

APPENDIX K

CITY OF SAN BERNARDINO MUNICIPAL WATER DEPARTMENT

AUTOCAD STANDARDS



**City of San Bernardino
Municipal Water Department
195 North "D" Street
San Bernardino, CA 92402**

AUTOCAD™ AND GIS STANDARDS

1.0 INTRODUCTION

The San Bernardino Municipal Water Department (SBMWD) AutoCAD™ and GIS Standards have been developed to aid in the preparation of drawings and to ensure consistency and uniformity on all SBMWD contracts and specifications. The Engineering section has made every attempt to assure that the SBMWD Standard Drawings are complete and accurate. **However, the issuance of these standards does not relieve the Engineer of Record from assuring that the standard details are correct and applicable to their specific project.**

2.0 DRAWING SUBMITTALS

2.1 General

When AutoCAD™ files are prepared for submittal to SBMWD, the paper set and electronic views must be the same. What is seen on the paper copy is also the electronic view on screen when the file is opened.

The Consultants shall use the title block in C-XXXX-G-G1.dwg for all contract drawing sheets. The title block is located in the AutoCAD™ and GIS Standards section of the SBMWD Uniform Design and Construction Standards. Due to the SBMWD document management system, the title block is not allowed to be exploded. If the title block has been exploded, the submittal will not be accepted.

Due to SBMWD printing requirements, Model Space and Paper/Layout Space drawings are only permitted. The drawing shell shall always be inserted into Paper/Layout Space at (1:1 scale) 22" x 34" and drawing plot scale to be set at "1". The Model Space viewport drawing scale shall be horizontal scale: 1"=40' and vertical scale: 1"=4' for plan and profiles. The Consultant and SBMWD Engineering Manager shall determine all other drawing scales.

Layering shall be labeled per standards listed herein. All layering nomenclature shall be clearly delineated between survey information, water improvements, existing utilities, etc. according to the layering convention standards herein.

North arrow and all text are to be oriented to be read from the bottom and right (Unless approved by SBMWD Engineering Manager).

All Stationing is to be oriented from left to right (Unless approved by SBMWD Engineering Manager). Stations are to be consistent at all match lines and station equations are not permitted. Stations are to be on the pipeline itself not the street centerline.

All text and construction notes that are pertinent to the design shall have a hide box placed around it to remove any lines from behind the text. The hide box shall be created from a 3dface in AutoCAD™ and shall be elevated such that all lines are hidden from behind the text and construction notes. The hide boxes shall be placed on the hide layer and the hideplot option for the viewports under the mview command shall be toggled to on. Also the hidetext command shall be toggled to off for all drawings.

All original signatures are to be in blue ink prior to the acceptance of the final submittal.

All files must be named in accordance with the file nomenclature standards herein and submitted on CD.

AutoCAD™ drawings created in version AutoCAD™ 2000i or more recent will be accepted.

2.2 All Progress Submittals

X-refs are permitted and must be provided with the drawing files. X-refs should be inserted on the "xref" layer. If more than one x-ref is used a layer should be created for each x-ref attached. For example layer names would read "c-xref-base" and "c-xref-topo" for a base and topo x-ref. Nested x-refs will not be accepted. All detail file names and dates are to remain by detail titles to verify the SBMWD AutoCAD™ Standards version currently being used.

2.3 100 Percent and Final Submittals

X-refs are permitted however, all x-ref files shall be saved and mapped in the same folder as the drawing files. All x-refs should be inserted on their appropriate layers as defined in the paragraph above. All layers are to be turned on and thawed. (Exception: "mview" to be frozen.) All information not pertinent to the final design must be deleted from the drawings and the file must be purged to smallest possible size. Detail file names and dates are to be removed from detail titles.

Any SBMWD AutoCAD™ Standards revisions or updates made prior to the 100 percent submittal will be required to be incorporated into the contract drawings prior to the acceptance of the final submittal.

2.4 Revisions or Addendums

When revisions or post signature changes are necessary, the following standard is required:

All changes are to be clouded in AutoCAD™ (provide AutoCAD™ drawing files with all changes). Numbered revision triangles will be placed within the clouded areas and in the drawings title block revision area. Detailed description of the changes shall also be provided in the revision area of the title block.

2.5 Record Drawing Submittal

2.5.1 Record Drawing Electronic Submittal

Upon completion of the work, all required information, dimensions and adjustments to the original contract drawings shall be submitted to the SBMWD to be transferred to the record drawings. Facilities and items to be located and verified on the record drawings shall include the following:

- a. Point of connections.
- b. Utility locations.

- c. Water mains: where deviations along installed water mains are more than 1/2 foot vertically and more than 1 foot horizontally, actual location (line and grade) shall be noted on the plans at intervals of 100 feet.
- d. Services: where service tie-in differs from the plan station by more than 1 foot or when meter box is not perpendicular from the main, corporation stops shall be stationed. For all service lines that have directional changes, such as in the case of cul-de-sacs, the actual installation shall be noted regardless of field changes, and shall be adequately referenced to the satisfaction of the SBMWD Inspector.
- e. Any material changes, including additions, deletions, and substitutions.
- f. Other related facilities, as required by the SBMWD Inspector.
- g. Contractor shall write on all sheets where the water improvements were built per plan that the construction was made "Per Plan".
- h. Each As-Built sheet shall be signed and sealed by the Engineer of Record and stamped "As-Built" for approval by the SBMWD Engineering Manager.

The SBMWD's receipt and acceptance of all document submittals shall be a condition precedent to the release of the Contractor's retention/final payment. For projects constructed by Developers, the SBMWD will not accept final conveyance of water system improvements to the SBMWD until approved record plans and other required documents per the Developer-

Installed Agreement have been received and are correct.

2.5.2 GIS Data Electronic Submittal

The Developer shall provide the Department with a digital electronic file of the water system design and as-constructed water system compatible with the Department's GIS data system. The data files shall consist of the following:

2.5.2.1 Survey Information

Survey accurate GIS layers of centerline, right-of-way line, easements and lot lines. This survey information shall be within GIS subfoot accuracy.

2.5.2.2 Water System Information

All water system improvements GIS layers including mains, valves, service laterals, meter locations, fire hydrants, and other appurtenances shall be placed physically to within GIS subfoot accuracy, relative to the SURVEY INFORMATION in Subsection 2.5.2.1.

2.5.2.3 Street Improvements

All curbs, sidewalks, and other hard improvements visible from the street. These facilities shall be placed physically to within GIS subfoot accuracy, relative to the SURVEY INFORMATION in 2.5.2.1.

2.5.2.4 File Format

All information shall be provided to the Water Department in GIS format in either a shapefile or geodatabase. The format must comply with the Department's GIS system. The GIS data shall be in the Stateplane NAD83, California, Zone 5, feet coordinate system.

2.5.2.5 GIS Layer Data Information

The Survey Information, the Water System Information, and the Street Improvements shall each be on separate GIS shapefiles or geodatabases. The GIS layer information shall include the File Name(s), Description, Feature Type, and any comments as follows:

GIS DATA ELECTRONIC SUBMITTAL FILE REQUIREMENTS

File Name (s) ⁽¹⁾	Description	Feature Type	Comment (s)
Valves	Valve type; turns to close; size; manufacturer; location; installation date; valve purpose; pressure zone; status.	Point	Varies
Mains	Main type; size; length; material; installation date; location; pressure zone; manufacturer; status.	Line	Varies
Service Laterals	Lateral type; size; length; material; installation date; location; manufacturer; assessor parcel number (APN); pressure zone; status.	Line	Varies
Hydrants	Hydrant size; configuration; barrel diameter; manufacturer; installation date; location; pressure zone; status; nozzle diameter 1-2-3.	Point	Varies
Survey	Survey street centerlines; right of ways; easements; and lot lines.	Line	Varies

Notes: ⁽¹⁾ File name shall be named appropriately to the item(s) in question.

2.5.2.6 Annotation

Annotation shall be easily readable with the default characteristics or as approved by the Department. Annotation for each of the information categories listed above shall be provided in its own GIS shapefile or geodatabase independent from the

information itself as described in Section 2.5.2.5. Annotation will include but is not limited to: street names, valve numbers, parcel address, reducer size, distance from main to centerline, main size, type, and year installed. All appurtenances shall be shown according to the Department's GIS feature standards and will be provided to the Applicant in an electronic format upon request.

2.5.2.7 Additional Information

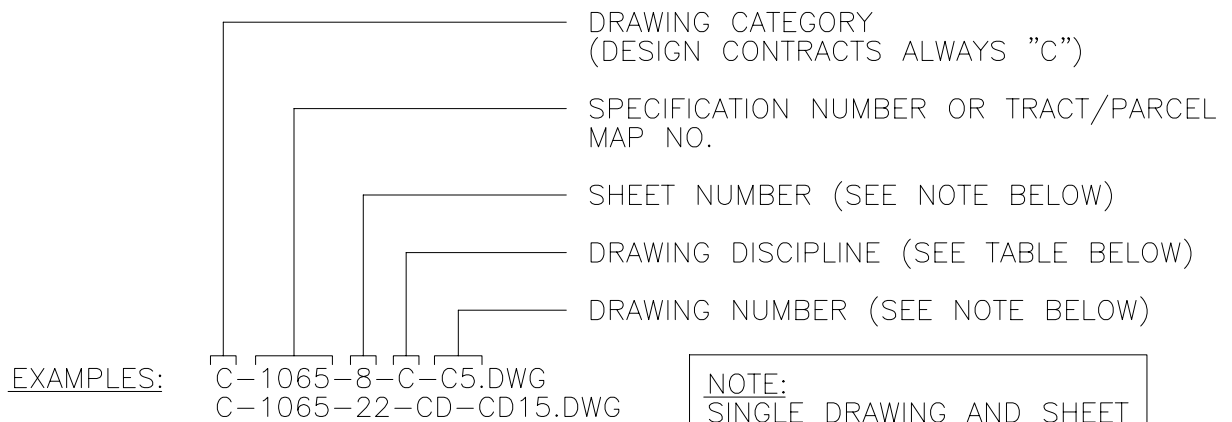
Files containing more information than what is specifically listed above are NOT acceptable and will be returned to the Applicant for correction.

AUTOCAD STANDARDS

FILE NOMENCLATURE TABLE
LAYERING NOMENCLATURE TABLE
MASTER LAYER LIST
PEN TABLE SETTINGS
LINE TYPES
TEXT FORMATS
DETAIL REFERENCES
REVISIONS/ADDENDUMS STANDARD
POTHOLE STANDARD
DISTRIBUTION SHEET STANDARD BLOCKS

W:\AUTOCAD\SBMWD CAD STANDARDS\BLOCKS-NOTES\SB-STD.DWG

FILE NOMENCLATURE FOR AUTOCAD GENERATED CONTRACT DRAWINGS



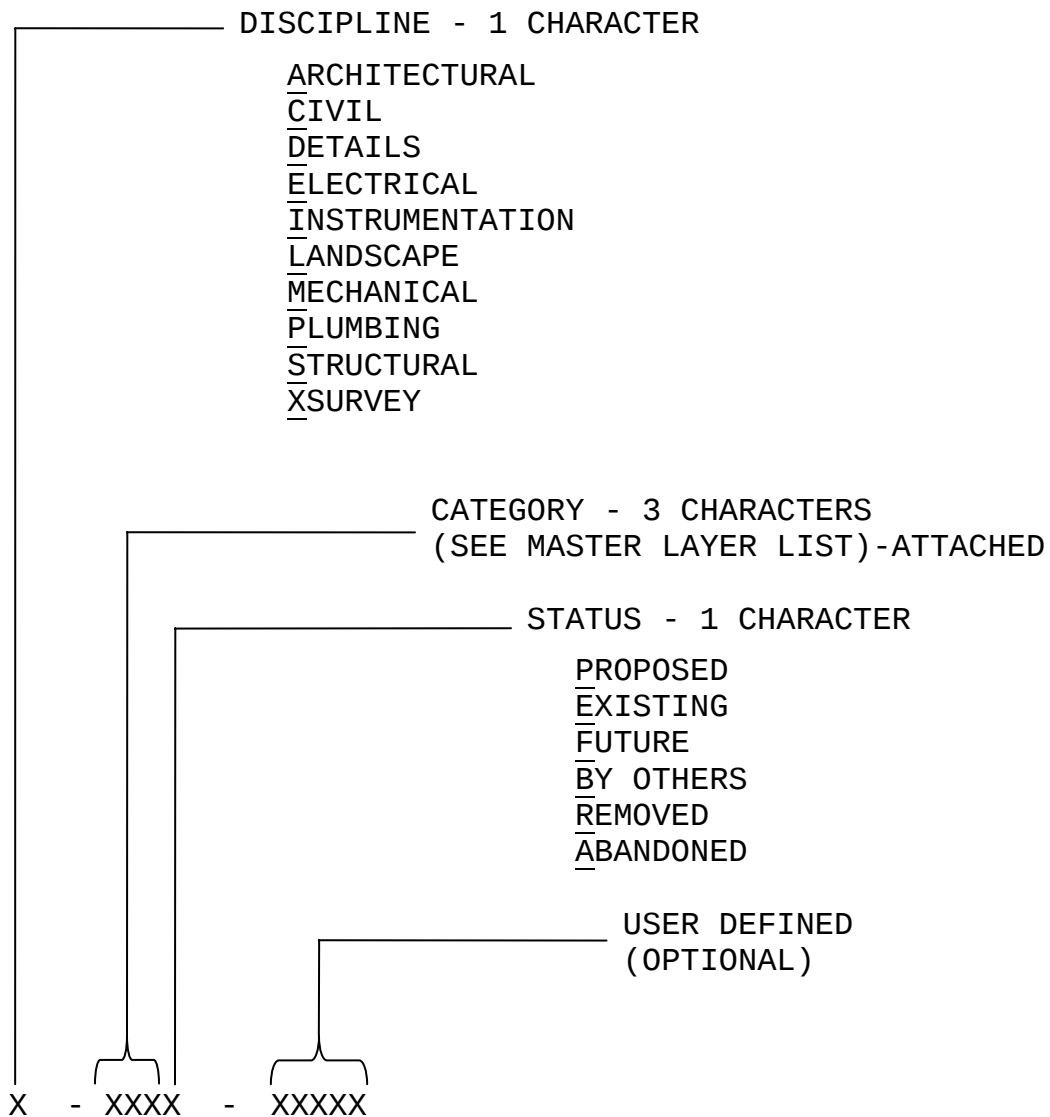
NOTE:
SINGLE DRAWING AND SHEET
NUMBERS ARE NOT TO BE
PADDED WITH "0" (TYP).

