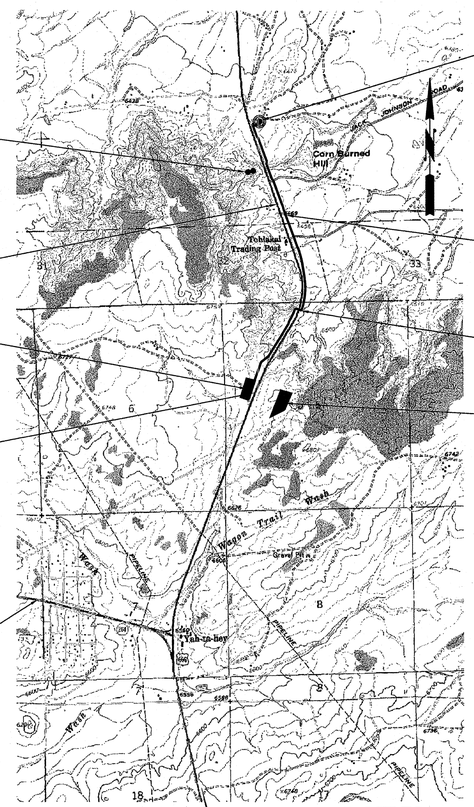
CITY OF GALLUP, NEW MEXICO

GALLUP - RURAL NAVAJO WATER SUPPLY PROJECT
PROJECT 4

FUNDED BY: WATER TRUST BOARD THROUGH THE NEW MEXICO FINANCE AUTHORITY, WTB #111

FORMAL BID NO. 1318



STA. 88+76.69
TIE-IN TO NTUA TWIN LAKES WATER SYSTEM

EXISTING NTUA TWIN LAKES WATER SYSTEM STORAGE TANKS

US HIGHWAY 491

NTUA TWIN LAKES WATER SYSTEM 10" WATERLINE

STA.0+00
NTUA 0.3 MG DISTRIBUTION RESERVOIR SITE

US HIGHWAY 491 WATERLINE CROSSING

TOHLAKAI PUMP STATION TO BE BUILT BY OTHERS

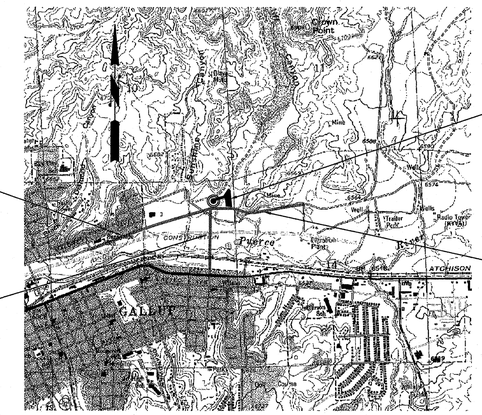
TIE-IN TO CITY OF GALLUP WELL COLLECTION SYSTEM

NM HIGHWAY 264

7± MILES TO GALLUP, NM

TWIN LAKES WATERLINE; 0.3 MG DISTRIBUTION RESERVOIR & YAH-TA-HEY PUMP STATION 0.5 MG PRIMARY RESERVOIR VICINITY MAP

SCALE: 1"=2000'
APPROXIMATE



WATER LOADING STATION SITE

MONTOYA BLVD.

HASSLER VALLEY RD.

I-40 EXIT 22

CITY OF GALLUP WATER LOADING STATION SITE AND BUILDING MODIFICATIONS VICINITY MAP

SCALE: 1"=2000'
APPROXIMATE

INDEX

GALLUP JOINT CITY OF GALLUP UTILITIES

NTUA

KURT A. SPOLAR NEW MEXICO 17637 11-12-13 LICENSED PROFESSIONAL ENGINEER

CAUTION
CALL NEW MEXICO ONE CALL
811
BEFORE YOU DIG!

NOTICE OF EXTENDED PAYMENT PROVISION :
THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITH IN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.

ADMIN04: C:\engineer\nrgresp4\dwg\base dwgs.dwg

DePAULI ENGINEERING & SURVEYING, LLC.
CIVIL ENGINEERS & LAND SURVEYORS

for the CITY OF GALLUP
McKINLEY COUNTY, NEW MEXICO

NO.	BY	DATE	REVISIONS

CITY OF GALLUP
GALLUP-RURAL NAVAJO WATER SUPPLY PROJECT
PROJECT 4

TITLE SHEET

DePauli Engineering & Surveying LLC
- Civil Engineers and Land Surveyors -
307 S. 4th Street Gallup, NM 87301
Tel: (505)863-5440 depauliengineering.com

Dwg. No. ...
Date: Nov. 2013
Drawn By: KAS Checked By: MDP
Scale: SHOWN
Sheet 1-1

GENERAL UTILITY CONSTRUCTION NOTES:

1. WORKMANSHIP AND MATERIALS FOR ASPHALTIC PATCH SECTION AND CONCRETE SHALL CONFORM TO THE NMDOT SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, 2007 EDITION, PROVIDED HOWEVER THAT CITY SPECIFICATIONS CONTAINED HEREIN SHALL APPLY.

2. REMOVAL OF STRUCTURES AND OBSTRUCTIONS INCLUDING ASPHALT PAVEMENT, CONCRETE PAVEMENT, CULVERTS, SHRUBS, SIDEWALK, CURB & GUTTER AND OTHER MISC. ITEMS THAT NEED TO BE REMOVED OR DISPOSED OF SHALL BE TAKEN TO AN APPROVED LANDFILL IN ACCORDANCE WITH PROVISIONS OF THE NEW MEXICO SOLID WASTE ACT PROVIDED HOWEVER, THAT RECYCLABLE MATERIAL MAY BE TAKEN TO APPROPRIATE COMPANIES.

3. WATER FOR CONSTRUCTION SHALL BE POTABLE WATER AND MAY BE TAKEN FROM THE CITY OF GALLUP EAST PUMP STATION LOCATED IMMEDIATELY NORTH OF INTERSTATE 40 AND APPROX. 1/2 MILE EAST OF FORD DRIVE. WATER FOR WATERLINE TESTING MAY BE TAKEN FROM A FIRE HYDRANT OR EXISTING WATERLINE DESIGNATED BY THE CITY WATER DEPARTMENT OR THE NAVAJO TRIBAL UTILITY AUTHORITY (NTUA). WATER HAULING SHALL BE IN CLEAN, POTABLE WATER TANKERS. CONTRACTOR TO COORDINATE WITH CITY WATER DEPARTMENT AND OR NTUA AS REQUIRED TO ACCESS WATER FACILITIES.

4. QUALITY CONTROL TESTING FOR PROJECT MATERIALS SHALL BE PERFORMED BY AN INDEPENDENT TESTING LAB AS HIRED BY THE CONTRACTOR. THE CONTRACTOR SHALL NOTIFY THE ENGINEER 24 HOURS IN ADVANCE WHEN CONCRETE PLACEMENTS ARE SCHEDULED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE TESTING LAB WHEN COMPACTION TESTS ARE NEEDED AND WHEN CONCRETE PLACEMENTS ARE GOING TO BE MADE. THE CONTRACTOR SHALL PROVIDE THE TESTING LAB ACCESS AT ANY TIME FOR TESTING AT THE BATCH PLANT OR THE CONSTRUCTION SITE. THE CONTRACTOR SHALL ASSIST THE TESTING LAB AS REQUIRED TO OBTAIN MATERIAL SAMPLES.

5. CONCRETE FOR THIS PROJECT SHALL BE 4000 PSI (28 DAY) CONCRETE WITH 4 1/2 - 7 1/2% ENTRAINED AIR. CONCRETE TO BE PLACED WITH NO MORE THAN 4" SLUMP WITH LIMITED WATER TO BE USED TO FACILITATE FINISHING. ALL REINFORCEMENT FOR CAST IN PLACE CONCRETE SHALL BE GRADE 40 OR 60 DEFORMED BARS PER ASTM A615.

6. PROXIMITY DETAIL REQUIREMENTS AS SHOWN ON MISC. DETAIL SHEETS SHALL BE ADHERED TO. WATERLINES SHALL PASS OVER SEWER LINES, WHEN POSSIBLE. PIPE CUTS REQUIRED TO CENTER PIPE AT SEWER LINE CROSSINGS SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION.

