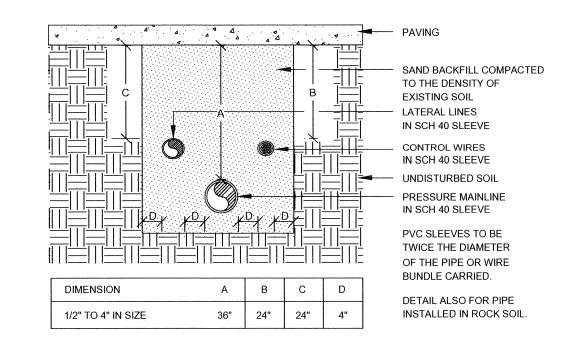
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CITY OF FRESNO TRACT 6130 - CANYON CREEK 2-7-18

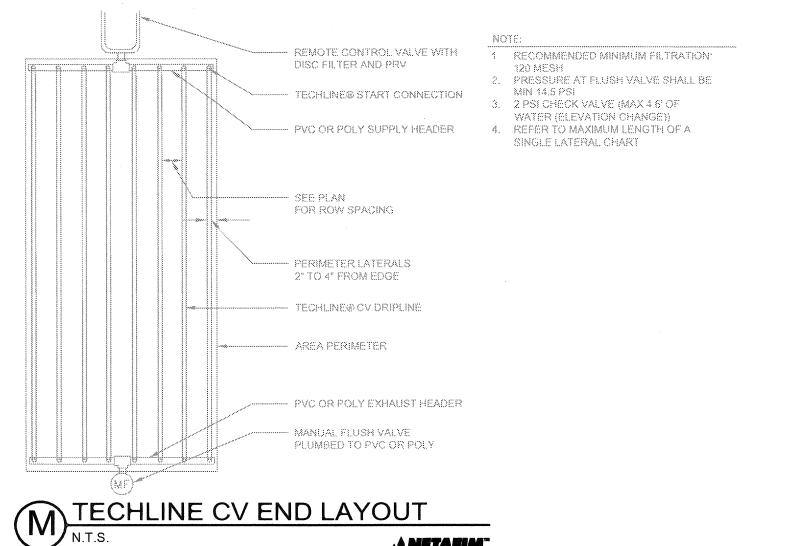
DEPARTMENT OF PUBLIC WORKS LANDSCAPE IMPROVEMENT PLANS CH. BY: R.F./M.M. DATE: 12.4.2017

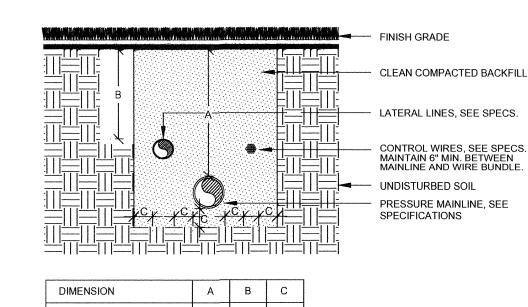




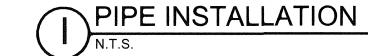


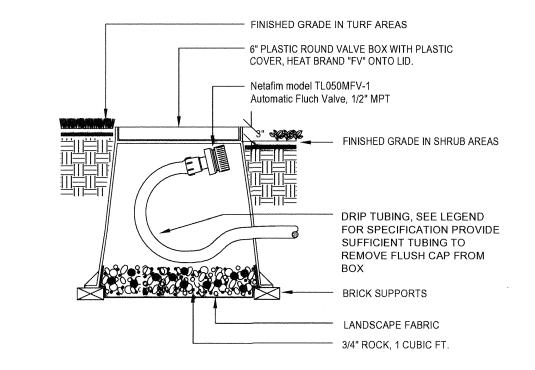






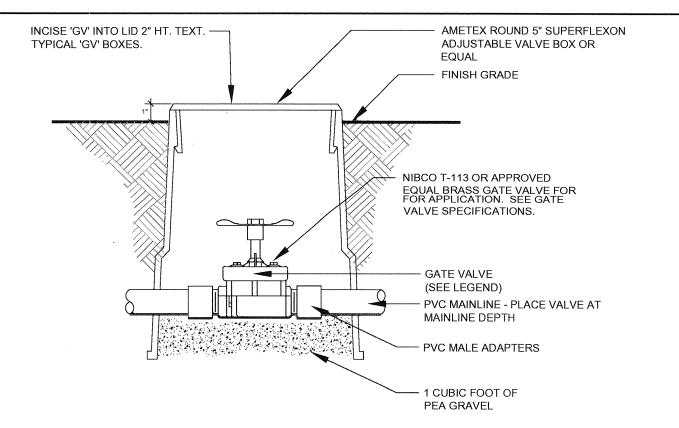
1/2" TO 2-1/2" IN SIZE	18"	12"	4"
3" TO 6" IN SIZE	24"	$\times$	4"



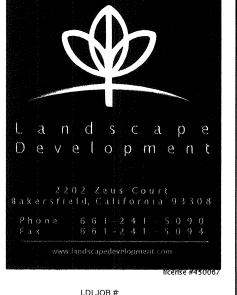


SECTION VIEW - N.T.S.