DRAWING DISCIPLINE TABLE

A	ARCHITECTURAL PLAN SHEETS
AD	ARCHITECTURAL DETAIL SHEETS
C	CIVIL PLAN SHEETS
CD	CIVIL DETAIL SHEETS
D	DEMOLITION PLANS
E	ELECTRICAL PLAN SHEETS
ED	ELECTRICAL DETAIL SHEETS
F	FIRE PROTECTION PLAN SHEETS
FD	FIRE PROTECTION DETAIL SHEETS
G	GENERAL SHEETS
I	INSTRUMENTATION PLAN SHEETS
ID	INSTRUMENTATION DETAIL SHEETS
L	LANDSCAPING AND IRRIGATION PLAN SHEETS
LD	LANDSCAPE AND IRRIGATION DETAIL SHEETS
M	MECHANICAL SHEETS
MD	MECHANICAL DETAIL SHEETS
P	PLUMBING PLAN SHEETS
PD	PLUMBING DETAIL SHEETS
S	STRUCTURAL PLAN SHEETS
SD	STRUCTURAL DETAIL SHEETS
SV	SURVEY SHEETS
T	TRAFFIC PLAN SHEETS
TD	TRAFFIC DETAIL SHEETS
X	EXHIBIT/INTERPRETIVE SHEET
XD	EXHIBIT/INTERPRETIVE DETAIL SHEET

LAYER FORMAT FOR AUTOCAD

GENERATED CONTRACT DRAWINGS



EXAMPLES: C-RDSP-EAST (CIVIL-ROADS PROPOSED-EAST ROAD)
C-WTRX-36IN (CIVIL-WATER EXISTING-36 INCH WATER LINE)
L-LANP-ROCK (LANDSCAPE-LANDSCAPE PROPOSED-ROCKS)
X-TEXT1-SURVEY (SURVEY-TEXT1-SURVEY TEXT LAYER)

MASTER LAYER LIST

LAYER PREFIX GROUPING	STATUS SUFFIX BY PEN COLOR							LINETYPE BY STATUS (• INDICATES ONE LINETYPE FOR ALL STATUS SUFFIXES)										DESCRIPTION	
	DEFAULT COLOR (FOR ALL)	P PROPOSED	X EXISTING	F FUTURE	B BY OTHERS	R REMOVED	A ABANDONED	CENTER	CONTINUOUS	DASHED	DASHEDX2	HIDDEN	HIDDEN2	PHANTOM	PHANTOM2	DOT2	SCREENING % (P, F & B)		SCREENING % (X, R, & A)
O	7								•								100	100	MISCELLANEOUS LAYER
WAL	9																70	70	• BLOCKWALL OR FENCE
* CITYVIEW																	100	100	CITY LOCATION MAP MVIEW FOR DISTRICT USE
*CORNERS																	100	100	INTERIOR BORDER OF TITLE BLOCK
BLD		2	9	-	-	-	-		P			X					100	70	BUILDING
CEN	1							•									100	100	CENTERLINES
CON		3	252	-	-	-	-		P			X					100	50	CONTOURS, PROFILE GRADES
DIT		2	9	2	2	-	-				•						100	70	• DITCHES, WASHES AND TRENCHES
EAS	3											•					100	100	EASEMENTS
GRID-1	9								•								70	70	INTERMEDIATE PROFILE LINES PER EXAMPLE
GRID-2	252								•								50	50	PROFILE BORDER LINES PER EXAMPLE
PRL	2								•								100	100	PROPERTY LINES
RDS		2	9	2	2	9	9		P, F	B	X	R, A					100	70	ALL SIDEWALK, CURB & GUTTER, DRIVEWAYS, AND ROADS
ROW	4													•			100	100	RIGHT-OF-WAY
SEC	3														•		100	100	SECTION LINES
SGN		1	9	1	1	9	9		•								100	70	SIGNS
SLT		2	9	2	2	9	9										100	70	STREET LIGHT
UTL		1	9	1	1	9	9										100	70	• UTILITIES
WTR		6	9	3	3	9	9		P	B	X	R, A	F				100	70	WATERLINES
APP		4	9	2	2	9	9		P	B	X	R, A	F				100	70	WATERLINE APPURTANANCES
AGO		3	9	1	2	9	9		•								100	70	ABOVE GROUND ONSITE
DET		3	2	1	1	2	2		•								100	70	DETAILS
EQP		3	1	1	1	1	1		P	X			F, R, A, B				100	70	EQUIPMENT
SIT		3	1	1	1	1	1		•								100	70	SITE PLANS
GND		3	1	2	-	1	1		•								100	70	GROUNDING
UGO		3	1	2	1	1	1		•								100	70	UNDERGROUND ONSITE
HATCH		1	9	-	-	-	-		•								100	70	ALL HATCHING
LAN		2	9	2	2	9	9		•								100	70	ALL LANDSCAPING
XREF	7								•								100	100	EXTERNAL REFERENCE
*MTOOLS									•								100	100	MODEL SPACE

* - REFERENCE LAYER

BLACK AND WHITE PLOTTER PEN EXAMPLES

PEN NUMBER	COLOR	INCHES
1	RED	0.005
2	YELLOW	0.008
3	GREEN	0.012
4	CYAN	0.018
5	BLUE	0.028
6	MAGENTA	0.038
7	WHITE	0.050
9	GRAY	0.010
11	PINK	0.010
252	GRAY	0.008

NOTE: COLOR #9 IS TO BE USED FOR ALL EXISTING, REMOVED, AND ABANDONED LAYERS AND SCREENED TO 70%. COLOR #11 IS TO BE USED FOR MIEWS, HIDE BOXES, AND ALL NON-PLOTTING OBJECTS ONLY AND SCREENED TO 0%. COLOR #252 IS TO BE USED FOR CONTOURS AND PROFILE GRIDS ONLY AND BE SCREENED TO 50%. OTHER USES SCREENINGS AND PEN WIDTHS OF COLORS #9, #11, AND #252 SHALL BE DETERMINED AND APPROVED BY SBMWD PRINCIPAL ENGINEER.

LINETYPES

DESCRIPTION	LINETYPE
CENTER	_____
CONTINUOUS	_____
DASHED	- - - - -
DASHDX2	_____
HIDDEN	- - - - -
HIDDEN2	- - - - -
PHANTOM	_____
PHANTOM2	- - - - -
DOT2	

NOTE: WHEN IN MODEL SPACE LTSCALE WILL ALWAYS BE 0.5 x DRAWING SCALE. WHEN IN PAPER/LAYOUT SPACE THE PSLTSCALE WILL BE TOGGLED TO 1.

AUTOCAD TEXT FORMAT FOR CONTRACTS

STYLE: TEXT1

FONT: ROMANS.SHX

SIZE: 0.10 x DRAWING SIZE

WIDTH: 1 OBLIQUING ANGLE: 0

LAYER: TEXT1

USAGE: ALL OTHER TEXT, DIMENSIONING, LEADERS, ARROWS, AND NOTES.

EXAMPLE: 10'-0", (TYP), STA. 10+00.00

ALL TEXT IS TO BE UPPER CASE,
UNLESS APPROVED OTHERWISE BY
SBMWD PRINCIPAL ENGINEER.

STYLE: TEXT2

FONT: BOLD.SHX

SIZE: 0.24 x DRAWING SIZE

WIDTH: 1 OBLIQUING ANGLE: 0

LAYER: TEXT2

USAGE: STREET NAMES

EXAMPLE: **RIALTO AVENUE**

ALL TEXT IS TO BE UPPER CASE,
UNLESS APPROVED OTHERWISE BY
SBMWD PRINCIPAL ENGINEER.

STYLE: TEXT3

FONT: BOLD.SHX

SIZE: 0.20 x DRAWING SIZE

WIDTH: 1 OBLIQUING ANGLE: 0

LAYER: TEXT3

USAGE: DETAIL AND DRAWING TITLES

EXAMPLE: **SITE PLAN, BLOW-OFF DETAIL**

ALL TEXT IS TO BE UPPER CASE,
UNLESS APPROVED OTHERWISE BY
SBMWD PRINCIPAL ENGINEER.

STYLE: TEXT4

FONT: ROMANS.SHX

SIZE: 0.15 x DRAWING SIZE

WIDTH: 1 OBLIQUING ANGLE: 0

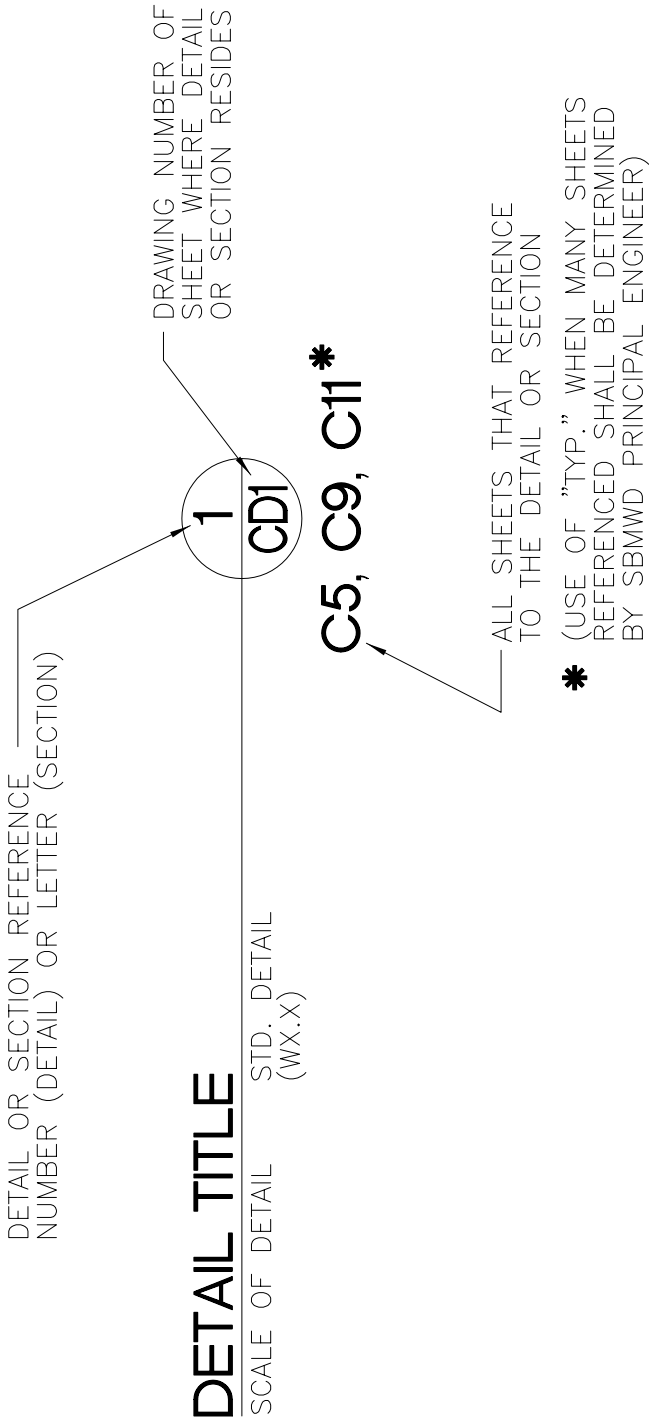
LAYER: TEXT4

USAGE: MATCHLINES, PROFILE GRID STA. AND ELEV., INTERMEDIATE DETAIL TITLES

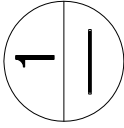
EXAMPLE: DETAIL "C", TRENCH SECTIONS

ALL TEXT IS TO BE UPPER CASE,
UNLESS APPROVED OTHERWISE BY
SBMWD PRINCIPAL ENGINEER.