7. THE CONTRACTOR SHOULD BE AWARE THAT NO CONSTRUCTION STAKING WILL BE CARRIED OUT UNTIL ALL UTILITY LOCATIONS ARE MARKED. THE CONTRACTOR SHOULD EXPECT THAT SOME SHIFTS IN ALIGNMENT WILL BE MADE TO AVOID EXISTING UTILITIES AND MEET PROXIMITY REQUIREMENTS. THE CONTRACTOR SHALL PROVIDE EXPLORATORY EXCAVATION AT LOCATIONS SHOWN ON THE PROJECT DRAWINGS OR AS REQUIRED FOR ALIGNMENT CHANGES. STAKING FOR THE SEWER AND WATER LINES SHALL BE PROVIDED BY THE OWNER ON A ONE TIME BASIS. STAKES FOR THE SEWER LINE WILL CONSIST OF OFFSET STAKES AT 50' INTERVALS WITH REQUIRED CUT MARKINGS. THE WATERLINE STAKES WILL CONSIST OF CENTERLINE OR OFFSET STAKES AS WELL AS STAKES AT SPECIAL FITTINGS AND FH LOCATIONS.

8. CONSTRUCTION STAKING: THE ENGINEER WILL PROVIDE THE FOLLOWING CONSTRUCTION STAKING:

   1. WATERLINES, WATERLINE APPURTENANCES AND WATERLINE GRADE STAKES WHERE REQ'D.
   2. BUILDING SITE GRADING, YARD PIPING, DRAINAGE STRUCTURE, AND APPURTENANCES STAKES WHERE REQ'D.

   OCCASIONAL STAKE REPLACEMENT REQUIRED WHEN STAKES ARE UNAVOIDABLE LOST DUE TO CONSTRUCTION WILL BE REPLACED BY THE ENGINEER, PROVIDED HOWEVER, THAT THE COST OF STAKE REPLACEMENT DUE TO CARELESSNESS OR INATTENTIVE CONSTRUCTION AROUND SURVEY CONTROL WILL BE DEDUCTED FROM PAYMENT TO THE CONTRACTOR. RANDOM BENCH MARKS WILL BE ESTABLISHED FOR USE BY THE CONTRACTOR. THE CONTRACTOR WILL BE RESPONSIBLE FOR BLUETOP STAKING FOR SUBGRADE AND BASE COURSE. DETAILED MEASUREMENTS AND ELEVATIONS FOR STRUCTURES AND PIPELINES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR WITH OCCASIONAL CHECKS BY THE ENGINEER. MEASUREMENT FOR DETERMINATION OF QUANTITIES SHALL BE ACCOMPLISHED MUTUALLY BY THE ENGINEER AND CONTRACTOR.

9. SLEEVES FOR CAST IRON PIPE SIZES SHALL BE HEAVY DUTY, M.J. TYPE WITH ADAPTER TYPE WHERE REQUIRED.

10. ALL BOLTED FITTINGS, GLANDS, FLANGES & DUCTILE IRON PIPE TO BE WRAPPED WITH 2 LAYERS OF 8 MIL. AWWA C105 PLASTIC. CONTRACTOR TO USE CAUTION WHEN POURING THRUST BLOCKS TO INSURE THAT M.J. BOLTS ARE NOT COVERED WITH CONCRETE.

11. BASE COURSE FOR STREET CONSTRUCTION SHALL BE TYPE I. GRAVEL (BASE COURSE) FOR DETOURS OR DRIVEWAYS TO BE TYPE I OR TYPE II.

12. ALL ABANDONED LINES SHALL BE PLUGGED W/ CONCRETE AT TIE-IN LOCATIONS UNLESS OTHERWISE NOTED. REMOVE OLD VALVES WHERE CALLED FOR, OTHERWISE REMOVE VALVE CANS & COMPACT BACKFILL OR INSTALL FLOWABLE FILL. PLACE CONCRETE, RIP-RAP, PMBP OR GRAVEL TO MATCH ORIGINAL SURFACING.

13. PROVIDE 10' MINIMUM HORIZONTAL SEPARATION ON WATER AND SEWER LINES.

14. SUBMITTALS ARE REQUIRED FOR ALL MATERIALS AND EQUIPMENT PROPOSED FOR THE PROJECT WITH APPROVAL REQUIRED BY THE CITY. SCHEDULES FOR MANHOLE BARRELS, CONES AND RIMS SHALL BE PROVIDED.

15. ALL PIPE BEDDING, BACKFILL (WHERE CALLED FOR SEE NOTE), AND AS CALLED FOR IN THESE SPECIFICATIONS SHALL BE AN IMPORTED GRANULAR MATERIAL. THIS MATERIAL MAY BE TAKEN FROM ANY SUITABLE SOURCE. THE MATERIAL SHALL BE SANDY IN NATURE, FRIABLE WITH NO CLODS OR CLAY BALLS AND EXHIBIT MINIMAL "PUMPING" CHARACTERISTICS WHEN COMPACTED AT MOISTURE CONTENT SLIGHTLY BELOW OPTIMUM. IN ADDITION, MATERIAL SHALL MEET THE FOLLOWING REQUIREMENTS:

SIEVE SIZE	PERCENT PASSING
1"	100
NO. 4	40 - 100
NO. 200	LESS THAN 35
PI < 12	

   ACCEPTABLE SOURCES ON PAST PROJECTS INCLUDE THE FOLLOWING:

   1. CRUSHER FINES FROM LOCAL AGGREGATE COMPANIES.
   2. PUERCO RIVER, FROM LOCATIONS APPROVED BY THE CITY PUBLIC WORKS DIRECTOR.
   3. LOCAL QUARRY OR STOCK PILE

SURVEY NOTES:

1. COORDINATES SHOWN ARE REFERENCED TO CITY OF GALLUP CONTROL SYSTEM WHICH IS BASED ON NMSP NAD 83, WEST ZONE (GROUND).
2. BEARINGS SHOWN ARE GRID.
3. ELEVATIONS ARE BASED 1929 NGVD (VERTICAL DATUM)
4. WATER PRESSURE ZONE — HIGH WATER ELEVATION
   CURRENT TWIN LAKES — 6640'
   PROPOSED TWIN LAKES — 6677'

NTUA TWIN LAKE WATER SYSTEM

YEAR	AVERAGE DEMAND	PEAK DEMAND
2024	382 GPM	497 GPM
2040	651 GPM	846 GPM

16. FITTINGS TO BE M.J. TYPE W/ RESTRAINING GLANDS FOR DIP UNLESS OTHERWISE NOTED. JOINT RESTRAINT CONSISTING OF MJ PIPE AND RESTRAINING GLANDS SHALL BE PROVIDED ON 3 JOINTS (54') UPSTREAM AND DOWNSTREAM FOR ALL VERTICAL ELLS. WITH DEFLECTIONS TOWARD THE GROUND. MAX. VERTICAL DEFLECTION ELLS. THIS PROJECT TO BE 11¼°. (JOINT RESTRAINT FOR PVC PIPE TO CONSIST OF MJ SLEEVES W/ RESTRAINING GLANDS AT PE PIPE ENDS)

17. FITTINGS AND PIPE TO BE WIPED DOWN WITH CHLORINE SOLUTION (50 PPM) AT WATER TIE-INS.

18. GATE VALVES TO BE AWWA RESILIENT WEDGE TYPE WITH EPOXY COATING INSIDE AND OUT. CHECK VALVES AND AIR RELEASE VALVES TO BE AS CALLED FOR IN THE SPECIFICATIONS AND DRAWINGS.

19. EXISTING UTILITIES: EXISTING UTILITIES SHOWN ARE FROM UTILITY COMPANY MAPS, EVIDENCE ON THE GROUND AND CONVERSATION WITH UTILITY COMPANY OFFICIALS. THE EXACT LOCATION AND SIZE OF SOME OF THE LINES ARE UNKNOWN. CONTRACTOR TO VERIFY THE EXISTENCE AND LOCATION OF ALL UTILITIES PRIOR TO TRENCHING. UTILITIES THAT ARE DAMAGED OR CUT SHALL BE REPAIRED BY THE CONTRACTOR AT HIS COST. THE CONTRACTOR SHALL CALL 811 FOR "LOCATES" ON ALL UTILITIES PRIOR TO CONSTRUCTION.