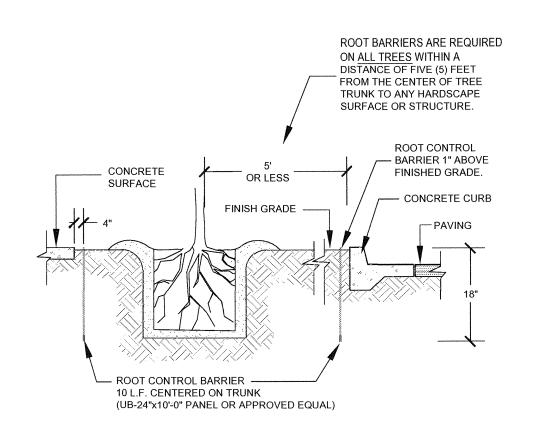


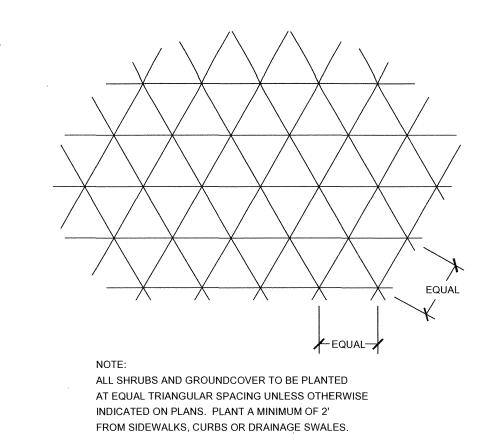


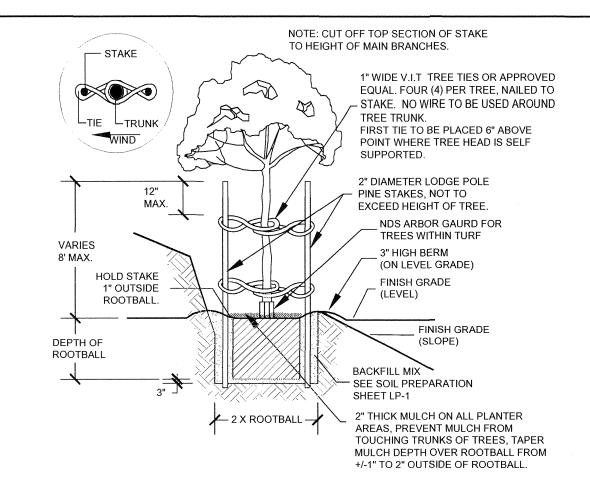


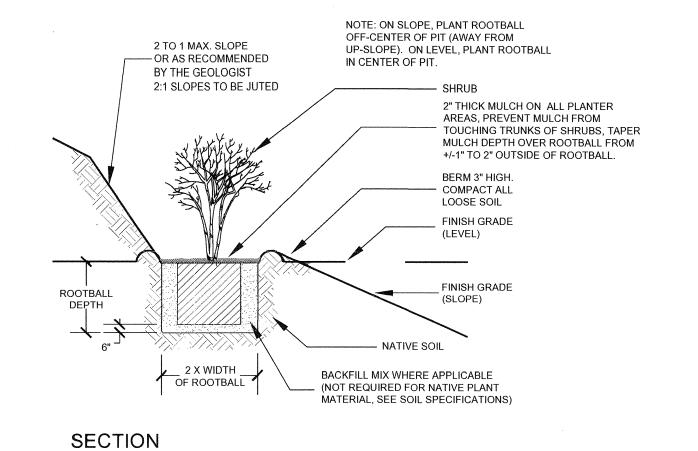


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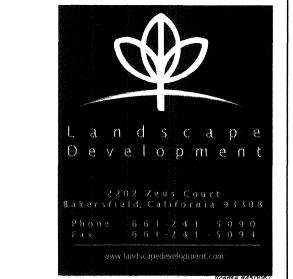






SHRUB PLANTING

N.T.S.



PW FILE NO. PROJ. ID. FUND NO.. ORG NO. DEPARTMENT OF PUBLIC WORKS CITY OF FRESNO REF. & REV. TRACT 6130 - CANYON CREEK 2-7-19 LANDSCAPE IMPROVEMENT PLANS CH. BY: OF 23 SHEETS **4**R.F./M.M. IPD-3 DATE: 12.4.2017

ROOT BARRIER

N.T.S.





#### IRRIGATION SPECIFICATIONS

#### PART 1 - GENERAL CONDITIONS

#### 1.1 Description:

A. Work Included: Provide all labor, materials, transportation, and services necessary to furnish and install irrigation systems as shown on the drawings and described herein.

#### 1.2 Quality Assurance:

- A. Manufacturer's Directions: Manufacturer's directions and detailed drawings shall be followed in all cases where the manufacturers of articles used in this contract furnish directions covering points not shown in the drawings and specifications.
- B. Ordinances and Regulations: All local, municipal and state laws, and rules and regulations governing or relating to any portion of this work are hereby incorporated into and made a part of these specifications and their provisions shall be carried out by the Contractor. Anything contained in these specifications shall not be construed to conflict with any of the above rules and regulations or requirements of the same. However, when these specifications and drawings call for or describe materials, workmanship, or construction of a better quality, higher standard, or larger size than is required by the above rules and regulations, the provisions of these specifications and drawings shall take precedence.

### C. Explanation of Drawings:

- 1. Due to the scale of the drawings, it is not possible to indicate all offsets, fittings, sleeves, etc., which may be required. The Contractor shall carefully investigate the structural and finished conditions affecting all of his work and plan his work accordingly, furnishing such fittings, etc. as may be required to meet such conditions. Drawings are generally diagrammatic and indicative of the work to be installed. The work shall be installed in such a manner as to avoid conflicts between irrigation systems, planting, and architectural features.
- 2. The word Landscape Architect as used herein shall refer to the Owner's authorized representative.
- 3. All work called for on the drawings by notes or details shall be furnished and installed whether or not specifically mentioned in the specifications.
- 4. The Contractor shall not willfully install the irrigation system as shown on the drawings when it is obvious in the field that obstructions, grade differences, or discrepancies in area dimensions exist that might not have been considered in the irrigation design. Such obstructions or differences should be brought to the attention of the Owner's authorized representative. In the event this notification is not performed, the irrigation contractor shall assume full responsibility for any revisions necessary.

#### 1.3 Submittals:

#### A. Material List:

- 1. The Contractor shall furnish the articles, equipment, materials, or processes specified by name in the drawings and specifications. No substitution will be allowed without prior written approval by the Landscape Architect.
- 2. Complete material list shall be submitted prior to performing any work. Material list shall include the manufacturer, model number, and description of all materials and equipment to be used. Copies of catalog information shall not be substituted for the materials list, and will be rejected as unacceptable.
- 3. Equipment or materials installed or furnished without prior approval of the Landscape Architect may be rejected and the Contractor required to remove such materials from the site at his own expense.
- 4. Approval of any item, alternate, or substitute indicated only that the product apparently the requirements of the drawings and specifications on the basis of the information or samples submitted.
- 5. Manufacturer's warranties shall not relieve the Contractor of his liability under the guarantee. Such warranties shall only supplement the guarantee.