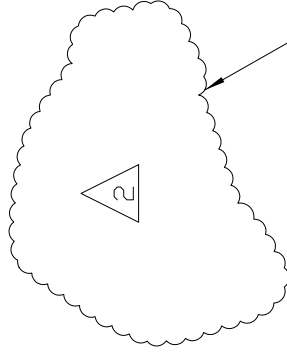
SAMPLE REFERENCE IDENTIFICATION STANDARD



NOTE:
IF DETAIL AND/OR SECTION ARE SHOWN ON
SAME DRAWING, DRAWING NUMBER IS TO BE
REPLACED BY A DASH. EX:



REVISION/ADDENDUM STANDARD



-CREATE NOTE AS SHOWN BELOW STATING THE ENGINEER AND DATE THE ORIGINAL DRAWING WAS SIGNED USING THE STANDARD TEXT1 FONT FORMAT.

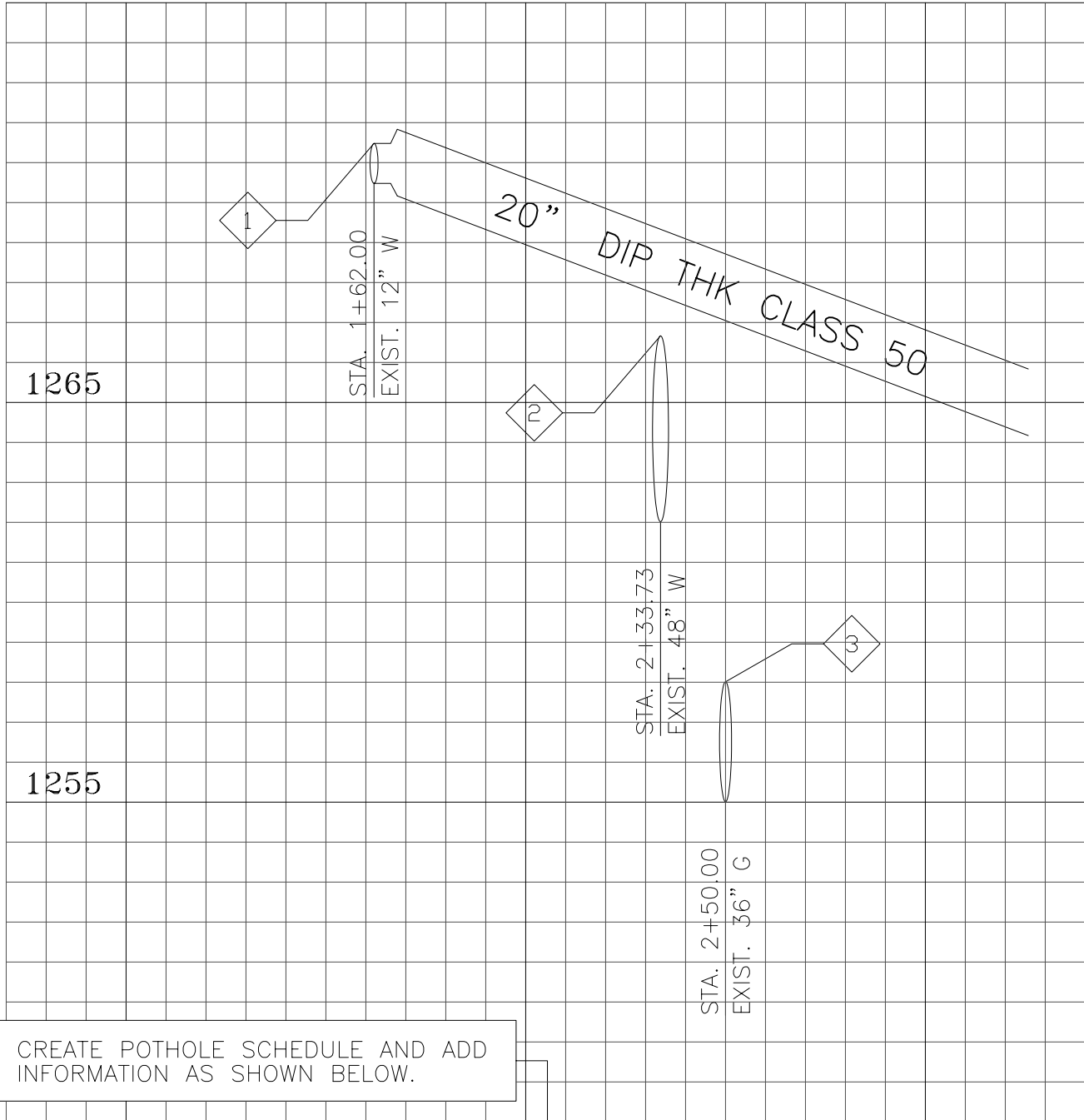
ALL CHANGES TO BE CLOUDED AND REVISION TRIANGLE SYMBOL TO BE PLACED WITHIN THE CLOUDED AREA.

ALL CHANGES TO BE CLOUDED AND
REVISION TRIANGLE SYMBOL TO BE
PLACED WITHIN THE CLOUDED AREA.

ORIGINAL CONSTRUCTION DRAWING
WAS SIGNED AND SEALED ON
10/10/99
BY
JOHN Q. DOE
UNDER CA LICENSE NO. XXXX

--

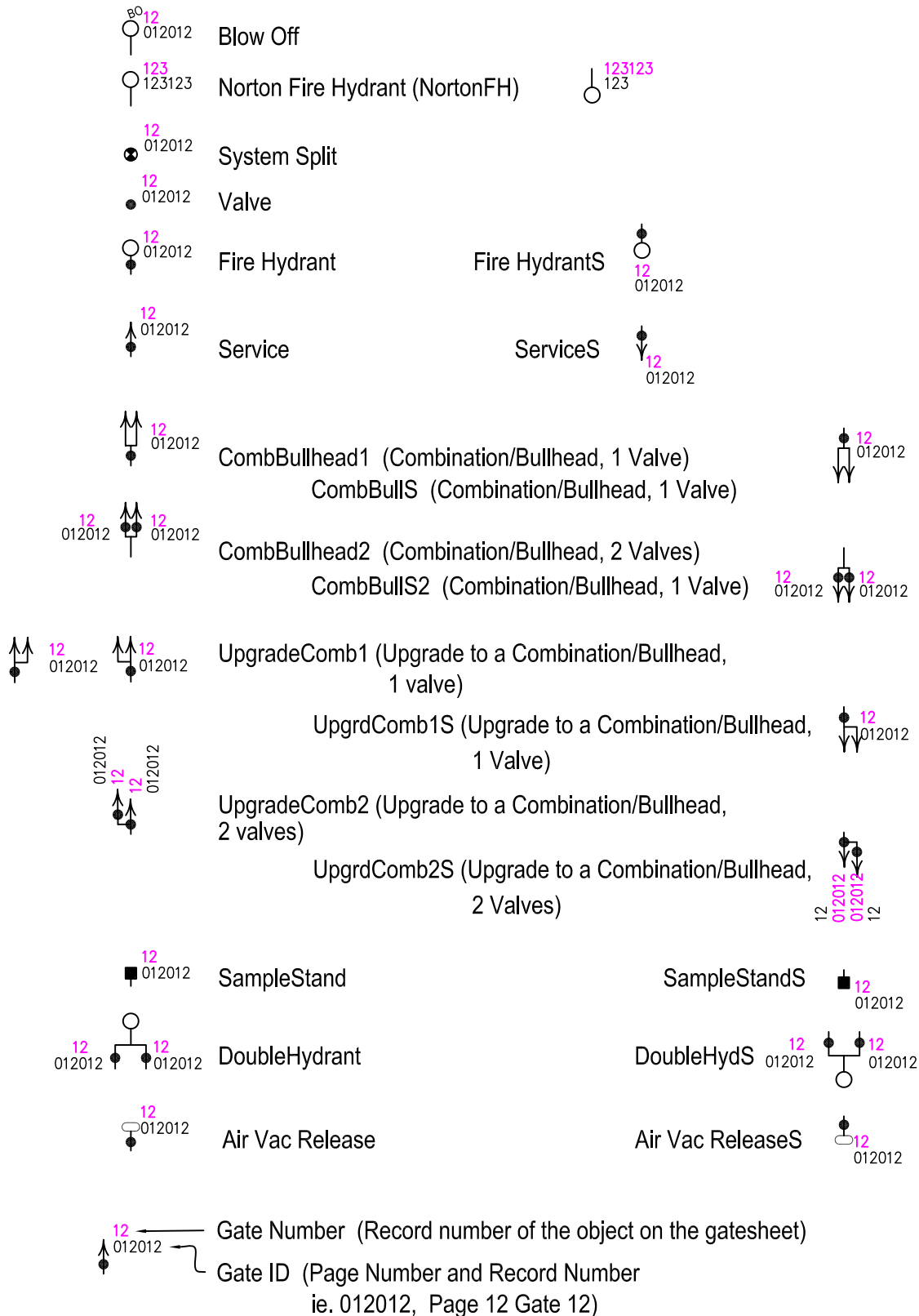
POTHOLE STANDARD



POTHOLE SCHEDULE		
NO.	ELEVATION	DESCRIPTION
1	1270.5'± FL	12" DIP WATERLINE
2	1262.0'± FL	48" CML/C STEEL WATERLINE
3	1258.0'±	36" STEEL GAS

* CONTRACTOR IS STILL REQUIRED TO POTHOLE ALL UTILITIES PRIOR TO CONSTRUCTION.

Distribution Sheet Standard Blocks



AS-BUILT AND CONFORMED BLOCKS STANDARD

THE FOLLOWING BLOCK SHALL BE PLACED ON EACH MYLAR SHEET AND TECHNICAL SPECIFICATIONS COVER SHEET WHEN ALL ADDENDUMS HAVE BEEN INCORPORATED INTO THE BIDDING PHASE WATER IMPROVEMENT PLANS AND CONTRACT DOCUMENTS AND HAS BEEN APPROVED BY SBMWD ENGINEERING

CITY OF SAN BERNARDINO WATER DEPARTMENT CONFORMED APPROVED FOR CONSTRUCTION BY: _____ DATE: _____
--

THE FOLLOWING BLOCK SHALL BE PLACED ON EACH MYLAR SHEET OF THE WATER IMPROVEMENT PLANS WHEN ALL FIELD CHANGES HAVE BEEN INCORPORATED INTO THE CONFORMED WATER IMPROVEMENT PLANS AND APPROVED BY SBMWD ENGINEERING

CITY OF SAN BERNARDINO WATER DEPARTMENT AS - BUILT BY: _____ DATE: _____

DEVELOPER-INSTALLED AUTOCAD STANDARDS

W:\AUTOCAD\SBMWD CAD STANDARDS\TRACTS\

C-TXXXX-G-G1.dwg
C-TXXXX-G-G2.dwg
C-TXXXX-C-C1.dwg
C-TXXXX-CD-CD1.dwg

SERVICE SCHEDULE			
SIZE	TYPE	STD. NO.	BACKFLOW REQ.
5/8"	DOMESTIC	W 1.1	NO
5/8" x 1"	COMBINATION DOMESTIC & FIRE	W 1.3	NO
2"	IRRIGATION	W 1.2	YES - RPP

NOTE: LOTS 31 THRU 47 TO HAVE COMBINATION DOMESTIC AND FIRE SERVICE.

MATERIALS LIST AND QUANTITIES		
SIZE	DESCRIPTION	CONFIGURATION
12"	AWMA C151 CML D.I.P.	TJ
8"	AWMA C151 CML D.I.P.	TJ
6"	AWMA C151 CML D.I.P.	TJ
6"	AWMA C503-82 F.H. W/BURY	1-2-1/2"
8"	G.V. W/CAN AWMA C509	FL X MJ
8"	G.V. W/CAN AWMA C509	FLG X FLG
12"	G.V. W/CAN AWMA C509	FL X MJ
8"	ADAPTER	FL X MJ
12"	ADAPTER	FL X MJ
6"	G.V. W/CAN AWMA C509	FL X MJ
STD.	BLUE DOT PMNT. MARKER	S.B.M.W.D. STD. W6.7
2"	CHLORINATION PORT	S.B.M.W.D. STD. W6.7
12"	TEE	FL
12"x12"x6"	TEE	MJ X MJ X FL
8"x8"x6"	TEE	FL
8"	TEE	FL
8"	90° BEND CML D.I.P.	MJ X MJ
12"x8"	D.I. REDUCER	FLXFL
8"	TEST PLATES FL	S.B.M.W.D. STD. W3.5
12"	TEST PLATES FL	S.B.M.W.D. STD. W3.5
1'	AIR VACUUM RELEASE VALVE	S.B.M.W.D. NO. W 7.1
6"	MJ RESTRAINT JOINT	MEGA-LUG
8"	MJ RESTRAINT JOINT	MEGA-LUG
12"	MJ RESTRAINT JOINT	MEGA-LUG
*8"	MJ RESTRAINT JOINT	FIELD-LOK
*12"	MJ RESTRAINT JOINT	FIELD-LOK

* NUMBER IS APPROXIMATE. ACTUAL NUMBER WILL DEPEND ON PIPE LENGTHS USED IN RESTRAINED AREAS.