20. LINE MEASUREMENT AND BASIS OF PAYMENT - THESE ITEMS OF WORK CONSIST OF FURNISHING ALL MATERIALS, PLANT, EQUIPMENT AND LABOR IN INSTALLING PIPE OF THE DIAMETER AND MATERIAL SPECIFIED, COMPLETE WITH MAIN LINE FITTINGS, APPURTENANCES AND TRENCHING, BEDDING AND BACKFILL, BUT DOES NOT INCLUDE PAVEMENT REMOVAL AND REPLACEMENT OR ROCK EXCAVATION. MEASUREMENT WILL BE BY THE LINEAR FOOT ALONG THE CENTERLINE OF THE PIPE THROUGH VALVES, MANHOLES, FITTINGS WITHOUT CORRECTION FOR SLOPE. PAYMENT WILL BE FOR THE ACTUAL LINEAR FEET OF PIPE INSTALLED AND IN PLACE AT THE CONTRACT UNIT PRICE BID FOR THE ITEM. THE REQUIRED CUTTING OF PIPE TO PROVIDE REQUIRED JOINT DISTANCE FROM SEWER LINES AND DRAINAGE CULVERTS SHALL BE CONSIDERED INCIDENTAL TO THESE ITEMS. REQUIRED PRESSURE AND BACTERIOLOGICAL TESTING SHALL ALSO BE INCLUDED IN THESE ITEMS. MEASUREMENT FOR PIPE SHALL BEGIN 5' OUT FROM BUILDINGS AND RESERVOIRS

21. CONTRACTOR SHALL PROVIDE AND MAINTAIN TRAFFIC CONTROL DEVICES AS DESCRIBED IN USDOT/FHWA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES ON ALL PARTS OF THE PROJECT UNDER CONSTRUCTION. THE DEVICES SHALL INCLUDE, BUT NOT BE LIMITED TO, TYPE 1 BARRICADES TYPE 2 BARRICADES, CONES, DRUMS, WARNING SIGNS, DETOUR SIGNS, NIGHT TIME FLASHERS AND PORTABLE FLASHERS. THE DEVICES SHALL BE MAINTAINED SEVEN (7) DAYS A WEEK FOR THE DURATION OF THE PROJECT. AT A MINIMUM, THE CONTRACTOR SHALL MAINTAIN THE TRAFFIC CONTROL PLAN AT ALL TIMES. CONTRACTOR SHALL MAKE ADJUSTMENTS TO THE TRAFFIC CONTROL PLAN DURING THE PROGRESSION OF WORK, TO ENSURE THAT LIFE AND PROPERTY ARE PROTECTED AT ALL TIMES.

22. PROPERTY CORNERS, BENCHMARKS AND CONTROL POINTS TO BE PROTECTED AT ALL TIMES. LOST OR DAMAGED POINTS DUE TO NEGLIGENCE SHALL BE REPLACED AT THE CONTRACTORS EXPENSE.

23. WATERLINE TIE-INS TO BE IN ACCORDANCE WITH THE CONTRACT DOCUMENT AND THE PROJECT DRAWINGS AND INCLUDE ALL PIPE, SLEEVES, AND APPURTENANCES REQUIRED.

24. WATERLINE SHALL BE PRESSURE TESTED AT 200 PSI AT THE LOW END OF TEST SEGMENT. THE LINE SEGMENT BEING TESTED MAY EXTEND UPHILL UNTIL RESULTING TEST PRESSURE IS NO LESS THAN 100 PSI. THE MAXIMUM LENGTH FOR A PRESSURE TEST SEGMENT IS 3000 FT.

25. FENCE REMOVAL AND REPLACEMENT WILL BE CONSIDERED INCIDENTAL TO PROJECT.

26. ALL PIPING SHALL BE CLOSED AT WORK DAYS END TO PREVENT THE ENTRANCE OF INSECTS, MAMMALS AND REPTILES. CLOSURE SHALL ALSO BE SUCH AS TO PREVENT VANDALISM AND FLOOD DAMAGE. CLOSURE TO BE COVERED WITH EXCAVATED MATERIAL SO THAT THE END OF PIPE AND METHOD OF CLOSURE IS NOT VISIBLE. CLOSURE EFFORTS TO BE ESPECIALLY INTENSE ON WEEK ENDS.

27. CONTRACTOR SHALL TAKE PRECAUTIONS AS REQUIRED TO PREVENT DAMAGE TO THE ENVIRONMENT ADJACENT TO CONSTRUCTION. CONTRACTOR TO REMOVE ONLY THE TREES, SHRUBS, GROUND COVER AND ROCK AS ABSOLUTELY NECESSARY TO COMPLETE THE PROJECT. TREES, EXCESS ROCK AND SPOIL SHALL BE REMOVED AND PROPERLY DISPOSED OF. EXCAVATED ROCK OR SOIL SHALL NOT BE PUSHED OVER THE RIM OF THE RESERVOIR SITE. STAGING AREAS TO BE LIMITED TO AREAS WHERE CONSTRUCTION IS PLANNED OR AREAS PROPERLY SECURED FROM LANDOWNERS BY THE CONTRACTOR. ALL AREAS AFFECTED BY CONSTRUCTION TO BE PROPERLY CLEANED, GRADED AND DRESSED UPON COMPLETION. RE-SEEDING WILL BE REQUIRED AS DIRECTED IN SOME PROJECT R/WS AND EASEMENTS.

28. ALL PIPELINE INSTALLATION TO GRADE UPWARD TO A RESERVOIR OR THE NEAREST AIR RELEASE VALVE. PIPELINE GRADES FOR THE 3 GAMERCO RESERVOIRS SITE SHALL BE AS SHOWN ON THE PROJECT DRAWINGS.

29. EXCAVATED ROCK SPOIL MAY BE UTILIZED IN AREAS OF FILL AS DETAILED ON PROJECT DRAWINGS AND/OR AS APPROVED BY THE ENGINEER. ROCK SPOIL TO BE "WALKED IN" PLACE WITH HEAVY SITE EQUIPMENT AND COVERED WITH SITE SURFACE MATERIAL CALLED FOR.

30. THE MAXIMUM LENGTH OF TRENCH LEFT OPEN AT DAYS END TO BE LESS THAN 50 FT. WITH PROPER BARRICADES. TOTAL CLOSURE REQUIRED DURING WEEKENDS AND HOLIDAYS.

31. BORE HOLE & TEST PIT DATA IS CONTAINED IN THE CONTRACT DOCUMENTS.

CONTROL POINTS - NTUA TWIN LAKES DISTRIBUTION RESERVOIR, CONTROL STATION & WATERLINE:

NO.	DESCRIPTION	NORTHING	EASTING	ELEV.
1	HWY. R.O.W. T-RAIL	1693605.96	2445188.72	6605.01
2	½" REBAR PANEL POINT	1693731.75	2445330.29	6572.87
3	½" REBAR W/ B.O.R. CAP	1695204.85	2446262.58	6513.50
4	½" REBAR	1695271.58	2446292.38	6513.64
5	½" REBAR PANEL POINT	1695906.70	2446291.51	6490.21
6	3" NMDOT ROW BRASS CAP	1695938.95	2446278.51	6490.69
7	3" NMDOT ROW BRASS CAP	1696263.24	2446235.41	6478.15
8	3" NMDOT ROW BRASS CAP	1696415.19	2446202.49	6475.24
9	3" NMDOT ROW BRASS CAP	1698772.72	2445437.68	6482.64
10	3" NMDOT ROW BRASS CAP	1698778.97	2445456.57	6481.80
11	3" NMDOT ROW BRASS CAP	1699824.17	2445113.58	6426.51
12	3" NMDOT ROW BRASS CAP	1699811.72	2445075.62	6429.06
13	½" REBAR*	1692495.73	2444221.60	6657.19

DENOTES CONTROL POINT NOT SHOWN ON PROJECT DRAWINGS

PARTIAL LIST OF INCIDENTALS:

1. CONSTRUCTION STAKING - BLUE TOP STAKING FOR SUBGRADE AND BASE COURSE. CONTROL STAKES AS REQUIRED TO PLACE SAW CUTS IN CONCRETE PAVEMENT. MISC. STAKES AND MEASUREMENT FOR DETAILED CONSTRUCTION OF STRUCTURES AND APPURTENANCES.
2. STORM WATER POLLUTION PREVENTION - PERMITS, NOTICES, PLANS, IMPLEMENTATION AND MAINTENANCE OF PLANS UTILIZING EROSION AND SEDIMENT CONTROL DEVICES PROVIDED SHALL BE CARRIED OUT FOR ALL PORTIONS OF THIS PROJECT.
3. SAWED JOINTS AND TACK FOR ASPHALTIC PAVEMENT PATCH.
4. TACK COAT BETWEEN PMBP LAYERS IF MORE THAN 24 HRS OR IF CONTAMINATED PRIOR TO NEXT LIFT.
5. LANDSCAPE - REPLACE SHRUBS, TREES, RAILROAD TIES AND RELOCATE DECORATIVE GRAVEL AS REQ'D.
6. TRAFFIC CONTROL - IMPLEMENTATION OF TRAFFIC CONTROL.
7. BASE COURSE RAISED TO PAVEMENT LEVEL IN DRIVEWAYS AND STREETS FOR PUBLIC TRAVEL PRIOR TO PLACEMENT OF PMBP.
8. STANDBY PERSONNEL TO HANDLE 24 HOUR (INCLUDING WEEKENDS) EMERGENCIES.
9. PROPER DISPOSAL OF ALL TRASH, DEBRIS, AND WASTE INCLUDING HAULS TO DISPOSAL SITES AND GRADING.
10. LATERAL BACKFILL FOR REINFORCED CONCRETE STRUCTURES.
11. MINOR GRADING, DIKES AND SWALES CALLED FOR ALONG WATER LINE INCLUDING DRESSING AND CLEANUP.
12. PRESSURE TESTING, DISINFECTION, BACTERIOLOGICAL TESTING, FLUSHING, COORDINATION WITH THE CITY AND NOTIFICATION OF THE PUBLIC FOR WATER LINE WORK.
13. WATER HAULING AS REQUIRED FOR CONSTRUCTION AND DUST CONTROL.
14. EXCAVATION FOR UTILITIES & STRUCTURES FOR LOCATION & GRADE CHECKS AT PROPOSED WATER LINE CROSSINGS AS SHOWN ON PROJECT DRAWINGS.
15. PROTECTION & MAINTENANCE OF PRIVATE & PUBLIC PROPERTY DURING STORMS & RUNOFF THAT MAY BE MORE VULNERABLE TO DAMAGE BECAUSE OF CONSTRUCTION.
16. MEASUREMENTS FOR PAY WILL BE BASED ON DESCRIPTION WITHIN THE CONTRACT SPECIFICATIONS
17. REMOVE AND RE-INSTALL EXISTING TRAFFIC SIGNS, GUARD RAILS AND MAIL BOXES.
18. FITTINGS CALLED FOR AND ADDITIONAL FITTINGS FOR MINOR HORIZONTAL & VERTICAL ALIGNMENT ADJUSTMENTS DUE TO EXISTING UTILITIES AND STRUCTURES OR TO MAINTAIN POSITIVE SLOPES WITH MINIMUM BURY DEPTH.
19. PROTECTION OF HORIZONTAL AND VERTICAL CONTROL MONUMENTS.
20. RAISING EXISTING VALVE CANS, MANHOLES, AND FIRE HYDRANTS AS REQUIRED.
21. MOBILIZATION FOR ALL PROJECT LOTS.

HISTORICAL SITE CONSTRUCTION REQUIREMENTS			
	PROJECT LOCATION		PRESERVATION REQUIREMENTS
SITE PLAN NUMBER	TWIN LAKE LINE STATIONING		
	BEGIN	END	SITE REQUIREMENTS
SITE 1	88+20	88+77±	INSTALL WIRE FENCING & COORDINATE ARCHEOLOGICAL MONITORING WITH PROJECT ENGINEER
SITE 2	66+50	69+50	CONSTRUCTION ACTIVITIES SHALL REMAIN IN HWY R.O.W. & COORDINATE ARCHEOLOGICAL MONITORING WITH PROJECT ENGINEER
SITE 3	5+00	7+00	INSTALL WIRE FENCING & COORDINATE ARCHEOLOGICAL MONITORING WITH PROJECT ENGINEER

NOTE: NOT ALL INCIDENTAL FENCING IS INDICATED OR SHOWN ON DRAWINGS

ESTIMATED QUANTITIES FOR INCIDENTAL FENCING				
	INCIDENTAL FENCING REMOVAL AND REPLACEMENT		INCIDENTAL FENCING REMOVAL	
	TYPE OF FENCING		TYPE OF FENCING	
LOT	CHAIN LINK	WIRE	CHAIN LINK	WIRE
10" WATERLINE	40'	350'	-	-
0.3 MG RESERVOIR	-	450'	-	-
WATER LOADING SITE	-	-	40'	250'

NOTE: NOT ALL INCIDENTAL FENCING IS INDICATED OR SHOWN ON DRAWINGS

CONTROL POINTS -CITY OF GALLUP WATER LOADING STATION:

NO.	DESCRIPTION	NORTHING	EASTING	ELEV.
1	BACK OF CURB	-	-	6548.25
2	½" ROD W/ 13606 ALUM. CAP*	1652282.37	2458566.76	6554.66
3	½" ROD W/ 4329 PLASTIC CAP *	1652050.86	2458720.25	6552.70
4	3" BRASS CAP IN CONC (SUNSHINE)*	1652615.56	2457844.01	6617.66

* DENOTES CONTROL POINT NOT SHOWN ON PROJECT DRAWINGS

NOTICE OF EXTENDED PAYMENT PROVISION :
THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITH IN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.

UTILITY AND PUBLIC WORKS OFFICIALS:

GALLUP JOINT UTILITIES: SEWER, WATER AND ELECTRIC
UTILITY DIRECTOR: LANCE ALLGOOD
P.O. BOX 1270 (863-1289)
GALLUP, NEW MEXICO 87305
ELECTRIC - PETE GONZALES (863-1203)
WATER & WASTEWATER - MIKE DeCLERQ (863-1209)

CITY OF GALLUP STREET AND DRAINAGE
PUBLIC WORKS DIRECTOR: STAN HENDERSON
P.O. BOX 1270 (863-1240)
GALLUP, NEW MEXICO 87305

NEW MEXICO GAS COMPANY
PETE URIAS
P.O. BOX 1369 (863-3857)
GALLUP, NEW MEXICO 87305

QWEST COMMUNICATIONS
LAURENCE JOE
1300 ICE CAVE ROAD (285-5942)
GRANTS, NEW MEXICO 87020

COMCAST CABLEVISION OF GALLUP
EARL CHAVEZ
201 S. FIRST STREET (863-9334)
GALLUP, NEW MEXICO 87301

NAVAJO TRIBAL UTILITY AUTHORITY:
DEPUTY GENERAL MANAGER: BRUCE McVICKER
P.O. BOX 170 ((928) 729-6277)
FORT DEFIANCE, ARIZONA 86504-0170

ABBREVIATIONS

D.I.P.	DUCTILE IRON PIPE
G.V.	GATE VALVE
MH	MANHOLE
FH	FIRE HYDRANT
IHSW	PROPOSED INDIAN HEALTH SERVICE WATERLINE
S.P.	STANDARD PROCTOR
GALV.	GALVANIZED PIPE
ARS	AIR RELEASE STATION (TYPE 1 OR 2)

PLAN SET LEGEND:

EXISTING		PROPOSED
6530	CONTOURS	6530
	DRAINAGE FLOW LINE	
	CULVERT AND END FLARE	
DECIDUOUS CONIFEROUS	TREE	
	CONTROL POINT/ BENCH MARK	
	PROPERTY CORNER OR R/W MARKER	
W	WATERLINE	W
	WATERLINE GATE VALVE	
	WATER METER	
	WATERLINE CROSS/TEE	
	AIR RELEASE VALVE	
FM	FORCE MAIN	
IHSW	INDIAN HEALTH SERVICE LINE (BY OTHERS)	
SS	SEWER LINE	
LS	LIFT STATION	
MH	MANHOLE	
SD	STORM DRAIN	
	POWER POLE	
	DOWN GUY	
OE	OVERHEAD ELECTRIC LINE	OE
UE	UNDERGROUND ELECTRIC	
GAS	GAS LINE	
	TELEPHONE RISER	
UT	UNDERGROUND TELEPHONE	
X	WIRE FENCING	X
	CHAIN LINK FENCING	
	SIGN	
	MAIL BOX	

KURT A. SPOLAR
NEW MEXICO
17637
11-12-13
LICENSED PROFESSIONAL ENGINEER

CAUTION
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BEFORE YOU DIG!