#### B. Record Drawings:

- 1. The Contractor shall provide and keep up to date a complete "record" set of blue line ozalid prints which shall be corrected daily and show every change from the original drawings and specifications and the exact locations, sizes, and kinds of equipment. These drawings shall also serve as work progress sheets and shall be the basis for measurement and payment for work completed. This set of drawings shall be kept on the site and shall be used only as a record set.
- 2. The Contractor shall make neat and legible annotations thereon daily as the work proceeds, showing the work as actually installed. These drawings shall be available at all times for inspection and shall be kept in a location designated by the Landscape Architect.
- 3. Before the date of the final inspection, the Contractor shall transfer all information from the record prints to a sepia mylar or mylar procured from the Landscape Architect. All work shall be neat, drawn in waterproof ink by a technical ink pen designed specifically for use on mylar material. Work completed in felt tip pen or ball point pen will be rejected because of the non-permanent nature of both devices. All work shall be subject to approval by the Landscape Architect.
- 4. The Contractor shall dimension from two permanent points of reference the location of the following items:
- a. Connection to existing water lines
- b. Connections to existing electrical power
- c. Gate valves
- d. Routing of pressure main line pipe
- e. Sprinkler control valves
- f. Routing of control and common wire
- g. Quick coupling valves
- h. Other related equipment as directed by the Landscape Architect.
- 5. On or before the date of the final inspection, the Contractor shall deliver the corrected and completed mylars to the Landscape Architect. Delivery of the mylars will not relieve the Contractor of the responsibility of furnishing required information that may be omitted from the prints he compiled at the site.

#### C. Controller Charts:

- 1. Record drawings shall be approved by the Landscape Architect before controller charts are prepared.
- 2. Provide one controller chart for each controller supplied.
- 3. The chart shall show the area controlled by each automatic controller and shall be sized as designated by each automatic controller or as designated by the Owner's authorized representative.
- 4. The chart is to be a reduced drawing of the actual record drawings. However, in the event the controller sequence is not legible when the drawing is reduced, it shall be readable when the controller chart is completed.
- 5. The chart shall be a bloacline or blueline ozalid print and a different color shall be used to indicate the area of coverage for each control valve station.
- 6. When completed and approved, the chart shall be sealed by a plastic laminating process. the plasstic laminating shaeets shall be a minimum of 10 mil. thickness each.

  PART 2 - MATERIALS

#### D. Operation and Maintenance

- 1. Prepare and deliver to the Landscape Architect within ten calendar days prior to completion of construction, two hard cover binders with three rings each containing the following information:
- a. Index sheets stating Contractor's address and telephone number, list of equipment with names and addresses of local manufacturer's representatives.
- b. Catalog and parts sheets on every material and equipment installed under this contract.
- c. Guarantee statement (Section 1.05).
- d. Complete operating and maintenance instructions on all major pieces of equipment
- 2. In addition to the above mentioned maintenance manual, provide the Owner's maintenance personnel with instructions for major equipment and show evidence in writing to the Landscape Architect at the conclusion of the project that this service has

#### E. Equipment to be Furnished:

- 1. Supply as part of this contract the following tools:
- a. Two sets of special tools required for removing, disassembling, and adjusting each type of sprinkler and valve installed under this contract.
- b. Two five-foot valve keys for operation of gate valves (as required).
- Two keys for each automatic controller or enclosure.
- d. Six guick coupler keys and matching hose swivels for each type of quick coupling valve installed.
- 2. The above mentioned equipment shall be turned over to the Owner at the conclusion of the project. Before final inspection can occur, evidence that the Owner has received material must be shown to the Landscape Architect.

#### 1.4 Product Protection, Storage, and Handling:

A. Handling of PVC Pipe and Fittings: The Contractor is cautioned to exercise care in handling, loading, unloading, and storing of PVC pipe and fittings. All PVC pipe shall be transported in a vehicle which allows the length of pipe to lie flat so as not to subject it to undue bending or concentrated external load at any point. Any section of pipe that has been dented or damaged will be discarded, and if installed, shall be replaced with new piping.

#### 1.5 Analysis of samples and tests: None.

#### 1.6 Guarantee:

- A. The guarantee for the sprinkler irrigation system shall be made in accordance with the attached form. The general conditions and supplementary conditions of these specifications shall be filed with the Owner or his representative prior to acceptance of the
- B. A copy of the guarantee form shall be included in the operations and maintenance manual (Section 1.03, D).
- C. The guarantee form shall be re-typed onto the Contractor's letterhead and contain the following information:

#### **GUARANTEE FOR SPRINKLER IRRIGATION SYSTEM**

We hereby guarantee that the sprinkler system we have furnished and installed is free from defects in materials and workmanship, and the work has been completed in accordance with the drawings and specifications. We agree to repair or replace any defects in material or workmanship which may develop during the period of one year from the date of acceptance and also to repair or replace any damage resulting from the repairing or replacing of such defects at no additional cost to the Owner. We shall make repairs or replacements within a reasonable time after receipt of written notice from the Owner. In the event of our failure to make such repairs or replacements within a reasonable time after receipt of written notice from the Owner, we authorize the Owner to proceed to have said repairs or replacements made at our expense and we will pay the costs and charges therefore upon demand.

(The above statement is to be followed by the project name, location, signature, address, and telephone number of Irrigation Contractor, in addition to the date of acceptance).

- 2.1 General: Use only new materials of brands and types noted on the drawings, specified herein, or approved equals.
- A. PVC pressure Main Line Pipe and Fittings:
- 1. Pressure main line piping for sizes 2 and 1/2 inch and larger shall be PVC Class 315.
- 2. Pipe shall be made from an NSF approved Type 1, Grade 1, PVC compound conforming to ASTM resin specification D1784. All pipe must meet requirements as set forth in Federal Specification PS-22-70 (Solvent Weld Pipe) with an appropriate standard dimension (S.D.R.)
- 3. Pressure main line piping for sizes 2inch and smaller shall be PVC Schedule 40 with solvent welded joints.