QUANTITY NOTES:	
1.	QUANTITIES ARE FOR PLAN CHECK AND BONDING PURPOSES ONLY.
2.	CONTRACTOR IS RESPONSIBLE FOR CALCULATING OWN QUANTITIES.
WATER METER NOTE:	
CONTRACTOR TO LOCATE SERVICE LATERALS AND WATER METERS	

JOINT RESTRAINT NOTE:	
1. USE MEGA-LUGS FOR JOINT RESTRAINT AT FITTINGS. 2. USE FIELD-LOK CASSETS FOR JOINT RESTRAINT AT PIPE JOINTS.	

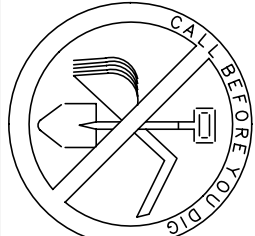
LEGEND:	
	FIRE HYDRANT
	EXISTING VALVE
	PROPOSED GATE VALVE
	RESTRAINED JOINTS
	PROPOSED WATER LINE
	EXISTING WATER LINE
	CHLORINATION FLUSHING PORT

INDEX MAP	
SCALE 1" = 80'	
	MECHANICAL JOINT (MJ) BEND
	HORIZONTAL DEFLECTION BY JOINT
	PIPE CROSSING OVER EXISTING
	PIPE CROSSING UNDER EXISTING
	BLOWOFF ASSEMBLY
	AIR VACUUM AND/OR AIR RELEASE VALVE

SHEET INDEX	
SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	GENERAL NOTES
3	PLAN/PROFILE
4	STANDARD DETAILS
5	STANDARD DETAILS
6	STANDARD DETAILS

WATER DEPARTMENT'S ENGINEER CERTIFICATE	
THIS CERTIFIES THAT ON _____ I REVIEWED THE PLAN FOR THE 1720 ZONE WEST TRANSMISSION MAIN, AND FOUND THAT IT MEETS THE MINIMUM REQUIREMENTS OF THE CALIFORNIA HEALTH AND SAFETY CODE.	
MATTHEW H. LITCHFIELD P.E. DIRECTOR, WATER UTILITY CA. R.C.E. 58079 EXPIRATION DATE: 6/30/2010 (909) 384-5107	DATE: _____

UNDERGROUND SERVICE ALERT



CALL: TOLL FREE
1-800
227-2600

DECLARATION OF RESPONSIBLE CHARGE, ENGINEER OF WORK:
I HEREBY DECLARE THAT I AM THE ENGINEER OF WORK FOR THIS PROJECT, THAT I HAVE EXERCISED RESPONSIBLE CHARGE OVER DESIGN OF THIS PROJECT AS DEFINED IN SECTION 17200 ZONE WEST TRANSMISSION MAIN, AND FOUND THAT IT MEETS THE MINIMUM REQUIREMENTS OF THE CALIFORNIA HEALTH AND SAFETY CODE.

ENGINEER'S SEAL

APPROVED BY: _____
REGISTERED CIVIL ENGINEER No. XXXXX

DATE: _____

MARK	REVISIONS	DESIGNED BY: XX	DRAWN BY: XX	CHECKED BY: XX	APPROVED BY: XX	DATE

MARK	REVISIONS	DESIGNED BY: XX	DRAWN BY: XX	CHECKED BY: XX	APPROVED BY: XX	DATE

BENCHMARK:	

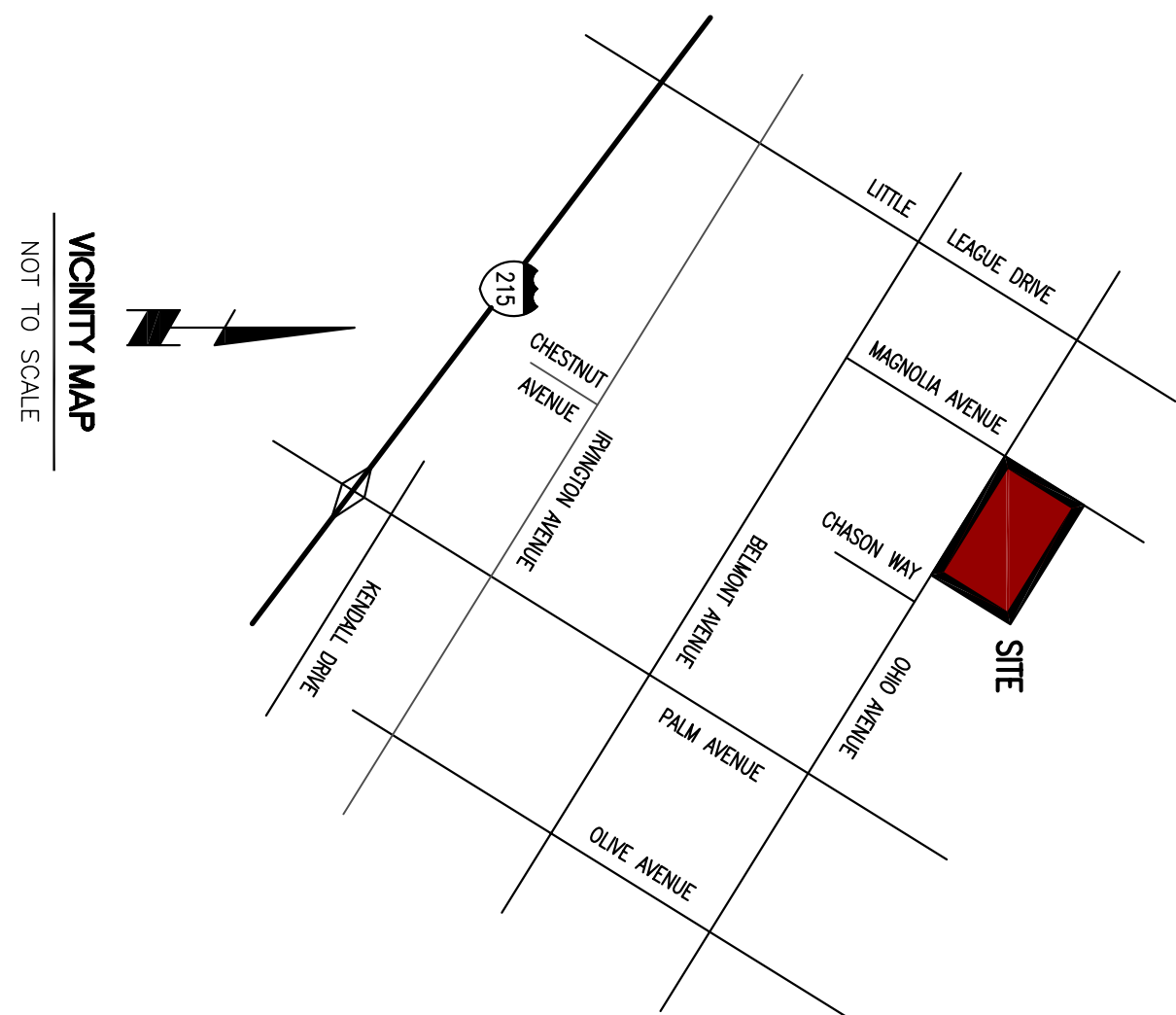
CITY OF SAN BERNARDINO MUNICIPAL WATER DEPARTMENT	
PROJECT TITLE	
TITLE SHEET	

DRAWING SCALES:	
HORIZ. N/A	VERT. N/A
C.O. NO.:	XXX
DWG G1	
SHEET 1 OF XX	

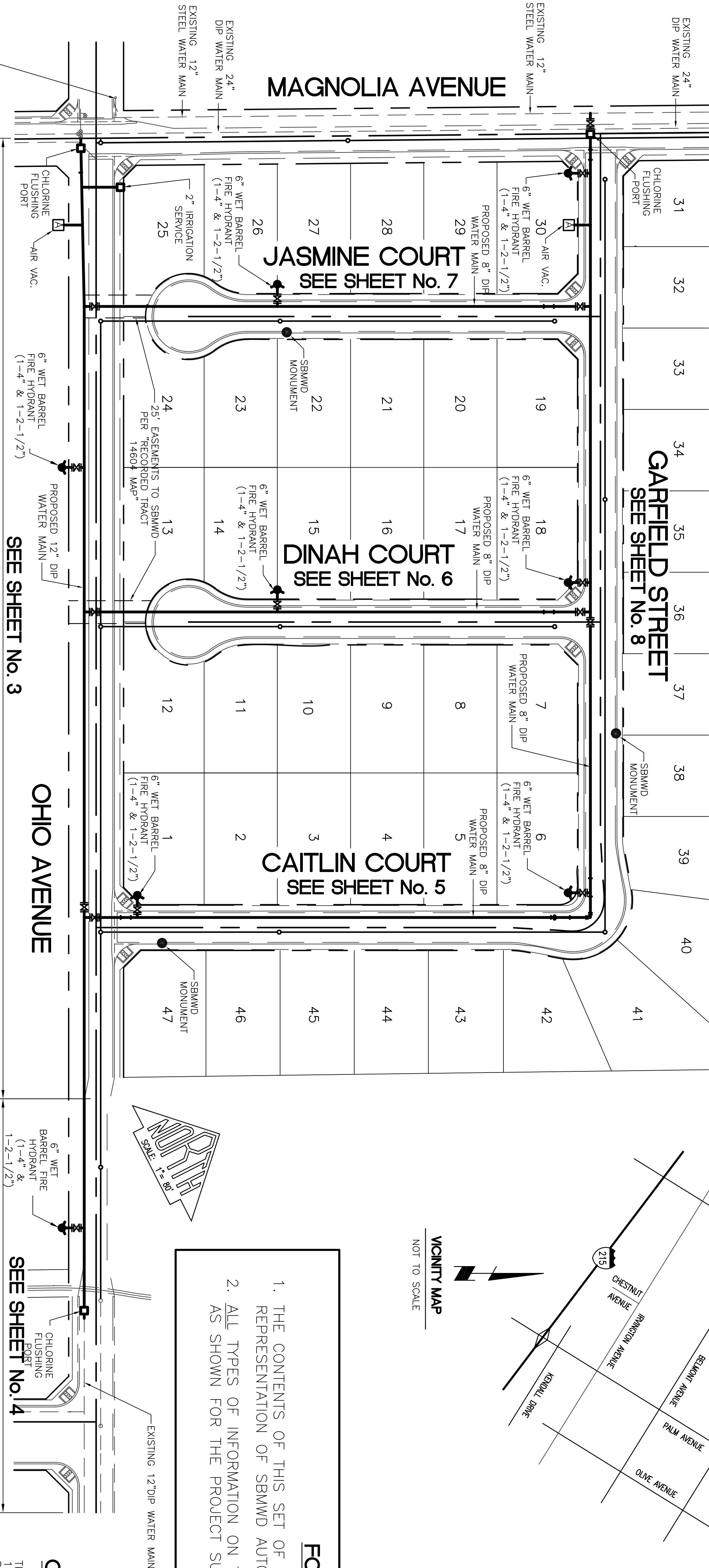
SAN BERNARDINO MUNICIPAL WATER DEPARTMENT

TRACT NO. XXXXX

WATER IMPROVEMENT PLANS



VICINITY MAP
NOT TO SCALE



1. THE CONTENTS OF THIS SET OF DRAWINGS WAS CREATED TO PROVIDE A GRAPHIC REPRESENTATION OF SBMWD AUTOCAD STANDARD REQUIREMENTS AND EXPECTATIONS.

2. ALL TYPES OF INFORMATION ON THIS SET OF DRAWINGS IS REQUIRED TO BE PROVIDED AS SHOWN FOR THE PROJECT SUBMITTAL TO BE ACCEPTED AND APPROVED (TYP).