DePAULI ENGINEERING & SURVEYING, LLC.
CIVIL ENGINEERS & LAND SURVEYORS

CITY OF GALLUP — for the CITY OF GALLUP, McKINLEY COUNTY, NEW MEXICO

REVISIONS			
NO.	BY	DATE	

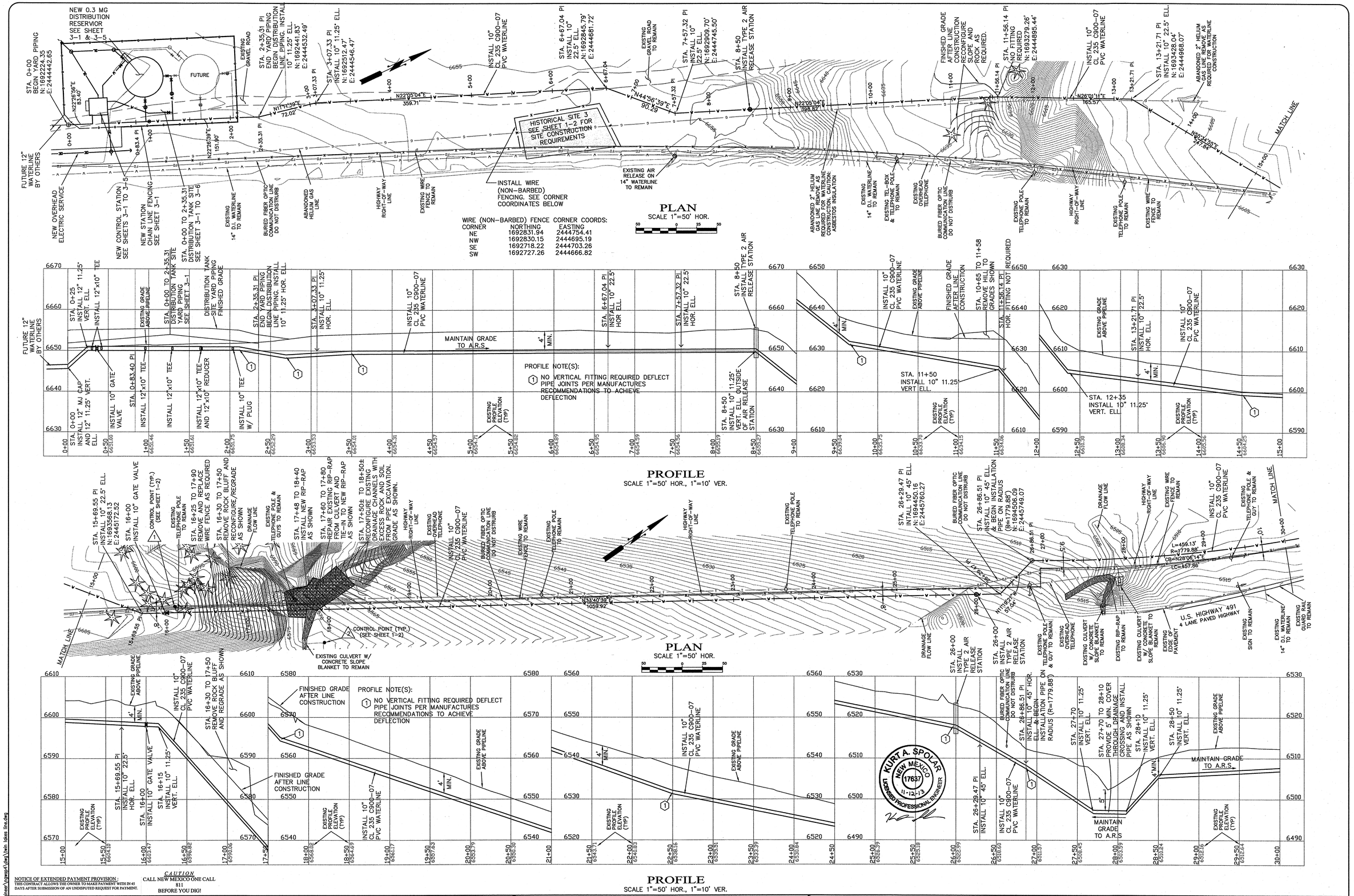
CITY OF GALLUP
GALLUP-RURAL NAVAJO WATER SUPPLY PROJECT
PROJECT 4

GENERAL NOTES

DePauli Engineering & Surveying LLC
- Civil Engineers and Land Surveyors -
307 S. 4th Street Gallup, NM 87301
Tel: (505)863-5440 depauliengineering.com

Dwg. No. ...
Date: Nov. 2013
Drawn By: KAS Checked By: MDP
Scale: SHOWN
Sheet 1-2

ADMIN04: c:\engineer\vgreed\dwg\pose dengs.dwg



WIRE (NON-BARBED) FENCE CORNER COORDS:

CORNER	NORTHING	EASTING
NE	1692831.94	2444754.41
NW	1692830.15	2444695.19
SE	1692718.22	2444703.26
SW	1692727.26	2444666.82

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for the
CITY OF GALLUP
McKINLEY COUNTY, NEW MEXICO