- 4. Pipe shall be made from NSF approved Type 1, Grade 1, PVC compound conforming to ASTM resin specification D1785. All pipe must meet requirements as set forth in Federal Specification PS-21-70 (Solvent-Weld Pipe).
- 5. PVC solvent-weld fittings shall be Schedule 40, 1-2, 11-1 NSF approved conforming to ASTM test procedure D2466.
- 6. Solvent cement and primer for PVC solvent-weld pipe and fittings shall be of the type and installation methods prescribed by the manufacturer.
- 7. All PVC pipe must bear the following markings:
- a. Manufacturer's name
- b. Nominal pipe size
- c. Schedule or class d. Pressure rating in PSI
- e. NSF (National Sanitation Foundation) approval
- f. Date of extrusion
- 8. All fittings shall bear the manufacturer's name or trademark, material designation, size, applicable I.P.S. schedule and NSF seal of approval.
- B. PVC Non-Pressure Lateral Line Piping:
- 1. Non-pressure buried lateral line piping shall be PVC class 200 with solvent-weld joints.
- 2. Pipe shall be made from NSF approved, Type 1, Grade II, PVC compound conforming to ASTM resin specification D1784. All pipe must meet requirements set forth in Federal Specifications PS-22-70 with an appropriate standard dimension ratio.
- 3. Except as noted in paragraphs 1 of 2 of Section 2.01C, all requirements for non-pressure lateral line pipe and fittings shall be the same as for solvent-weld pressure main line pipe and fittings as set forth in Section 2.01B of these specifications.
- C. Brass Pipe and Fittings: -OMIT
- 1. Where indicated on the drawings, use red brass screwed pipe conforming to Federal Specification WW-P-351.
- 2. Fittings shall be red brass conforming to Federal Specification WW-P-460.
- D. Galvanized Pipe Fittings:
- 1. Where indicated on the drawings, use galvanized steel pipe ASA Schedule 40 mild steel
- 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 coats of Koppers 50 Bitumastic.
- E. Gate Valve:
- 1. Gate valves 3-inches and smaller shall be 125-lb. SWP bronze gate valve with screw-in bonnet, non-rising stem and solid wedge disc, have threaded ends, and be equipped with bronze wheel handle.
- 2. Gate valves 3-inches and smaller shall be similar to those manufactured by Nibco or approved equal.
- 3. All gate valves shall be installed per installation detail.
- F. Quick Coupling Valves: Quick coupling valves shall have a brass two-piece body designed for working pressure of 150 PSI operable with quick coupler key. Key size and type shall be as shown on plans.
- G. Backflow Preventer Unit:
- 1. Backflow prevention units shall be of size and type indicated on the irrigation drawings. Install the backflow prevention units in accordance with the irrigation construction details
- 2. Wye strainers at backflow prevention units shall have a bronzed screwed body with 100 mesh monel screen and shall be similar to Bailey 100A or approved equal.

- 1. Swing check valves 2-inches and smaller shall be 200 lbs. WOG bronze bronze construction and replaceable composition, neoprene or rubber disc, and shall meet or exceed Federal Specification WW-V-51D, Class A, Type IV.
- 2. Anti-drain valves shall be of heavy-duty virgin PVC construction with F.I.P. thread inlet and outlet. Internal parts shall be stainless steel with Buna-N seals. Valve shall be field adjustable against drawout from 3 to 40 feet of head. Anti-drain valve shall be similar to the King Bros. "CV" series or approved equal.

### I. Control Wiring:

- 1. Connections between the automatic controllers and the electric control valves shall be made with direct burial copper wire AWG-U.F. 600 volt. Pilot wires sharing the same automatic controller shall be the same color. Common wire shall be white in color with a stripe to match the pilot wires with which it is circuited on the same controller. Provide different colors for each controller installed on the same project. Install wire in accordance with valve manufacturer's specifications and wire chart. In no case shall wire size be less than #14.
- 2. Wiring shall occupy the same trench and shall be installed along the same route as pressure supply or lateral lines wherever possible.

3. Where more than one wire is placed in a trench, the wiring shall be taped together at

- intervals of ten feet. 4. An expansion curl shall be provided at each wire connection. Expansion curl shall be of
- sufficient length at each splice connection at each electric control valve so that in case of repair, the valve bonnet may be brought to the surface without disconnection of the control wires. Control wires shall be laid loosely in trench without stress or stretching of control wire conductors.
- 5. All splices shall be made with Rainbird ST-03UL Snap-Tite wire connector with PT/S5 sealer or approved equal. Use one wire connector per wire splice.
- 6. Field splices between the automatic controller and electric control valves will not be permitted without prior approval of the Landscape Architect.

#### J. Automatic Controller:

- 1. Automatic controller shall be of size and type shown on the drawings.
- 2. Final location of automatic controller shall be approved by the Owner's authorized representative prior to installation.
- 3. Unless otherwise noted on the plans, the 120-volt electrical power to the automatic controller location shall be furnished by others. The final hook-up of the automatic controller to the 120-volt power source shall be the responsibility of the irrigation contractor.

#### K. Electric Control Valves:

- 1. Electric control valves shall be of the size and type shown on the drawings.
- 2. Unless otherwise noted on plan or construction details, all electric control valves shall have a manual flow adjustment.

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- 3. Provide and install one control valve box for each electric control valve.
- L. Control Valve Boxes:
- 1. Use 10" x 10 1/4" round box for all gate valves, Carson Industries 910-12B with green bolt down cover or approved equal. Extension sleeve shall be PVC-6-inch minimum size.

2. Use 9-1/2" x 16" x 11" rectangular box for all electric control valves. Carson Industries 1419-12B with green bolt down cover or approved equal.