FOR EXAMPLE ONLY

1. INSTALL 8" PRESSURE CLASS 350 AND CEMENT MORTAR LINED DUCTILE IRON PIPE PER S.B.M.W.D. STANDARD SPECIFICATIONS.
2. INSTALL 6" PRESSURE CLASS 350 AND CEMENT MORTAR LINED DUCTILE IRON PIPE PER S.B.M.W.D. STANDARD SPECIFICATIONS.
3. INSTALL 12"x8" FLXFL DUCTILE IRON REDUCER.
4. INSTALL 6" FIRE HYDRANT ASSEMBLY PER S.B.M.W.D. STD. DWG. NO. W 2.2 (CONFIG. A).
5. INSTALL 8" FL X MJ GATE VALVE PER S.B.M.W.D. STD. DWG. NO. W 3.1.
6. INSTALL 6" FL X MJ GATE VALVE PER S.B.M.W.D. STD. DWG. NO. W 3.1.
7. INSTALL 8" MJ X 8" MJ X 6" FL DUCTILE IRON TEE.
8. INSTALL 8" FLG'D DUCTILE IRON TEE.
9. INSTALL 12" FLG'D DUCTILE IRON TEE.
10. INSTALL 8" FLG'D DUCTILE IRON 90° BEND.
11. INSTALL 8" FL X MJ DUCTILE IRON ADAPTOR.
12. INSTALL 1/8" TEST PLATE.
13. INSTALL 1" AIR RELEASE VALVE PER S.B.M.W.D. STD. DWG. NO. W7.1.
14. INSTALL 2" TEMPORARY CHLORINATION AND FLUSHING PORT, CHLORINATION AND FLUSHING PORT MAY NOT BE LOCATED MORE THAN TEN FEET FROM THE EXISTING SYSTEM TAP LOCATION. REMOVE PLATES AND INSTALL BRASS PLUGS AFTER PERMISSION IS GIVEN BY S.B.M.W.D.
15. INSTALL UNDER JOINT RESTRAINT PER MANUFACTURER'S SPECIFICATIONS AND S.B.M.W.D. STD. DWG. NO. W 6.4 ON ALL JOINTS WITHIN MINIMUM LENGTH SPECIFIED ON PLAN. SEE JOINT RESTRAINT NOTE.
16. INSTALL BLUE DOT PAVEMENT MARKER PER S.B.M.W.D. STD. DWG. NO. W 6.3.
17. WELD 8" FABRICATED CONTOURED NOZZLE ONTO EXISTING 12" STEEL WATER MAIN. APPLY BITUMASTIC COATING AND PIPE TAPE TO NOZZLE AND ANY DISTURBED COATINGS ON EXISTING WATER MAIN.
18. INSTALL 12" PRESSURE CLASS 350 CEMENT MORTAR LINED DUCTILE IRON PIPE PER S.B.M.W.D. STANDARD SPECIFICATIONS.
19. INSTALL 12" FL X MJ GATE VALVE PER S.B.M.W.D. STD. NO. W 3.1.
20. INSTALL 2" IRRIGATION WATER SERVICE PER S.B.M.W.D. STD. W 1.2.
21. INSTALL 12" FL X MJ DUCTILE IRON ADAPTOR.
22. INSTALL 12" MJ X 12" MJ X 6" FLG DUCTILE IRON TEE.
23. INSTALL 8" FLG X FLG GATE VALVE PER S.B.M.W.D. STD. DWG. W 3.1.

CITY FIRE DEPARTMENT'S CERTIFICATE

THIS CERTIFIES THAT ON _____ I REVIEWED THE PLAN FOR THE 1720 ZONE WEST TRANSMISSION MAIN, AND FOUND THAT IT MEETS THE MINIMUM REQUIREMENTS OF THE CITY OF SAN BERNARDINO FIRE DEPARTMENT'S FIRE CODES AND REGULATIONS.

DOUG DUPEEE
FIRE MARSHAL
(909) 384-5388

WATER DEPARTMENT'S ENGINEER CERTIFICATE

THIS CERTIFIES THAT ON _____ I REVIEWED THE PLAN FOR THE 1720 ZONE WEST TRANSMISSION MAIN, AND FOUND THAT IT MEETS THE MINIMUM REQUIREMENTS OF THE CALIFORNIA HEALTH AND SAFETY CODE.

MATTHEW H. LITCHFIELD P.E.
DIRECTOR, WATER UTILITY
CA. R.C.E. 58079
EXPIRATION DATE: 6/30/2010
(909) 384-5107

STANDARD AUTOCAD DRAWINGS

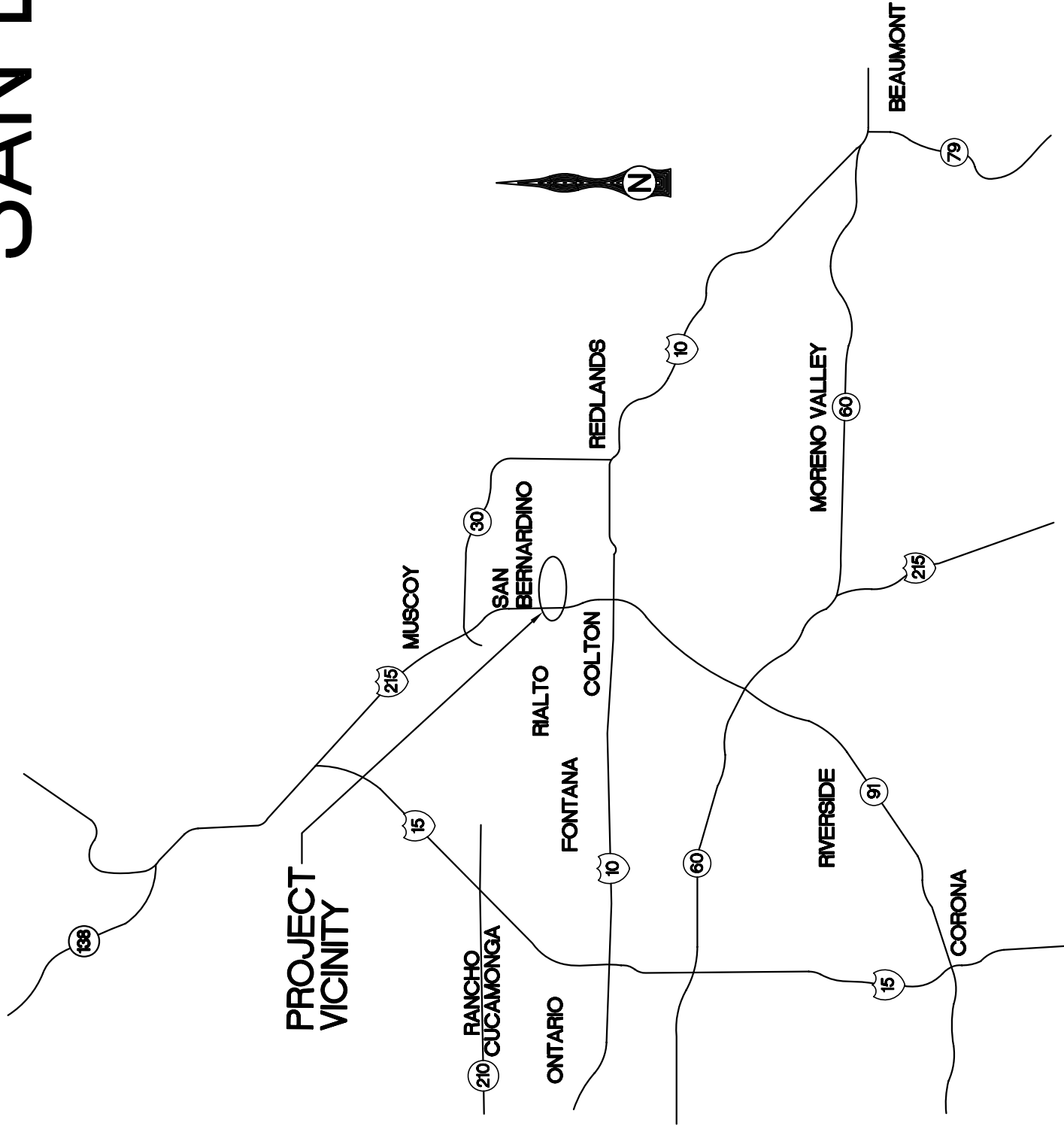
W:\AUTOCAD\SBMWD CAD STANDARDS\SPECIFICATIONS\

C-XXXX-1-G-G1.dwg
C-XXXX-2-G-G2.dwg
C-XXXX-3-G-G3.dwg
C-XXXX-4-G-G4.dwg
C-XXXX-5-SV-SV1.dwg
C-XXXX-6-C-C1.dwg
C-XXXX-7-CD-CD1.dwg
XXXX-BASE.dwg
XXXX-TOPO.dwg

SAN BERNARDINO MUNICIPAL WATER DEPARTMENT

SPECIFICATION NO. XXXX

PROJECT TITLE



VICINITY MAP
NOT TO SCALE



FOR EXAMPLE ONLY

1. THE CONTENTS OF THIS SET OF DRAWINGS WAS CREATED TO PROVIDE A GRAPHIC REPRESENTATION OF SBMWD AUTOCAD STANDARD REQUIREMENTS AND EXPECTATIONS.
2. ALL TYPES OF INFORMATION ON THIS SET OF DRAWINGS IS REQUIRED TO BE PROVIDED AS SHOWN FOR THE PROJECT SUBMITTAL TO BE ACCEPTED AND APPROVED (TYP).

SHEET INDEX

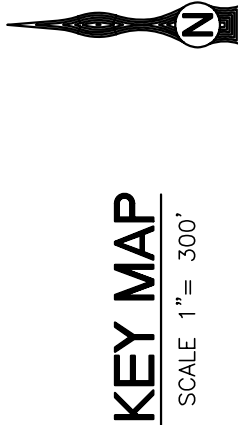
SHEET NO. DESCRIPTION

- 1 — SHEET
- 2 — GENERAL NOTES
- 3 — CONSTRUCTION NOTES, ESTIMATED QUANTITIES AND LEGEND
- 4 — ABBREVIATIONS, SURVEY INFORMATION AND PARK RECREATION NOTES
- 5 — RIGHT-OF-WAY AND MONUMENTATION

- 6 — PLAN/PROFILE
- 7 — STANDARD DETAILS
- 8 — STANDARD DETAILS
- 9 — STANDARD DETAILS
- 10 — XXX
- 11 — XXX

↑ ↓

SEE SHEET XX SEE SHEET XX SEE SHEET XX SEE SHEET XX



KEY MAP

SCALE 1"= 300'

CITY FIRE DEPARTMENT'S CERTIFICATE

THIS CERTIFIES THAT ON _____ I REVIEWED THE PLAN FOR THE 1720 ZONE WEST TRANSMISSION MAIN, AND FOUND THAT IT MEETS THE MINIMUM REQUIREMENTS OF THE CITY OF SAN BERNARDINO FIRE DEPARTMENT'S FIRE CODES AND REGULATIONS.

DOUG DUPREE
FIRE MARSHALL
(909) 384-5388

DATE _____

WATER DEPARTMENT'S ENGINEER CERTIFICATE

THIS CERTIFIES THAT ON _____ I REVIEWED THE PLAN FOR THE 1720 ZONE WEST TRANSMISSION MAIN, AND FOUND THAT IT MEETS THE MINIMUM REQUIREMENTS OF THE CALIFORNIA HEALTH AND SAFETY CODE.

MATTHEW H. LITCHFIELD, P.E.
DIRECTOR, WATER UTILITY
CA. R.C.E. 58079
EXPIRATION DATE: 6/30/2010
(909) 384-5107

DATE _____

UNDERGROUND SERVICE ALERT
CALL: TOLL FREE
1-800-227-2600
TWO WORKING DAYS BEFORE YOU DIG

DECLARATION OF RESPONSIBLE CHARGE ENGINEER OF WORK:
I HEREBY DECLARE THAT I AM THE ENGINEER OF WORK FOR THIS PROJECT, THAT I HAVE EXERCISED RESPONSIBLE CHARGE OVER DESIGN OF THIS PROJECT AS DEFINED IN SECTION 91000 OF THE CALIFORNIA PROFESSIONAL ENGINEERING ACT, AND THAT THE DESIGN IS CONSISTENT WITH CURRENT STANDARDS.
I UNDERSTAND THAT THE CHECK OF PROJECT DRAWINGS AND SPECIFICATIONS BY THE SAN BERNARDINO MUNICIPAL WATER DEPARTMENT IS CONFINED TO A REVIEW ONLY AND DOES NOT RELIEVE ME, AS ENGINEER OF WORK, OF MY RESPONSIBILITIES FOR PROJECT DESIGN.

SIGNATURE _____ DATE _____

ENGINEER'S SEAL
INSERT ENGINEER'S STAMP HERE

APPROVED BY: _____ DATE: _____
REGISTERED CIVIL ENGINEER No. XXXXX

NAME _____
CONSULTANT LOGO NO. HERE _____
ADDRESS AND PHONE _____

BENCHMARK:

ELEV. = XXXX.XX FT.