NO.	BY	DATE	REVISIONS

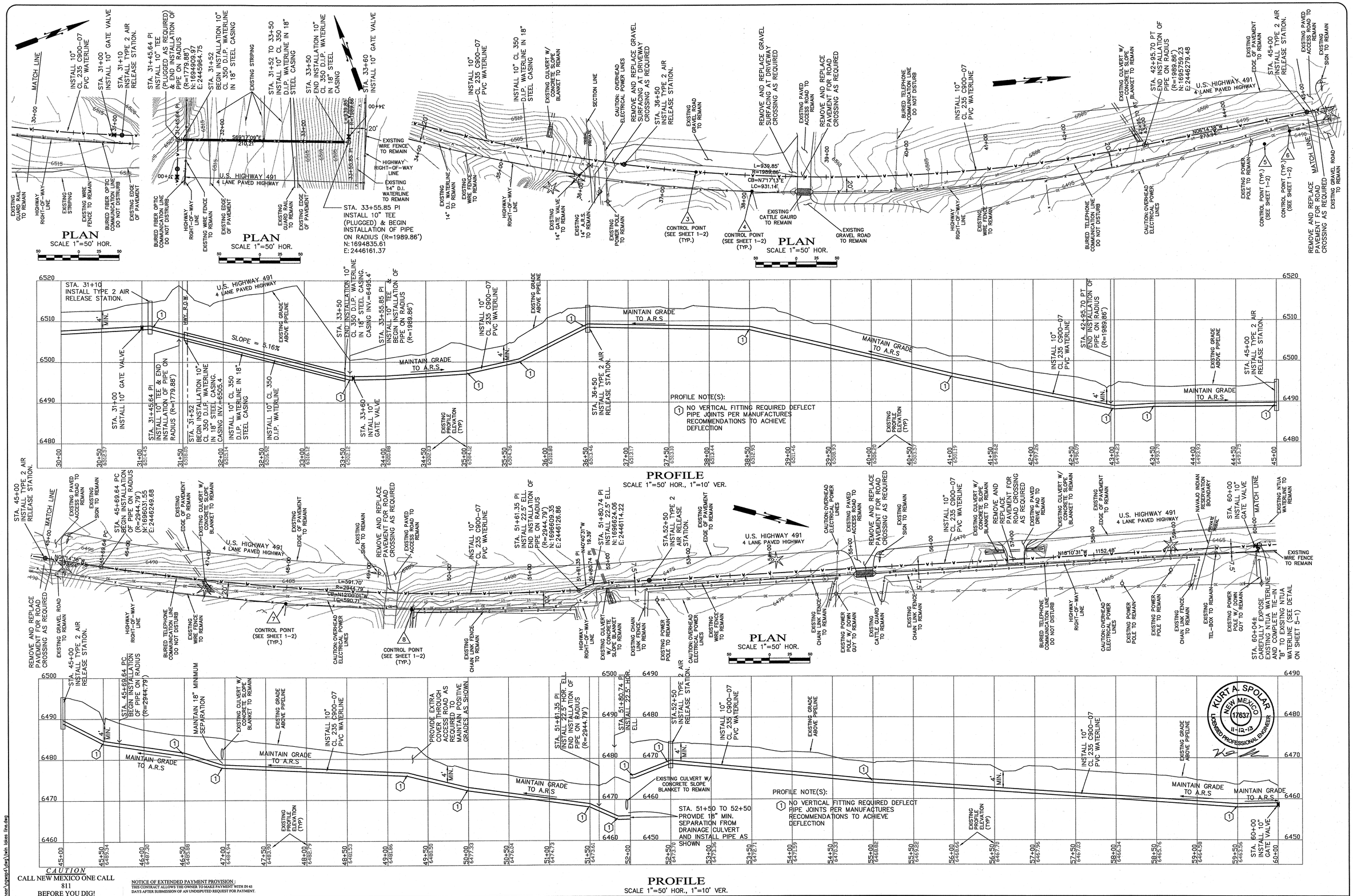
CITY OF GALLUP
GALLUP-RURAL NAVAJO WATER SUPPLY PROJECT
PROJECT 4

NTUA - TWIN LAKES WATERLINE PLANS & PROFILES

DePauli Engineering & Surveying LLC
- Civil Engineers and Land Surveyors -
307 S. 4th Street Gallup, NM 87301
Tel: (505)863-5440 depauliengineering.com

Dwg. No. ...
Date: Nov. 2013
Drawn By: KAS Checked By: MDP
Scale: SHOWN
Sheet 2-1

ADMIN04: G:\engineer\projects\dwg\twin lakes line.dwg



CAUTION
CALL NEW MEXICO ONE CALL
811
BEFORE YOU DIG!

NOTICE OF EXTENDED PAYMENT PROVISION :
THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITH IN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.

DePAULI ENGINEERING & SURVEYING, LLC.
CIVIL ENGINEERS & LAND SURVEYORS

for the
CITY OF GALLUP
McKINLEY COUNTY, NEW MEXICO

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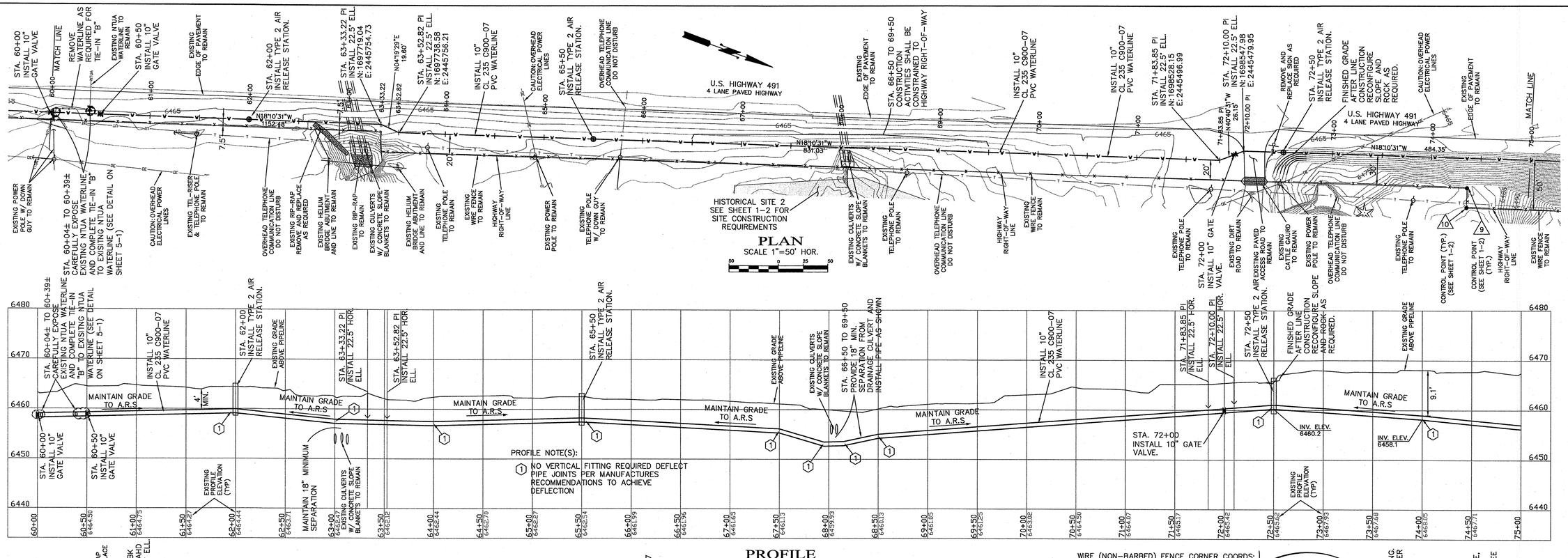
Sheet 2-2

ADMINON: C:\engineer\cgrapa\dwg\twin lakes line.dwg



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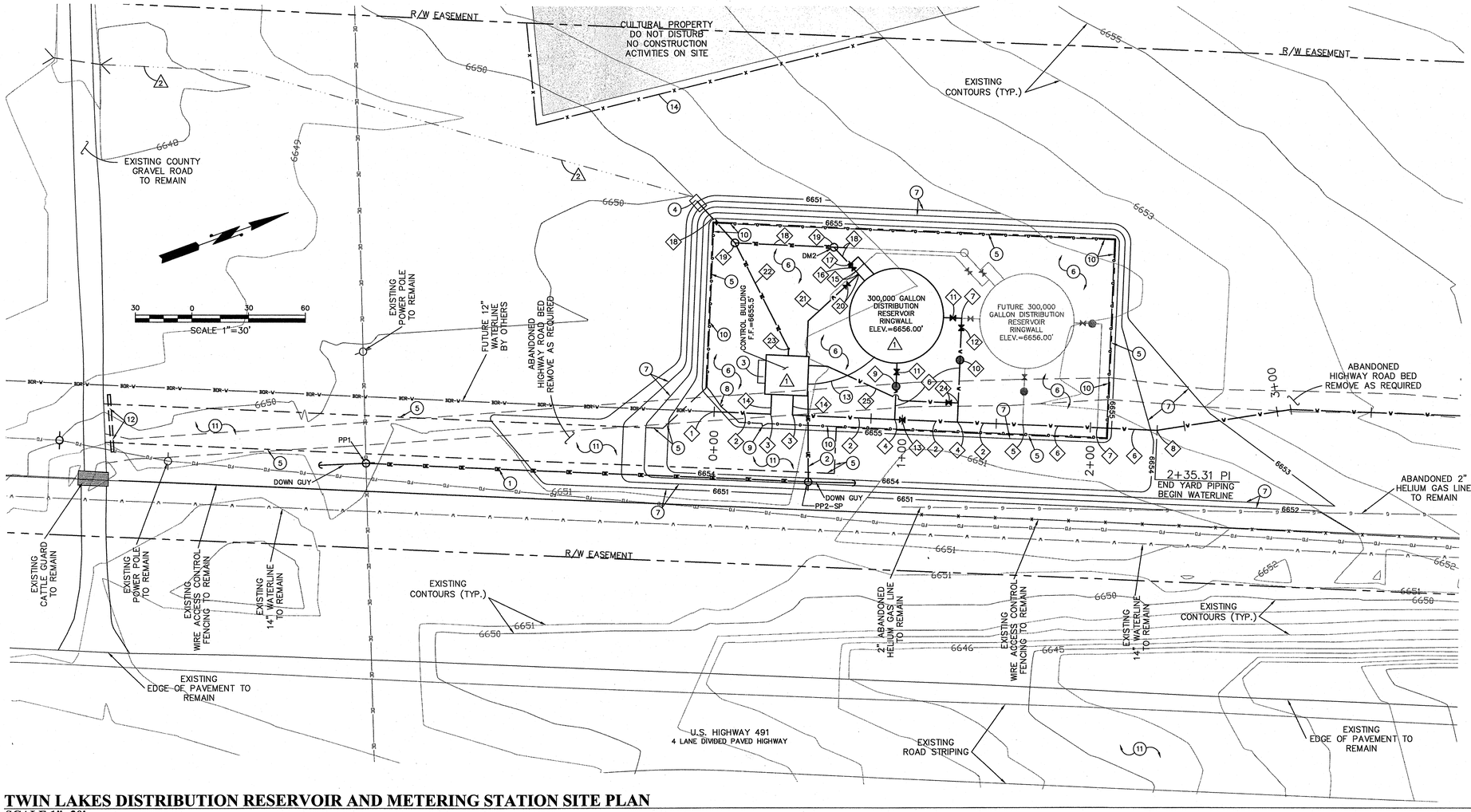
Sheet 2-3