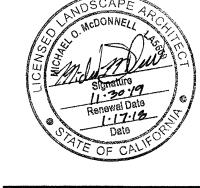
#### M. Sprinkler Heads:

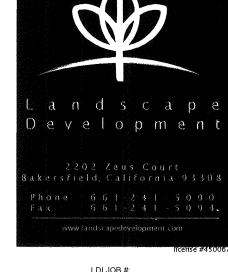
- 1. All sprinkler heads shall be of the size, type, and deliver the same rate of precipitation with the diameter (or radius) of spray, pressure, and discharge in G.P.M. as shown on the drawings and/or specified in these special provisions.
- 2. All spray type sprinklers shall have a screw adjustment.
- 3. Riser/swing joint assemblies shall be fabricated in accordance with the irrigation construction details shown on the drawings.
- 4. Riser nipples for all sprinkler heads shall be the same size as the riser opening in the sprinkler body.

#### PART 3 - EXECUTION

#### 3.1 Inspection:

- A. Site Conditions
- 1. All scaled dimensions are approximate. The Contractor shall check and verify all site dimensions and receive Landscape Architect's approval prior to proceeding with work under this section.
- 2. Exercise extreme care in excavating and working near existing utilities. Contractor shall be responsible for damages to utilities which are caused by his operations or neglect. Check existing utilities drawings or call utilities companies for existing utility locations.





DEPARTMENT OF PUBLIC WORKS

CITY OF FRESNO 21.K. TRACT 6130 - CANYON CREEK 2.2.18 LANDSCAPE IMPROVEMENT PLANS

OFFICE ENG. CH. BY: R.F./M.M.

DATE: 12.4.2017

- 3. Coordinate installation of sprinkler irrigation materials, including pipe so there shall be no interference with utilities or other construction or difficulty in planting trees, shrubs, and groundcovers.
- 4. The Contractor shall carefully check all grades to satisfy himself that he may safely proceed before starting work on the sprinkler irrigation system.

#### 3.2 Preparation:

#### A. Physical Layout:

- 1. Prior to installation, the Contractor shall stake out all pressure supply lines, routing, and location of sprinkler heads.
- 2. All layout shall be approved by Landscape Architect prior to installation.

#### B. Water Supply:

- 1. Sprinkler irrigation system shall be connected to water supply points of connection as shown on drawings.
- 2. Connections shall be made at approximate locations as shown on the drawings. Contractor is responsible for minor changes caused by actual site conditions.

#### C. Electrical Supply:

- 1. Electrical connections for automatic controller shall be made to electrical points of connection as shown on the drawings.
- 2. Connections shall be made at approximate locations as shown on the drawings. Contractor is responsible for minor changes caused by actual site conditions.

#### 3.3 Installation:

#### A. Trenching:

- 1. Dig trenches straight and support pipe continuously on bottom of trench. Lay pipe to even grade. Trenching excavation shall follow layout indicated on the drawings and as noted
- 2. Provide for a minimum cover of 18-inches for all pressure supply lines.
- 3. Provide for a minimum cover of 12-inches for all non-pressure lines.
- 4. Provide for a minimum cover of 18-inches for all control wiring.

#### B. Backfilling:

- 1. The trenches shall not be backfilled until all required tests are performed. Trenches shall be carefully backfilled with the excavated materials approved for backfilling, consisting of earth, loam, sandy clay, sand or other approved materials, free from large clods of earth or stones. Backfill shall be mechanically compacted in landscaped areas to a dry density equal to adjacent undisturbed soil in planting areas. Backfill will conform to adjacent grades without dips, sunken areas, humps, or other surface irregularities.
- 2. A fine granular material backfill will be initially placed on all lines. No foreign matter larger than 1/2-inch in size will be permitted in the initial backfill.
- 3. Flooding of trenches will be permitted only with approval of the Landscape Architect.
- 4. If settlement occurs and subsequent adjustments in pipe, valves, sprinkler heads, lawn, or planting, or other construction as necessary, the Contractor shall make all required adjustments without cost to the Owner.

#### C. Trenching and Backfill Under Paving:

- 1. Trenches located under areas where paving, asphaltic concrete or concrete will be installed shall be backfilled with sand (a layer six-inches below the pipe and 3-inches above the pipe), and compacted in layers to 95% compaction, using manual or mechanical tamping devices. Trenches for piping shall be compacted to equal the compaction of the existing adjacent undisturbed soil and shall be left in a firm unyielding condition. The sprinkler irrigation Contractor shall set in place, cap, and pressure test all piping under paving prior to the paving work.
- Where any cutting or breaking of sidewalks and/or concrete is necessary it shall be done and replaced by the Contractor as part of the contract cost. Permission to cut or break sidewalks and/or concrete shall be obtained from the Landscape Architect. No hydraulic driving will be permitted under new concrete paving.

#### D. Assemblies:

- 1. Routing of sprinkler irrigation lines as indicated on the drawings is diagrammatic. Install lines (and various assemblies) in such a manner as to conform with the details per plans.
- 2. Install no multiple assemblies on plastic lines. Provide each assembly with its own outlet.
- 3. Install all assemblies specified herein in accordance with respective detail. In absence of detail drawings or specifications pertaining to specific items required to complete work, perform such work in accordance with the best standard practice with prior approval of the Landscape Architect.
- 4. PVC pipe and fittings shall be thoroughly cleaned of dirt, dust, and moisture before installation. Installation and solvent-weld methods shall be as recommended by the pipe and fitting manufacturer.
- 5. On PVC to metal connections, the Contractor shall work the metal connections first. Teflon tape, or approved equal, shall be used on all threaded PVC to PVC, and on all threaded PVC to metal joints. Light wrench pressure is all that is required. Where threaded PVC connections are required, use threaded PVC adapters into which the pipe may be welded.
- E. Line Clearance: All lines shall have a minimum clearance of 6 inches from each other and from lines of other trades. Parallel lines shall not be installed directly over one another.
- F. Automatic Controller: Install per manufacturer's instructions. Remote control valves shall be connected to controller in numerical sequence as shown on the drawings.
- G. High Voltage Wiring for Automatic Controller:
- 1. 120-volt power connection to the automatic controller shall be provided by the Irrigation Contractor.
- 2. All electrical work shall conform to local codes, ordinances, and union authorities having jurisdiction.
- H. Remote Control Valves: Install where shown on the drawings and per detail. When grouped together, allow at least 12 inches between valve boxes. Install each remote control valve in a separate valve box.