MARK	REVISIONS	APPROVED	DATE	DESIGN ENGINEER	SBMWD ENGINEER

CITY OF SAN BERNARDINO
MUNICIPAL WATER DEPARTMENT

PROJECT TITLE

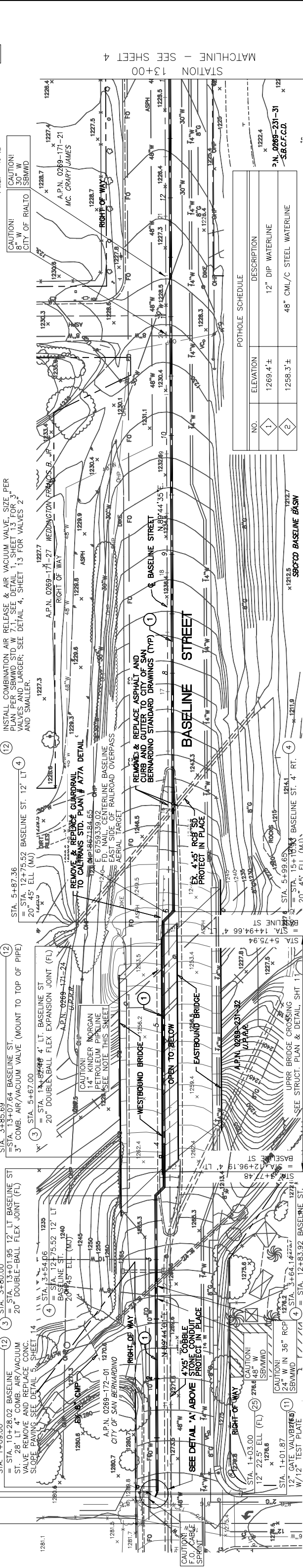
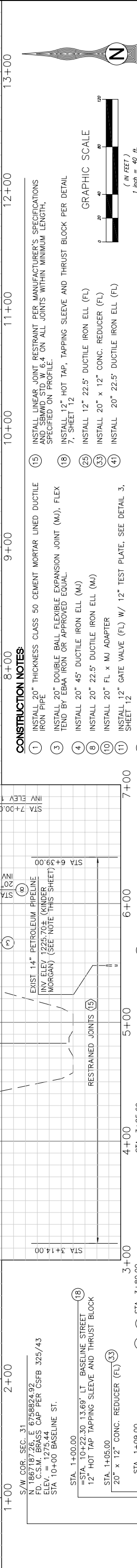
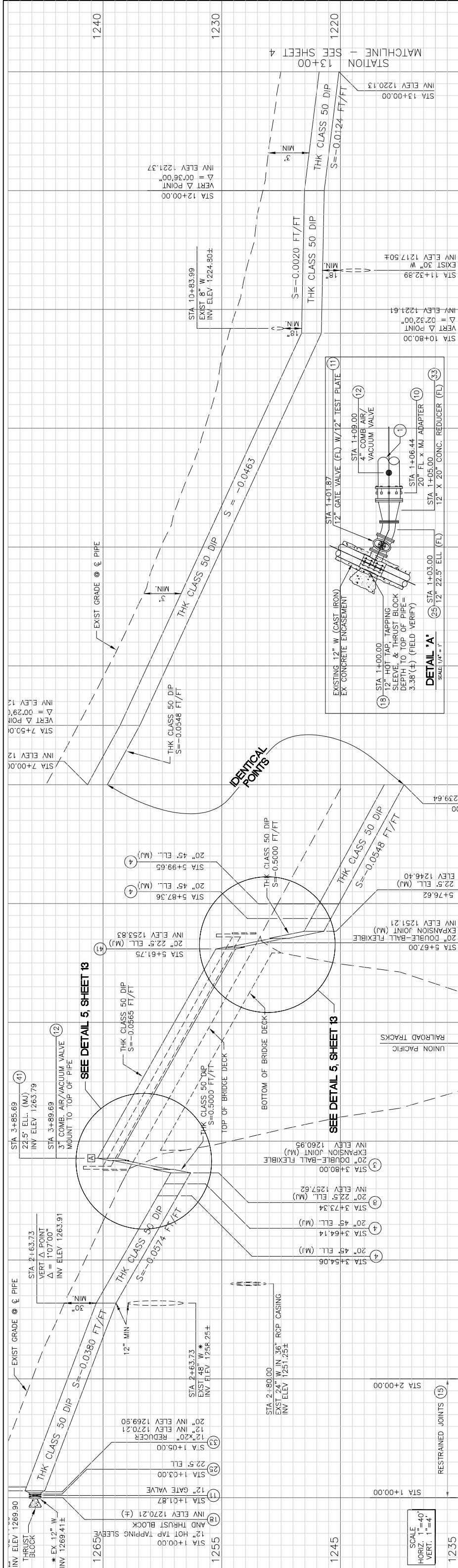
TITLE SHEET

DRAWING SCALES:
HORIZ. N/A VERT. N/A
C.O. NO.:
XXXX
DWG GI

SHEET 1 OF XX

C-XXXX-1-G-G1.DWG

[illegible]



POTHOLE SCHEDULE		
NO.	ELEVATION	DESCRIPTION
1	1269.4'±	12" DIP WATERLINE
2	1258.3'±	48" CML/C STEEL WATERLINE

[illegible]

PLANT MAP AUTOCAD STANDARDS

W:\AUTOCAD\SBMWD CAD STANDARDS\PLANT MAP\

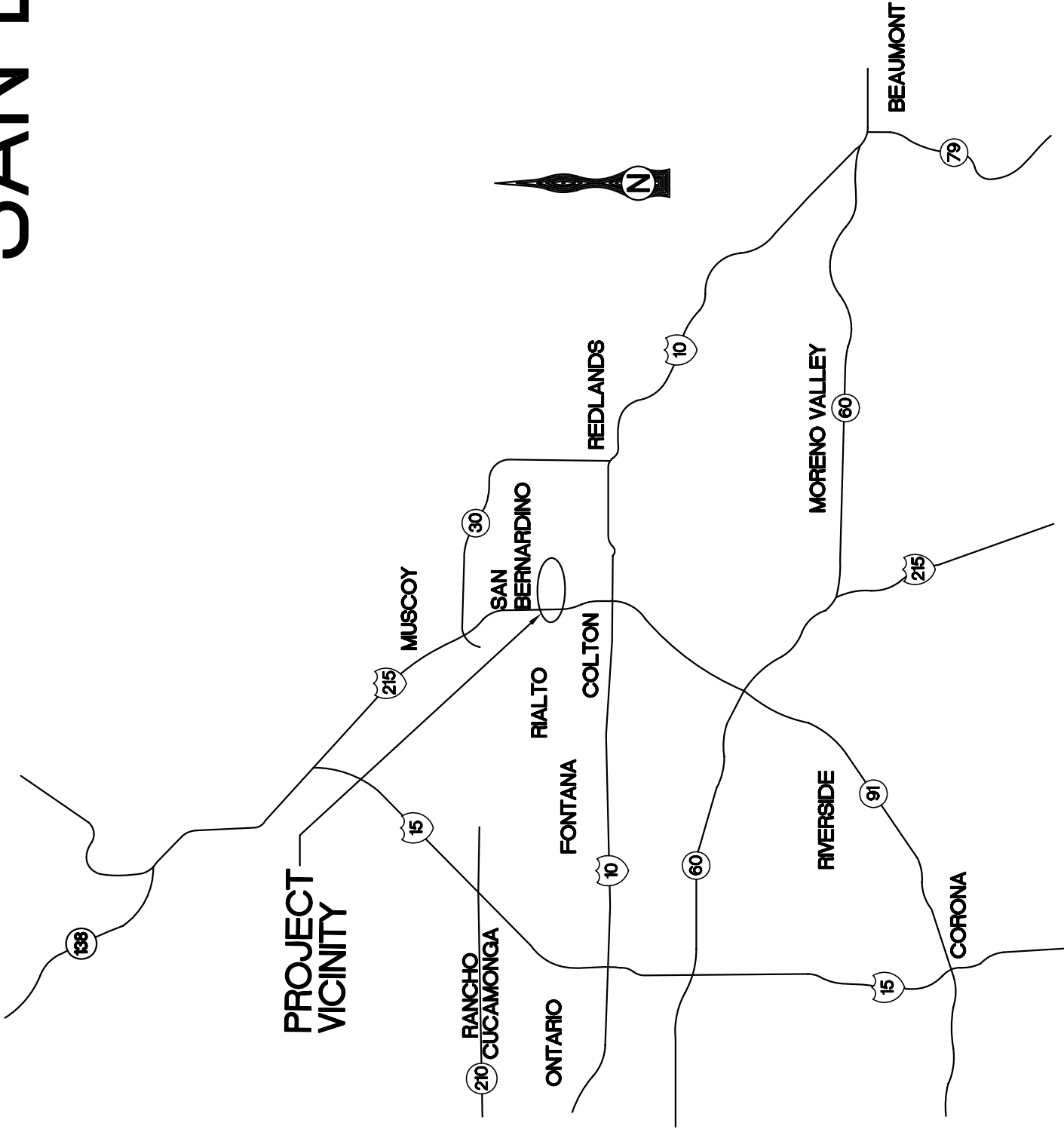
C-XXXX-1-G-G1.dwg
C-XXXX-2-SV-SV1.dwg
C-XXXX-3-C-C1.dwg
C-XXXX-4-C-C2.dwg
XXXX-BASE.dwg
XXXX-TOP0.dwg