ADMIN06: C:\engineer\Vignes&Lewis\twin lakes line.dwg



CONTROL POINT COORDS:

POINT	DESCRIPTION	NORTHING	EASTING	ELEV.
13*	½" REBAR	1692495.73	2444221.60	6657.19

* NOT SHOWN ON DRAWINGS

RESERVOIR COORDS:

POINT	NORTHING	EASTING
CENTER	1692332.69	2444428.31

CONTROL BUILDING CORNER COORDS:

CORNER	NORTHING	EASTING
NW	1692281.60	2444432.70
NE	1692273.71	2444451.80
SW	1692260.65	2444424.05
SE	1692252.76	2444443.15

CHAIN LINK FENCE CORNER COORDS:

CORNER	NORTHING	EASTING
NW	1692455.12	2444430.56
NE	1692415.28	2444527.00
SW	1692258.24	2444349.24
SE1	1692225.15	2444429.35
SE2	1692234.73	2444452.42

WIRE (NON-BARBED) FENCE CORNER COORDS:

CORNER	NORTHING	EASTING
N	1692376.93	2444289.15
SE	1692187.42	2444268.41
SW	1692200.76	2444216.66

WATERLINE YARD PIPING COORDS:

STATION	NORTHING	EASTING	FITTING
0+00	1692224.35'	2444442.65'	BEGIN & 12" CAP
0+30.12	1692252.07'	2444454.11'	12"x10" 90° ELL.
0+41.62	1692262.92'	2444458.59'	12"x10" 90° ELL.
0+83.40	1692301.43'	2444474.50'	PI
0+96	1692313.08'	2444479.31'	12"x10" TEE
1+00	1692316.77'	2444480.84'	12" GATE VALVE
1+29.34	1692343.88'	2444492.04'	12"x10" TEE
1+64	1692375.93'	2444505.27'	12"x10" TEE & REDUCER
2+03.68	1692412.59'	2444520.42'	10" TEE
2+35.31	1692441.83'	2444532.49'	11.25° ELL
–	1692364.73'	2444441.56'	10" TEE
–	1692257.50'	2444456.35'	10"x4" TEE W/ 4"X2" RED.

NOTE: SEE PROFILE ON SHEET 2-1 FOR VERTICAL FITTINGS

DRAIN MANHOLE & DRAIN PAD COORDS AND ELEVATIONS:

MANHOLE	NORTHING	EASTING	N INV.	S. INV.	NE INV.
DRAINPAD	1692252.69	2444332.77	–	6651.0	–
DM1	1692265.21	2444362.92	6651.60	6651.50	6652.0
DM2	1692313.88	2444383.03	6651.95	6651.85	6652.4

ELECTRICAL SERVICE COORDS:

POINT	NORTHING	EASTING	NOTE
PP1	1692041.45	2444404.81	IN-LINE POLE
PP2-SP	1692258.64	2444494.54	SERVICE POLE

TWIN LAKES DISTRIBUTION RESERVOIR AND METERING STATION SITE PLAN

SCALE 1"=30'

DISTRIBUTION RESERVOIR AND METERING STATION KEYED NOTES:

FITTING AND PIPING KEYED NOTES:

1. BEGIN WATERLINE YARD PIPING WITH A MINIMUM BURY OF 4'. INSTALL 12" CAP (MJ) AT PIPE END.
2. INSTALL 164' OF 12" CL 350 DUCTILE IRON WATERLINE IN 2 LAYERS OF 8 MIL. POLYETHYLENE WRAP OR SLEEVES
3. INSTALL 12"x10" 90° ELL. (MJ)
4. INSTALL 12"x10" TEE (MJ)
5. INSTALL 12"x10" TEE (MJ) W/ 10" PLUG & 12"x10" REDUCER (MJ)
6. INSTALL 156' OF 10" CL 350 DUCTILE IRON WATERLINE IN 2 LAYERS OF 8 MIL. POLYETHYLENE WRAP OR SLEEVES
7. INSTALL 10" TEE (MJ) W/ 10" PLUG
8. END WATERLINE YARD PIPING & BEGIN TWIN LAKE DISTRIBUTION WATERLINE.
9. INSTALL INLET CHECK VALVE PIT (SEE DETAIL SHEET 3-2)
10. INSTALL OUTLET CHECK VALVE PIT (SEE DETAIL SHEET 3-2)
11. INSTALL 10" MJxMJ GATE VALVE
12. INSTALL 10" MJxMJ GATE VALVE
13. INSTALL 12" MJxMJ GATE VALVE
14. INSTALL 21' OF 10" CL 350 DUCTILE IRON WATERLINE IN 2 LAYERS OF 8 MIL. POLYETHYLENE WRAP OR SLEEVES
15. INSTALL 6" TANK DRAIN AND OVERFLOW PIPING (SEE DETAIL ON SHEET 3-6)
16. INSTALL 6" MJxMJ GATE VALVE
17. INSTALL 6" TEE (MJ)
18. INSTALL 72' OF 6" CL 250 DUCTILE IRON DRAINLINE IN 2 LAYERS OF 8 MIL. POLYETHYLENE WRAP OR SLEEVES
19. INSTALL DRAINAGE MANHOLE (TYPE "C" AS DESIGNATED. SEE MANHOLE TABLE FOR INVERTS
20. INSTALL 2" GATE VALVE (AQUA GRIP OR EQUAL) AND 6"x2" TEE (MJ) PROVIDE 2" ADAPTER GASKETS AS REQUIRED.
21. INSTALL 2" SDR 21 (BLUE) PVC SENSOR LINE WITH PUSH ON JOINTS AND DUCTILE IRON MJ FITTINGS AS REQUIRED, L=50'
22. INSTALL 2" SDR 21 (GREEN) PVC DRAIN LINE WITH PUSH ON JOINTS AND FITTINGS AS REQUIRED, L=75'
23. INSTALL 2" HEAVY DUTY CLEAN OUT WITH A BRASS COLLAR AND PLUG AND A CONCRETE COLLAR, 5' OUTSIDE OF STATION
24. INSTALL 2" GATE VALVE (AQUA GRIP OR EQUAL) AND 10"x4" TEE (MJ) W/ 4"x2" REDUCER (MJ). PROVIDE 2" ADAPTER GASKETS AND 4" SDR 21 (BLUE) PVC PIPE AS REQUIRED.
25. INSTALL 2" SDR 21 (BLUE) PVC CHLORINATION LINE WITH PUSH ON JOINTS AND DUCTILE IRON MJ FITTINGS AS REQUIRED, L=80'

BUILDING PAD KEYED NOTES:

1. RESERVOIR & CONTROL SHED PADS SHALL BE COMPACTED TO 95% STANDARD PROCTOR. MAXIMUM CONSTRUCTION LIFT SHALL BE 6"
2. PROPOSED FLOWLINE SHALL BE GRADED TO DRAIN AS SHOWN AND OR REQUIRED

CONSTRUCTION KEYED NOTES:

1. NEW OVERHEAD ELECTRIC LINE BY CONTINENTAL DIVIDE ELECTRIC COMPANY
2. UNDERGROUND ELECTRIC SERVICE FROM SERVICE POLE TO CONTROL STATION TO BE INSTALLED BY CONTRACTOR IN 4" ELECTRICAL PVC CONDUIT A MINIMUM OF 2' DEEP WITH WARNING TAPE.
3. INSTALL 12'x4'x4" CONC. STOOP
4. INSTALL NEW DRAIN PAD (SEE DETAIL SHEET 3-2)
5. EDGE OF GRAVELED SURFACE
6. PLACE 4" OF GRAVEL OR BASE COURSE FOR DRIVEWAY AND STATION YARD (2570 SY)
7. NEW FINISHED GRADE CONTOURS FOR METER STATION SITE (TYP.)
8. INSTALL 20' CHAIN LINK GATE
9. INSTALL 3' PERSONNEL GATE
10. INSTALL NEW CHAIN LINK FENCE AS SHOWN L=605' (SEE DETAIL SHEET 3-2)
11. CONSTRUCT ACCESS ROAD FROM SITE GATE TO COUNTY ROAD. GRADE DRIVING SURFACE AND BAR DITCHES AS SHOWN AND INSTALL 4" GRAVEL AS SHOWN ON DETAIL ON SHEET 3-2. L=450'
12. INSTALL 18" CMP (L=30') W END FLARES IN EXISTING COUNTY GRAVEL ROAD BAR DITCH. GRADE AS REQUIRED TO DRAIN, PROVIDE 12" MIN. COVER OVER CULVERT AND TIE NEW ACCESS ROAD INTO EXISTING COUNTY GRAVEL ROAD
13. INSTALL 1" SCH. 80 PVC ELECTRICAL CONDUIT FOR RADIO ANTENNA MOUNT OF TANK RAILING.
14. INSTALL NEW WIRE FENCE (NON-BARBED) AS SHOWN L=205' (SEE DETAIL SHEET 3-2 AND COORDINATE TABLE ABOVE) SEE COORDINATES ABOVE.