- 1. After all new sprinkler pipe lines and risers are in place and connected, all necessary diversion work has been completed, and prior to installation of sprinkler heads, the control valves shall be opened and a full head of water used to flush out the system.
- 2. Sprinkler heads shall be installed only after flushing of the system has been accomplished to the complete satisfaction of the Landscape Architect.

#### J. Sprinkler Heads:

- 1. Install the sprinkler heads as designated on the drawings. Sprinkler heads to be installed in this work shall be equivalent in all respects to those itemized in the irrigation equipment legend.
- 2. Spacing of sprinkler heads shall not exceed the maximum as indicated on the drawings. In no case shall the spacing exceed the maximum recommended by the manufacturer.
- 3.4 Temporary Repairs: The Owner reserves the right to make temporary repairs to keep the sprinkler system equipment in operating condition. The exercise of this right by the Owner shall not relieve the Contractor of his responsibilities under the terms of the guarantee as herein specified.
- 3.5 Existing Trees: Where it is necessary to excavate adjacent to existing trees, the Contractor shall use all possible care to avoid injury to trees and tree roots. Excavation in areas where 2-inch and larger roots occur shall be done by hand. All roots 2-inches and larger in diameter, except directly in the path of pipe or conduit, shall be tunneled under and shall be heavily wrapped with burlap to prevent scarring or excessive drying. Where a ditching machine is run close to trees having roots smaller than 2 inches in diameter, the wall of the trench adjacent to the tree shall be hand trimmed, making clean cuts through. Roots 1/2 inch and larger in diameter shall be painted with two coats of tree seal, or egual. Trenches adjacent to trees should be closed within 24-hours, and where this is not possible, the side of the trench adjacent to the tree shall be kept shaded with burlap or canvas.

#### 3.6 Field Quality Control:

#### A. Adjustment of the System:

- 1. The Contractor shall flush and adjust all sprinkler heads for optimum performance and to prevent overspray onto walks, roadways, and buildings as much as possible.
- 2. If it is determined that adjustments in the irrigation equipment will provide proper and more adequate coverage, the Contractor may also include changes in nozzle sizes and degrees of arc as required.
- 3. Lowering raised sprinkler heads by the Contract shall be accomplished within ten days after notification by Owner or Landscape Architect.
- 4. All sprinkler heads shall be set perpendicular to finished grade unless otherwise designated on the plan or as required for proper coverage (slopes, etc.).

#### B. Testing of Irrigation System:

- 1. The Contractor shall request the presence of the Landscape Architect in writing at least 48 hours in advance of any testing.
- 2. Test all pressure lines under hydrostatic pressure of 150 PSI and prove watertight.

Note: Testing of pressure main line piping shall occur prior to installation of electric control valves or quick coupling valves.

- 3. All piping under paved areas shall be tested under hydrostatic pressure of 150 psi and proved watertight, prior to paving.
- 4. Sustain pressure in tested lines for not less than two hours. If leaks develop, replace joints and repeat test until entire system is proven watertight
- 5. All hydrostatic tests shall be made only in the presence of the Landscape Architect. No pipe shall be backfilled until it has been observed, tested, and approved in writing.

When the sprinkler irrigation system is completed, perform a coverage test in the presence of the Landscape Architect to determine if the water coverage for planting areas is complete and adequate. Furnish all materials and perform all work required to correct any inadequacies of coverage due to the deviation from plans, or where the system has been willfully installed as indicated on the drawing when it is obviously inadequate, without bringing this to the attention of the Landscape

Architect. This test shall be accomplished before any groundcover is

6. Contractor shall furnish force pump & all other test equipment necessary.

8. Upon completion of each phase of work, the entire system shall be tested and adjusted to meet site requirements.

#### 3.7 Maintenance:

- A. The entire sprinkler irrigation system shall be under full automatic operation for a period of seven days prior to any planting and for 90 days after inspection to begin maintenance period.
- B. The Landscape Architect reserves the right to waive or shorten the - operation period. -OMIT-
- 3.8 Clean-up: Clean-up shall be made as each portion of work progresses. Refuse and excess dirt shall be removed from the site. All walks and paving shall be broomed or washed down, and any damage sustained on the work of others shall be repaired to original conditions.

#### 3.9 Final Observation Prior to Acceptance

- A. The Contractor shall operate each system in its entirety for the Landscape Architect at the time of final inspection. Any items deemed not acceptable by the qualified observer shall be reworked to the complete satisfaction of the Landscape Architect.
- B. The Contractor shall show evidence to the Landscape Architect that the Owner has received all accessories, charts, record drawings and equipment as required before final observation can occur.

#### 3.10 Observation Schedule:

- A. Contractor shall be responsible for notifying the Landscape Architect in advance for the following observations according to the time indicated:
- Pre-job conference 7 days.
- Pressure supply line installation and testing 48 hours.
- Automatic controller installation 48 hours. Control wire installation - 48 hours.
- Lateral line and sprinkler installation 48 hours.
- Coverage test 48 hours.
- Observation to begin maintenance period 7 days.
- Final Observation 7 days.
- B. When observations have been conducted by other than the Landscape
- C. No observation will commence without record drawings. In the event the Contractor calls for an observation without record drawings, without completing previously noted corrections, or without preparing the system for observation, he shall be responsible for reimbursing the Landscape Architect at the rate per hour (portal to portal) plus transportation costs, for the inconvenience. No further observations will be scheduled until this charge has been paid.





CITY OF FRESNO REF. & REV TRACT 6130 - CANYON CREEK 2.7.18 LANDSCAPE IMPROVEMENT PLANS

CH. BY: K.F./M.M.\_\_ DATE: 12.4.2017 SCALE: N.A.

DEPARTMENT OF PUBLIC WORKS

SHEET NO. 22 OF 23 SHEETS

#### LANDSCAPE PLANTING SPECIFICATIONS

#### PART 1 - GENERAL CONDITIONS

#### 1.1 Description:

#### A. Work Included:

- 1. The work included in these specifications shall consist of the furnishing of all labor, tools, materials, permits, appliances, taxes and all other costs, foreseeable and unforeseeable at the time of contracting necessary and appropriate for the installation of the accompanying drawings.
- 2. No deviation from these specifications or from the agreement or from the general conditions is authorized and no such deviation shall be made unless the written authorization, therefore signed by the Owner or his duly authorized representative, has been obtained in advance.