SAN BERNARDINO MUNICIPAL WATER DEPARTMENT

SPECIFICATION NO. XXXX

WELL NO. XXXX

PLANT MAP



VICINITY MAP
NOT TO SCALE

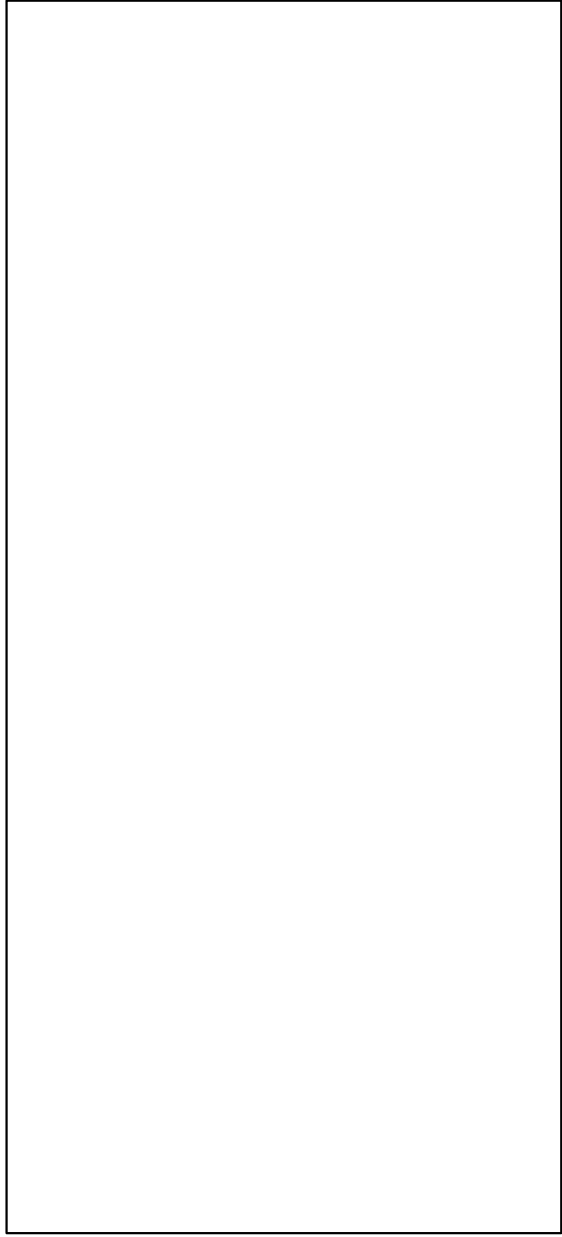
SHEET INDEX

SHEET NO. DESCRIPTION

1	—	TITLE SHEET
2	—	RECORD OF SURVEY
3	—	SITE PLAN
4	—	PIPING PLAN
5	—	XXX
6	—	XXX
↓	↓	↓

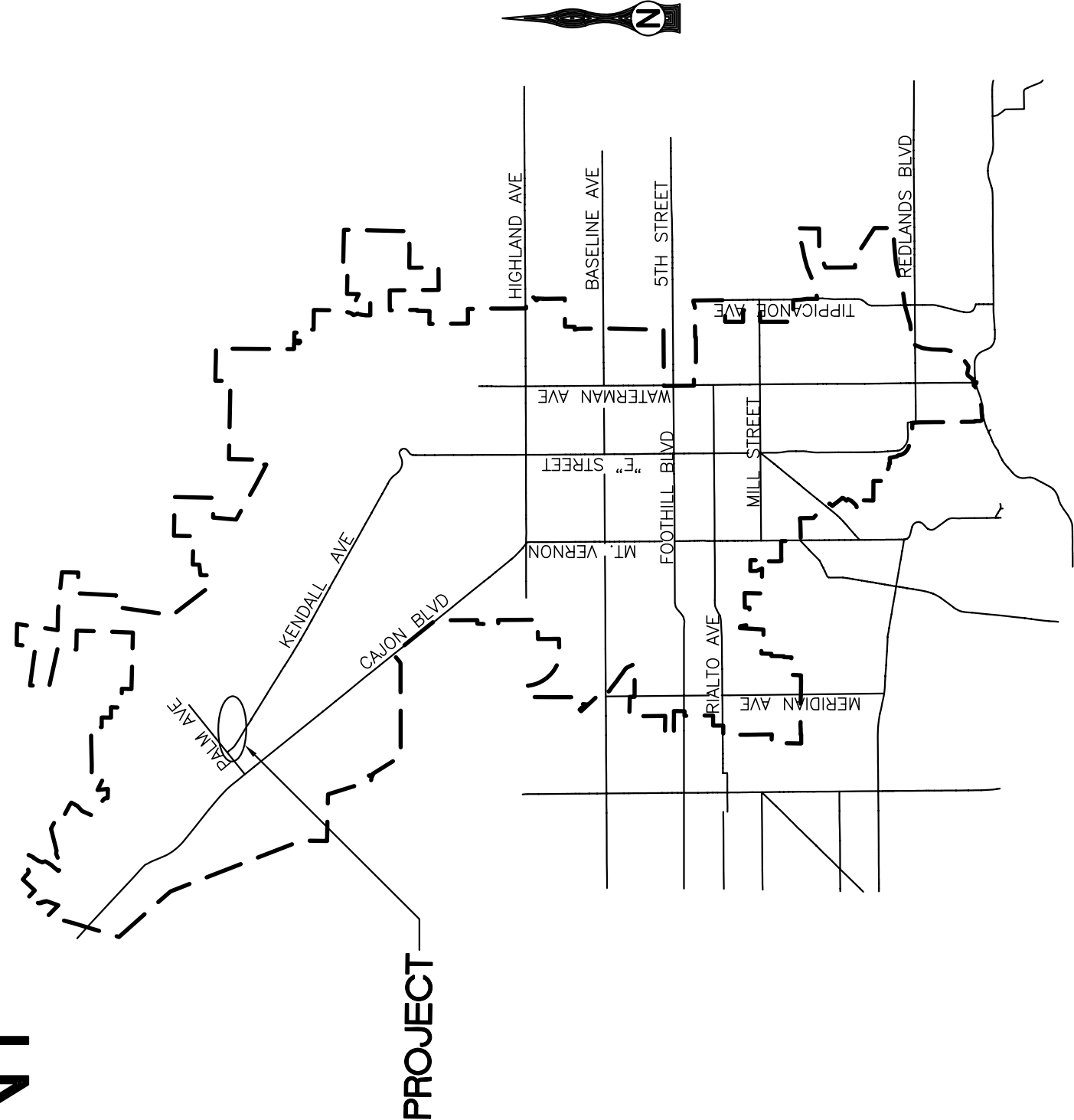
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SEE SHEET XX

KEY MAP
SCALE 1"= 300'



LOCATION MAP
NOT TO SCALE

CITY FIRE DEPARTMENT'S CERTIFICATE

THIS CERTIFIES THAT ON _____ I REVIEWED THE PLAN FOR THE 1720 ZONE WEST TRANSMISSION MAIN, AND FOUND THAT IT MEETS THE MINIMUM REQUIREMENTS OF THE CITY OF SAN BERNARDINO FIRE DEPARTMENT'S FIRE CODES AND REGULATIONS.

DOUG DUBREE
FIRE MARSHALL
(909) 384-5388

DATE _____

WATER DEPARTMENT'S ENGINEER CERTIFICATE

THIS CERTIFIES THAT ON _____ I REVIEWED THE PLAN FOR THE 1720 ZONE WEST TRANSMISSION MAIN, AND FOUND THAT IT MEETS THE MINIMUM REQUIREMENTS OF THE CALIFORNIA HEALTH AND SAFETY CODE.

MATTHEW H. LITCHFIELD, P.E.
DIRECTOR, WATER UTILITY
CA. R.C.E. 58079
EXPIRATION DATE: 6/30/2010
(909) 384-5107

DATE _____

UNDERGROUND SERVICE ALERT
CALL: TOLL FREE
1-800-227-2600
TWO WORKING DAYS BEFORE YOU DIG

DECLARATION OF RESPONSIBLE CHARGE ENGINEER OF WORK:
I HEREBY DECLARE THAT I AM THE ENGINEER OF WORK FOR THIS PROJECT, THAT I HAVE EXERCISED RESPONSIBLE CHARGE OVER DESIGN OF THIS PROJECT AS DEFINED IN SECTION 91000 OF THE CALIFORNIA PROFESSIONS CODE, AND THAT THE DESIGN IS CONSISTANT WITH CURRENT STANDARDS.
I UNDERSTAND THAT THE CHECK OF PROJECT DRAWINGS AND SPECIFICATIONS BY THE SAN BERNARDINO MUNICIPAL WATER DEPARTMENT IS CONFINED TO A REVIEW ONLY AND DOES NOT RELIEVE ME, AS ENGINEER OF WORK, OF MY RESPONSIBILITIES FOR PROJECT DESIGN.

SIGNATURE _____ DATE _____

ENGINEER'S SEAL

ENGINEER'S SEAL

CITY OF SAN BERNARDINO
MUNICIPAL WATER DEPARTMENT

BENCHMARK:

ELEV. = XXXX.XX FT.

REGISTERED CIVIL ENGINEER No. XXXXX
DATE: _____

APPROVED BY: _____
DESIGNED BY: XX, DRAWN BY: XX, CHECKED BY: XX, SBMWD ENGINEER

ENGINEER'S SEAL

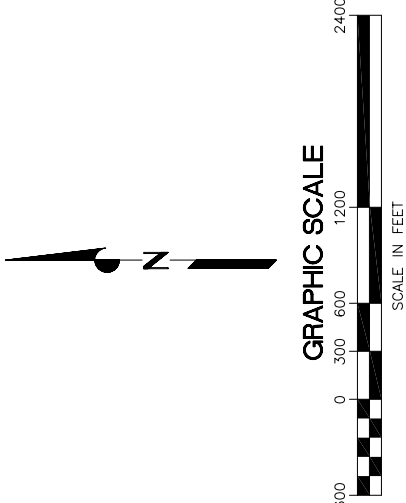
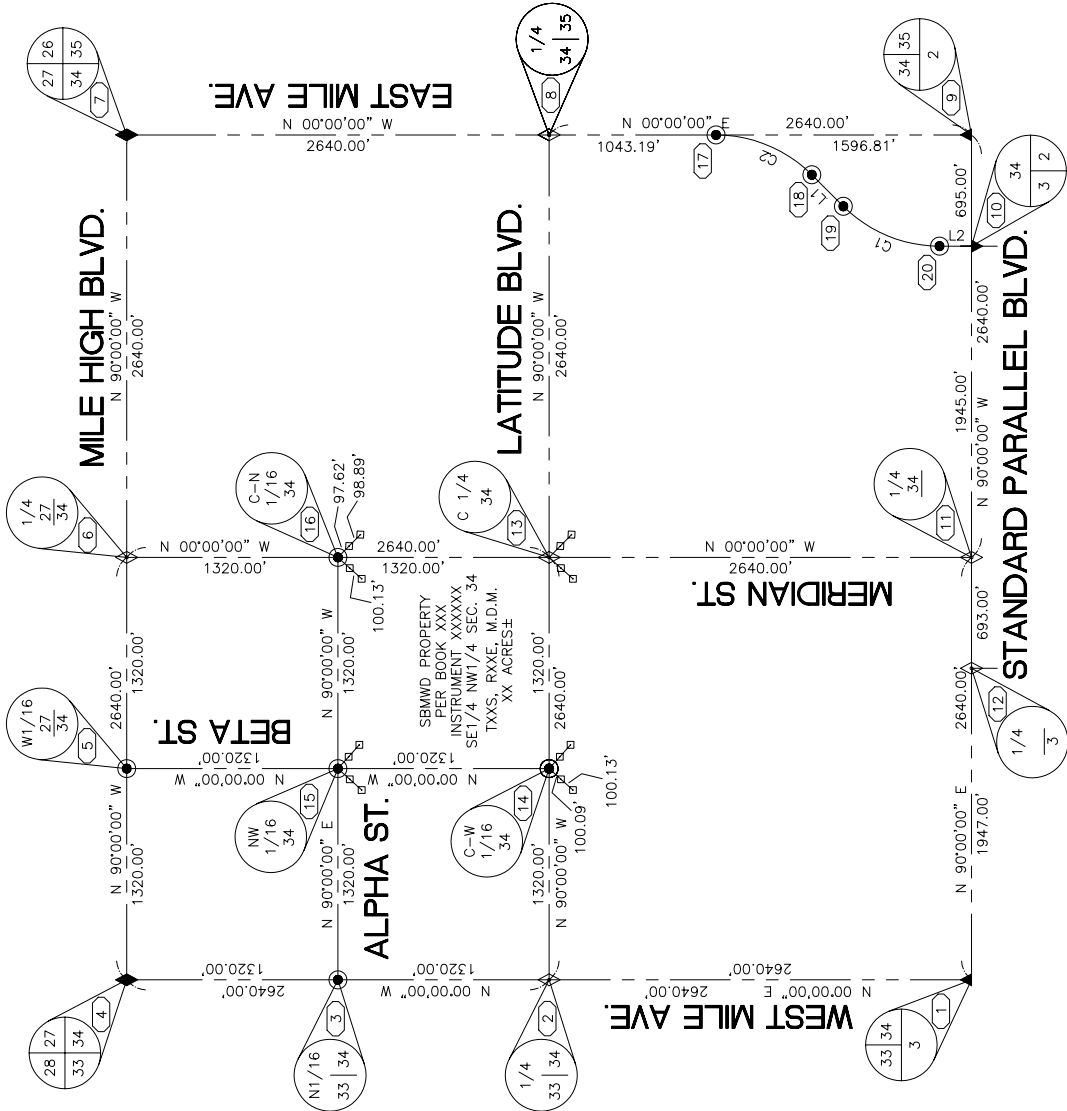
ENGINEER'S SEAL

CITY OF SAN BERNARDINO
MUNICIPAL WATER DEPARTMENT

DRAWING SCALES:
HORIZ: N/A VERT: N/A
C.O. NO.:
XXXX
DWG G1
SHEET 1 OF XX

WELL NO. XXXX

TITLE SHEET



SURVEYOR'S CERTIFICATE

I, XXXXXXXX X. XXXXXX, A PROFESSIONAL LAND SURVEYOR, REGISTERED
IN THE STATE OF CALIFORNIA, ACTING AS AGENT FOR XXXXXXXXXXXXXXXX
XXXXXXXXXX, HEREBY CERTIFY THAT:

1. THIS PLAT REPRESENTS THE RESULTS OF A SURVEY CONDUCTED UNDER MY DIRECT SUPERVISION AT THE INSTANCE OF THE SAN BERNARDINO MUNICIPAL WATER DEPARTMENT

2. THE LANDS SURVEYED LIES WITHIN THE XX QUARTER OF SECTION XX, TOWNSHIP XX SOUTH, RANGE XX EAST, [XX] SAN BERNARDINO COUNTY, CALIFORNIA, AND THE SURVEY WAS COMPLETED ON XX/XX/XX.

3. THIS PLAT COMPLIES WITH APPLICABLE STATUTES OF THIS STATE AND ANY LOCAL ORDINANCES IN EFFECT ON THE DATE THAT THE SURVEY WAS COMPLETED.

4. THE MONUMENTS DEPICTED ON THE PLAT ARE OF THE CHARACTER SHOWN, OCCUPY THE POSITIONS INDICATED, AND ARE OF SUFFICIENT DURABILITY.

5. THIS PLAT AND THE SURVEY ON WHICH IT IS BASED UPON WAS PERFORMED IN RECOGNITION OF THE RELATIVE POSITIONAL TECHNICAL ACCURACY SPECIFICATIONS AS PUBLISHED BY THE MANUFACTURER (SEE "NOTES").