#### 1.2 Interpretation of Plans and Specifications:

- A. The Landscape Architect will interpret the meaning of any part of the any plans and specifications about which any misunderstanding may arise, and his decision will
- B. Should there appear to be an error or discrepancy in or between the plans, specifications & planting lists, the Contractor shall refer the matter to the Landscape Architect for adjustment before proceeding with the work. Should the Contractor proceed with the work without so referring the matter, he does so on his liability.

#### 1.3 Quality Assurance:

- A. Quality of work: The Landscape Architect shall be notified at least two days prior to work commencement, by the Contractor and prior to inspection visits by the Landscape Architect. All work shall be done in a good workmanlike manner in accordance with all plans and specifications and best considered practice, shall meet with the approval of the Landscape Architect and Owner and shall be in accordance with the requirements of local building codes and laws. Any defective work will be redone at the Contractor's expense as directed by the Landscape Architect.
- B. Permits: The Contractor will be responsible for obtaining any and all necessary building permits from the city of other governmental authorities.
- C. License requirements: The Contractor shall carry necessary Contractor's California State License or Certificate for type of work listed, such as the Landscape Contractor's License.
- D. Insurance coverage: The contractor shall carry all necessary compensation and liability insurance to cover his workmen and work to protect the Owner from any possible damage suit or lien on the Owner's property in the course of the work by the Contractor and will show the Owner such evidence of above indicated insurance coverage prior to initiating work.

### E. Property, etc., Damage responsibility:

- 1. The Contractor is to protect at all times all existing utilities, structures, trees, plants and other features intended to remain on and adjacent to the job site and to repair or replace any damaged items in a neat and good workmanlike manner during and due to his work on the job and he shall assume all damage or injury that may result to all such property and/or to persons where such damage or injury is caused in connection with his work or is due to his negligence or to his leaving open or unprotected portions of streets or other property.
- 2. Should any part of the work under this contract be damaged by other contractors, the Contractor and party causing such damage shall make adjustments between themselves and not with the Owner relative to the repairs or reconstruction and payment for same.
- F. Knowledge of site: It is assumed that the Contractor has visited the site and familiarized himself as to the site conditions and shall have verified all dimensions as well as ascertaining the means of getting into the site and any other factors affecting the work.

#### 1.4 Costs:

- A. Segregation of costs: At the time of execution of the contract, the Contractor shall furnish to the office of the Owner, for purposes of accounting and scheduling, a segregated cost schedule or breakdown of the contract price, listing the various components in the plans as well as unit prices of each component specified in a form satisfactory to form the Owner. These schedules shall also be used as the basis in formulating the progress payments to be made to the Contractor and these cost breakdowns shall be part of the contract.
- B. Extras or changes: Any extras or changes from the contract on the job shall have the prior approval of the Landscape Architect and must be approved in writing by the Landscape Architect and Owner.
- C. Increased costs: If the extra or change is to be done at increased cost over and above the contract fee, the Owner shall sign the Contractor's written request for such additional funds for extra work prior to actually doing this work.

#### 1.5 Product protection, storage and handling:

- A. Site condition: The Contractor, in the course of his work, is to keep the site in a neat and tidy condition as much as is practical so as not to disturb the normal usage of the surrounding areas by the Owner or by others.
- B. Site clearance: Upon completion of the work, the Contractor shall properly clean and tidy such work and the surrounding areas used by and remove any or all excess materials, dirt, debris from the site or to dispose of same as directed by the Landscape Architect.
- C. Owner's materials: During the course of the work, any materials, equipment and services may be provided by the Owner and used by the Contractor in the job, for such materials, equipment, and services, the Contractor is to give credit to the Owner at the standard current rate for such items. Such credit, if any, will appear in the final billing by the Contractor to the Owner.
- D. Plans and specifications: All landscaping including plants, ground covers, soil additives and other miscellaneous landscape items shall be provided and installed in strict accordance with plans and specifications prepared by Owner
- E. Changes: The Owner shall have the right to make minor changes in the landscape design and installation to insure practicality of design and for aesthetic reasons at no additional cost.

#### PART 2 - MATERIALS

- 2.1 Grading: Grade all areas by filling and/or removing surplus soil as needed to ensure proper grades and drainage as indicated on the plans. Unless otherwise noted, finish grade shall be below hardscape as follow: 2" for ground cover areas, 1" for lawn areas.
- 2.2 Moisture content: The soil shall not be worked when moisture content is so great that excessive compaction will occur nor shall it be so dry that dust will occur and form in the air or that clods will not break readily. Water shall be applied, if necessary, to provide ideal moisture content for tilling.
- 2.3 Weed removal: Weeds, plus bermuda grass, etc., shall be dug out from all planting areas by their roots wherever possible and removed from the site. Where necessary to discourage reoccurence of this material, the Contractor shall apply one or more treatments of a satisfactory chemical per manufacturer's directions in regard to concentration plus allowance of an ample period of time for effective performance prior to cultivation. The site shall be maintained in a weed and litter free condition during the maintenance period. Weeds shall be removed at frequencies adequate to prevent the maturation of weed seeds.

#### 2.4 Plants:

#### A. Inspection:

Plants shall be subject to inspection and approval or rejection by the Landscape Architect at place of growth and/or the project site at any time before or during progress or work for size, variety, condition, latent defects and injuries. Rejected plants shall be removed from the site immediately.

Inspection of plant material for medians and trail shall requested with 24 hour advanced notice. Call Construction Management: 559-621-5600.

#### B. Conditions:

Plants shall be symmetrical, typical for variety and species, sound, healthy, vigorous, free from plant disease, 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.

2.5 Protection: Protect and maintain all plants from sun, drought, wind, theft, rain and heat at all times before and during planting operation.

#### 2.6 Planting requirements for trees and shrubs:

- A. Plant materials in quantities and sizes specified shall, after grading operations, be spotted approximately as shown on the landscape drawings and are to be approved by the Landscape Architect before being removed from containers and excavating soil for planting.
- B. All backfill materials shall be mixed thoroughly on site before using. See soil analasyst from soil engineers for exact compaction rates.

#### PART 3 - EXECUTION

#### 3.1 Planting:

- A. Container-grown plants to be planted in plant pits two (2) times wider than plant container and a depth of twice the height of plant container. Plant crown to be slightly higher than its natural growing height after settlement.
- 24"x10' deep holes to be drilled for trees in Right-of-way's. Settle for 20 days prior to planting.
- B. Pruning of plants will not be tolerated.
- C. All plants shall be watered immediately, before backfilling planting pits.
- D. All areas receiving plants and/or hydroseeding shall be moist to a depth of 6" at time of
- E. Plant all plants 5' minimum from irrigation heads (slopes only).
- F. Scarify the sides of each root ball prior to planting if circular root is evident.
- G. Plant quantities on the plan are for the Contractor's convenience and not guaranteed to
- H. Plant symbols take precedence over quantities specified.

- 3.2 All work shall be as directed by Owner's field representative, who shall be appointed prior to the commencement of the work.
- 3.3 Contractor shall submit all material receipts to Landscape Architect.

#### 3.4 Maintenance:

- A. Maintenance period shall not begin until entire installation is accepted by the Owner.
- B. Maintenance period shall be for the following duration: 90 Days.
- 1. All plants and planting shall be guaranteed for the following durations beginning at the first day of the maintenance period.

Trees and shrubs, 15 gallon and larger	1 Year
Potted plants & pottery	1 Year
Shrubs, 5 gallon and smaller	90 Days
Ground cover	90 Days
Lawn	90 Days

- 2. All dead, damaged or broken plant material, including sodded and seeded lawns and ground cover, shall be replaced at two-week intervals.
- C. Fertilize with 2 lbs. actual nitrogen per 1000 sq. ft. at end of 30 days. Landscape Architect will specify type, depending on season. Perform last fertilizing at end of maintenance period in the presence of the Landscape Architect.

#### PART 4 - PLANTING NOTES

- 4.1 Landscape Contractor shall repair and/or replace any damaged plant material which is damaged due to his negligence.
- 4.2 Landscape Contractor shall be backcharged for Landscape Architect's time in locating any landscape material as requested by the construction manager.
- 4.3 Landscape Contractor shall submit all amendment quantity receipts to construction manager and/or Landscape Architect for approval.
- 4.4 Contractor shall perform all fertilizing in the presence of the construction manager or Landscape Architect. See Soil Preparation Requirement, sheet LP-1.
- 4.5 Contractor is responsible for maintaining all areas in a weed and debris free condition throughout the maintenance period. (See specifications).
- 4.6 Plant symbols take precedence over plant quantities.
- 4.7 All plants shall be protected against heat, sun, wind and frost during transportation to the site and while being held at the site. Do not store plants in total darkness for more than one day.
- 4.8 Wilted plant material shall not be planted or used on the project.
- 4.9 Do not damage plant root during transportation or planting process
- 4.10 Plant material may be rejected at any time by the Landscape Architect due to condition, form or damage before or after planting.
- 4.11 Landscape Architect shall approve final placement of all trees, shrubs and vines prior to
- 4.12 All surface rock and debris 1" and larger shall be removed from planting areas and then
- 4.13 Crown of plant shall be slightly higher, after settling, than adjacent soil.

- 4.14 Prune trees as directed by Landscape Architect after inspection.
- 4.15 Remove water basins from all trees located in lawn areas prior to hydroseeding installation. -OMIT-
- 4.16 Any and all damage in new and existing paving caused by the Contractor shall be the responsibility of the Contractor and be repaired by the Contractor.
- 4.17 Install all trees and shrubs prior to planting of groundcover and/or hydroseeding.

#### PART 5 - HYDROSEEDING MATERIALS.

#### 5.1 Seed:

- A. Label seed and furnish in sealed standard containers with signed copies of a statement from seed vendor certifying that each container of seed delivered is fully labeled in accordance with California State Agricultural Code and is equal to or better than requirements of this section.
- B. Contractor shall submit all seed labels and certification letter to landscape architect for verification and approval.
- C. Seed which has become wet, moldy or otherwise damaged in transit or storage will be rejected.

#### 5. Fiber Mulch:

- A. Composed of green colored wood cellulose fiber containing no germination or growth inhibiting factors.
- B. Mulch is to be manufactured in such a manner that after the addition of seed, fertilizer, water and additives in a special 1,500 gallon slurry tank, the fibers and above materials will become uniformly mixed to form a homogeneous slurry.
- C. Weight specifications of this material from the suppliers and for all applications, shall refer only to the air dry weight of the fiber materials. Absolute air dry weight is based on the normal standards of the Technical Association of the Pulp Industry for wood cellulose and is considered equivalent to 10% moisture. Each package of the cellulose fiber shall be marked by the namufacturers to show the air dry weight content.
- D. Acceptable Manufacturer: Conwed.

#### 5.1 Seed:

- A. Dry, organic powder hydrocolloid formulation.
- B. Hydrate and disperse in a mixing tank with circulating water from a homogeneous slurry, either alone or in combination with other materials. pH to be stable in presence of
- C. Application of soil and mulch tackifier to be made at a minimum rate of:
- a. Flat areas-80 pounds per acre.
- b. Sloped areas (3:1 or steeper)-120 pounds per acre.
- D. Acceptable Manufacturer: Ecology control-M Binder by Conwed.
- F. Urea formaldehyde shall be a pelletized commercial fertilizer for hydromulch slurry.

## **END**

REF. & REV.

E. Chemical germinating additives shall be "Catalytic Pre-Emerge" or approve equal.



DEPARTMENT OF PUBLIC WORKS CITY OF FRESNO

TRACT 6130 - CANYON CREEK . 7.18
LANDSCAPE IMPROVEMENT PLANS

CH. BY: R,F./M.M. DATE: 12.4.2017

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