XXXXXXXX X. XXXXXX
PROFESSIONAL LAND SURVEYOR
CALIFORNIA PLS NO. XXXX

ENVELOPING EXTERIOR CONTROL

THE FOLLOWING GEODETIC CONTROL POINTS WERE HELD FIXED DURING THE FINAL CONSTRAINED LEAST SQUARES ADJUSTMENT:

NAME	GENERAL PROVENANCE	LOCAL PROVENANCE
XXX	NGS DATASHEETS, MAY 1995, CD ROM 1236900	MM, FL 002, PG 032
XXX	NGS DATASHEETS, MAY 1995, CD ROM 1236900	MM, FL 002, PG 032

TRANSFORMATION-CONVERSION PARAMETERS

1. NAVD 88 ELEVATION FACTOR: $\frac{20,906.000}{20,906.000 + 2409.93 + 90.05} = 0.9998804$
2. PROJECT CENTRAL (MEAN E-W EXTENT) ELLIPSOID TO GRID FACTOR: 0.9999181
3. PROJECT COMBINED FACTORS:
GROUND TO GRID: 0.9997985;
4. EAST OF CENTRAL MERIDIAN ROTATIONAL PARAMETER: 0° 14' 45" CLOCKWISE FROM THIS PROJECT CARTESIAN COORDINATE SYSTEM TO THE STATE PLANE GRID SYSTEM.
5. ENGLISH/METRIC CONVERSIONS:
METERS $\times \left(\frac{3937}{1200}\right)$ = U.S. SURVEY FEET
U.S. SURVEY FEET $\times \left(\frac{1200}{3937}\right)$ = METERS

2D CONFORMAL TRANSFORMATION PARAMETERS

1. EQUATIONS: $aX - bY + TX = X2 + vx$, $bX + ay + ty = Y2 + vy$
2. WHERE: (X,Y) ARE STATE PLANE VALUES AND (x,y) ARE PROJECT COORDINATES
3. $a = 0.99978950$; $b = -0.00429111$; $Tx = 26742643.082$; $Ty = 759068.023$
4. ROTATION = $0^{\circ} 14' 45.3''$
5. SCALE = 0.99980

RECORDER'S NOTE

ANY SUBSEQUENT CHANGES TO THIS MAP MAY BE DETERMINED BY REFERENCE TO THE COUNTY RECORDER'S CUMULATIVE MAP INDEX. NRS 278.5695

 UNDERGROUND SERVICE ALERT CALL: TOLL FREE 1-800 227-2600 TWO WORKING DAYS BEFORE YOU DIG	ENGINEER'S SEAL APPROVED BY: _____ DATE: _____ REGISTERED CIVIL ENGINEER No. XXXXX	CITY OF SAN BERNARDINO MUNICIPAL WATER DEPARTMENT BENCHMARK: DRAWING SCALES: HORIZ: N/A VERT: N/A C.O. NO.: XXXX WELL NO. XXXX RECORD OF SURVEY ELEV. = XX.XX FT.
--	---	--

LINE	DIRECTION	DISTANCE
L1	N 45°00'00" E	278.72'
L2	N 00°00'00" W	200.00'

CURVE	RADIUS	LENGTH
C1	850.00'	667.50'
C2	850.00'	665.22'

PROJECT CONTROL COORDINATE TABLE

POINT (NO.)	PROJECT COORDINATE INFORMATION					STATE OF CALIFORNIA COORDINATE SYSTEM 1983 HARN BASED EAST ZONE (METERS)		GEOGRAPHIC COORDINATES NAD 83 HARN BASED		
	HORIZONTAL: U.S. SURVEY FEET		ELEV	VERTICAL: NAVD 88 U.S. SURVEY FEET		NORTHING	EASTING	LATITUDE	LONGITUDE	ELLIPSOID HT. (FT)
1	NORTHING	EASTING		DESCRIPTION	PROVENANCE	8157242.484	237485.347	36° 10' 00.0000"	115° 10' 00.0000"	2145.26
2	20000.0000	20000.0000		F 3-1/2" DIA. AL CP PLS 2050	RS, FL XXX, PG XXX	8158046.988	237488.800	36° 10' 26.1024"	115° 09' 59.7236"	2455.11
3	22840.0000	20000.0000	2700.00	F 1-1/2" DIA. AL CP PLS 5072	PM, BK XXX, PG XXX	8158448.240	237490.526	36° 10' 39.1536"	115° 09' 59.5854"	3222.86
4	23960.0000	20000.0000	2600.00	F 1-1/2" DIA. AL CP PLS 4046	BL, DK XXX, PG XXX	8158851.492	237492.253	36° 10' 52.0048"	115° 09' 59.4472"	2890.03
5	25280.0000	20000.0000		F 3-1/4" DIA. BC BLM "1956"	BLM DEP RSVY, 9/58	8158849.766	237894.505	36° 10' 52.0924"	115° 09' 43.3486"	2776.21
	25280.0000	21320.0000	2950.00	S 1-1/4" DIA. AL CP PLS 9677	SET PER REFERENCES					

FOR EXAMPLE ONLY

1. THE CONTENTS OF THIS DRAWING WERE CREATED TO PROVIDE A GRAPHIC REPRESENTATION OF SBWMD AUTOCAD STANDARD REQUIREMENTS AND EXPECTATIONS FOR SURVEY SHEETS.
2. ALL TYPES OF INFORMATION ON THIS DRAWING ARE REQUIRED TO BE PROVIDED AS SHOWN FOR

THE PROJECT SUBMITTAL TO BE ACCEPTED AND APPROVED (TYP):
CONTROL COORDINATE TABLE ABBREVIATION LISTING

PROVENANCE:

FL = FILE (CLARK CO. RECORDER) BLM = BUREAU OF LAND MANAGEMENT
FS = RECORD OF SURVEY
PG = PARCEL MAP
PM = PARCEL MAP
SD = SUBDIVISION MAP
SBS = SUBDIVISION MAP
MM = MISCELLANEOUS MAPS

F = FOUND
S = SET, THE
DIA. = DIAMETER

BLM = BUREAU OF LAND MANAGEMENT
GLO = GENERAL LAND OFFICE
DEP RSW = DEPENDENT RESURVEY

GENERAL:

UNDERGROUND SERVICE ALERT

CALL: TOLL FREE
1-800
227-2600

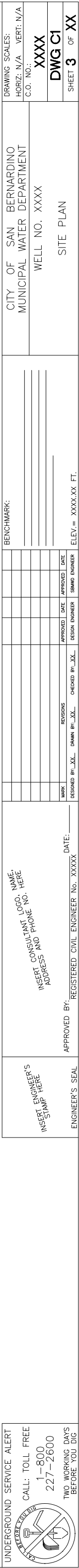
TWO WORKING DAYS
BEFORE YOU DIG



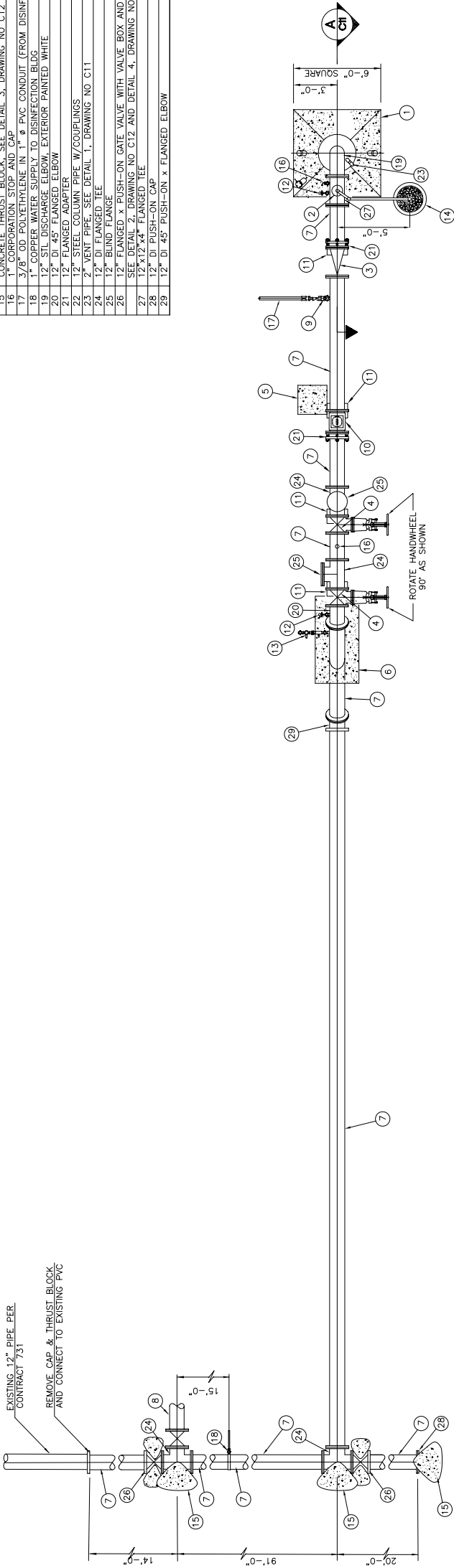
ENGINEER'S SEAL
ENGINEER'S NAME
REGISTERED CIVIL ENGINEER No. XX
APPROVED BY:
ENGINEER'S NAME
REGISTERED CIVIL ENGINEER No. XX
INSERT CONSULTANT LOGO HERE
INSERT AND PHONE NO. HERE
ADDRESS

BENCHMARK:

ELEV.= XXXX.XX FT.

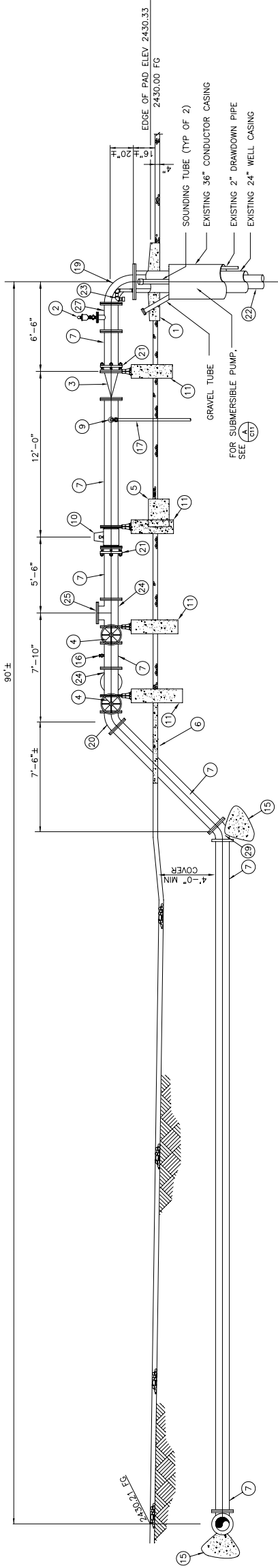


ITEM	DESCRIPTION	SPEC.
1	6'-0" SQUARE CONCRETE PAD, SEE DETAIL 2, DRAWING NO. C11	16
2	2" AIR AND VACUUM VALVE W/H TAPE AND INSULATION, SEE DETAIL 7, DRAWING NO. C11	36
3	12" FLANGED CHECK VALVE	36
4	12" FLANGED GATE VALVE	36
5	2'-0" SQUARE x 1'-6" THICK CONCRETE PEDESTAL FOR FLOW TRANSMITTER	16
6	3'-0" X 6'-0" x 4" THICK CONCRETE COLLAR	16
7	12" DIP	34
8	12" DISCHARGE LINE, SEE DRAWING NO. C8	
9	1/2" CHLORINE DIFFUSER ASSEMBLY, SEE DETAIL 6, DRAWING NO. C11	42
10	12" FLANGED MAGNETIC FLOWMETER (PROVIDED BY LWWD)	
11	1/2" SUPPORT, SEE DETAIL 11, DRAWING NO. C12	AS NOTED
12	1/2" PRESSURE TRANSMITTER, SEE DETAIL 14, DRAWING NO. C12	36
13	1/2" PRESSURE TRANSMITTER, SEE DETAIL 15, DRAWING NO. C11	AS NOTED
14	24" RCP x 4'-0" LG FILL W/ 3/4" DRAIN BACKFILL	AS NOTED
15	CONCRETE THRUST BLOCK, SEE DETAIL 3, DRAWING NO. C12	AS NOTED
16	1" CORPORATION STOP AND CAP	36
17	3/8" OD POLYETHYLENE IN 1" ø PVC CONDUIT (FROM DISINFECTION BLDG)	42 & 50
18	1" COPPER WATER SUPPLY TO DISINFECTION BLDG	41
19	12" STL DISCHARGE ELBOW, EXTERIOR PAINTED WHITE	27
20	12" DI 45° FLANGED ELBOW	34
21	12" FLANGED ADAPTER	33
22	12" STEEL COLUMN PIPE W/COUPLINGS	41
23	2" GUN PIPE, SEE DETAIL 11, DRAWING NO. C11	41
24	12" FLANGED TEE	34
25	12" BLIND FLANGE	34
26	12" FLANGED x PUSH-ON GATE VALVE WITH VALVE BOX AND ANCHOR BLOCK	36
27	SEE DETAIL 2, DRAWING NO. C12 AND DETAIL 4, DRAWING NO. C12	
28	12" x12" x4" FLANGED TEE	34
29	12" DI PUSH-ON CAP	34
30	12" DI 45° PUSH-ON x FLANGED ELBOW	34



PUMP PIPING PLAN

SCALE: $1/4" = 1'$



PUMP PIPING PROFILE

SCALE: 1/4" = 1'

WE17 011900

011900

FOR EXAMPLE ONLY

UNDERGROUND SERVICE ALERT

CALL: TOLL FREE
1-800
227-2600

TWO WORKING DAYS
BEFORE YOU DIG



ENGINEER'S SEAL INSERT ENGINEER'S STAMP HERE	NAME - _____ HERE INSERT CONSULTANT LOGO, NO. _____ HERE ADDRESS AND PHONE NO. _____ DATE: _____ APPROVED BY: _____ REGISTERED CIVIL ENGINEER No. XXXXXX
--	---

[illegible]

BENCHMARK:		CITY OF SAN BERNARDINO MUNICIPAL WATER DEPARTMENT WELL NO. XXXX PIPING PLAN
ELEV. = XXXX.XX FT.		

DRAWING SCALES:
HORIZ: N/A VERT: N/A
C.O. NO.: XXXX
DWG C2
SHEET 4 OF XX