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GENERAL NOTES:
1. RESERVOIR & CONTROL BUILDING SITE PAD SHALL BE IMPORTED GRANULAR MATERIAL GRADED TO CONTOURS SHOWN AND COMPACTED TO 95% STANDARD PROCTOR. MAXIMUM CONSTRUCTION LIFT SHALL BE 10".
2. BURIED RUNS FROM TANK TO STATION FOR ANTENNA CABLES NOT SHOWN. (PROVIDE CABLES AND CONDUIT AS REQUIRED)
3. YARD PIPING BEGINS 5' OUT FROM RESERVOIR AND BUILDINGS.
4. CONTRACTOR SHALL COORDINATE ISOLATION OF EXISTING TWIN LAKES SYSTEM TANKS FROM WATER SYSTEM AND PLACING NEW RESERVOIR IN SERVICE WITH NTUA OFFICIALS. EXISTING TANKS SHALL BE LEFT IN PLACE.

KURT A. SPOLAR
NEW MEXICO
17637
11-19-13
LICENSED PROFESSIONAL ENGINEER

DePAULI ENGINEERING & SURVEYING, LLC.
CIVIL ENGINEERS & LAND SURVEYORS

for the
CITY OF GALLUP
McKINLEY COUNTY, NEW MEXICO

NO.	BY	DATE	REVISIONS

CITY OF GALLUP
GALLUP-RURAL NAVAJO WATER SUPPLY PROJECT
PROJECT 4

NTUA - TWIN LAKES 0.3 MG DISTRIBUTION RESERVOIR AND FLOW CONTROL STATION SITE PLAN

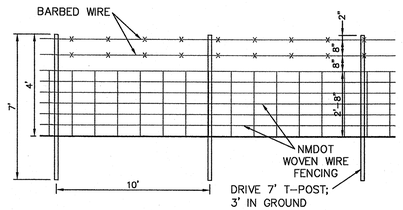
DePauli Engineering & Surveying LLC
- Civil Engineers and Land Surveyors -
307 S. 4th Street Gallup, NM 87301
Tel: (505)863-5440 depauliengineering.com

Dwg. No. ...
Date: Nov. 2013
Drawn By: KAS Checked By: MDP
Scale: SHOWN
Sheet 3-1

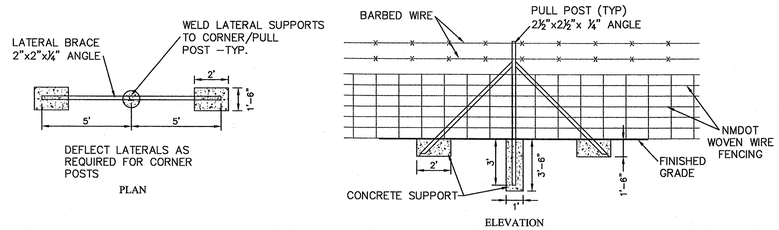
ADMIN104: C:\engineer\cgnaps4\dwg\tank site.dwg

WIRE FENCING NOTES:

1. INSTALL NEW METAL POSTS AT 10' SPACING, PULL POSTS AT 350' MAX OR CHANGE OF DIRECTION AND CORNER POSTS AT ALL CORNERS.
2. ALL WELDS SHALL BE GROUND SMOOTH, PRIMED, AND PAINTED WITH TWO (2) COATS OF PAINT TO MATCH EXISTING METAL PAINT.
3. IN LIEU OF WELDING CONTRACTOR MAY AT HIS OPTION FASTEN LATERAL BRACE TO CORNER OF PULL POST WITH ½" GALVANIZED BOLTS INCLUDING LOCKING WASHERS AND NUTS.



WOVEN WIRE FENCE DETAIL



WOVEN WIRE FENCE CORNER AND PULL POST DETAIL
NTS

WIRE FENCING NOTES:

1. INSTALL NEW METAL POSTS AT 10' SPACING, PULL POSTS AT 350' MAX OR CHANGE OF DIRECTION AND CORNER POSTS AT ALL CORNERS.
2. ALL WELDS SHALL BE GROUND SMOOTH, PRIMED, AND PAINTED WITH TWO (2) COATS OF PAINT TO MATCH EXISTING METAL PAINT.
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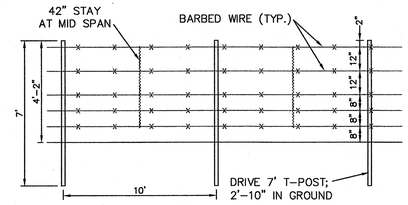
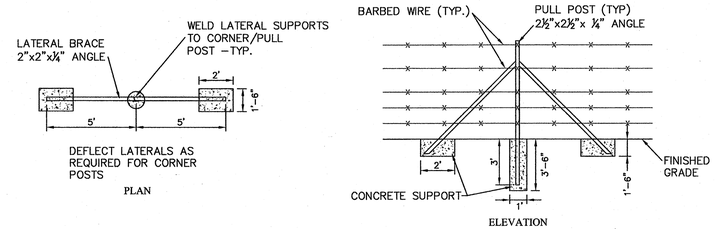
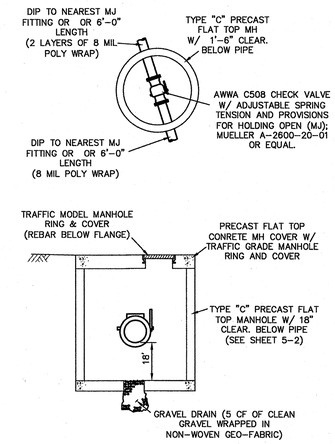


BARBED WIRE FENCE DETAIL



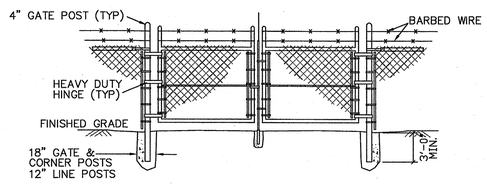
BARBED WIRE FENCE CORNER AND PULL POST DETAIL
NTS



NTUA - TWIN LAKES
INLET/OUTLET CHECK VALVE PIT DETAIL
NTS

TANK AND CONTROL STATION FENCE CORNER COORDS:

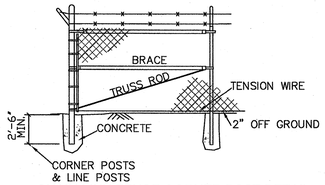
CORNER	NORTHING	EASTING
NW	1692455.12	2444430.56
NE	1692415.28	2444527.00
SW	1692258.24	2444349.24
SE1	1692225.15	2444429.35
SE2	1692234.73	2444452.42



CHAIN LINK FENCE DOUBLE HUNG GATE DETAIL

CHAIN LINK FENCING NOTES:

1. INSTALL POSTS AT 10' SPACING, CORNER POSTS AT ALL CORNERS AND CHANGES OF DIRECTION.
2. INSTALL TWO (2) BARBED WIRE STRANDS ON TOP OF FABRIC AT 6" VERTICAL SPACING
3. GATE POSTS SHALL BE 4" IN DIAMETER
4. GATES FRAMES SHALL BE CONSTRUCTED WITH 1.9 O.D. TUBULAR MEMBERS WELDED AT ALL CORNERS OR ASSEMBLED WITH FITTINGS. FRAMES SHALL BE CONSTRUCTED WITH AT LEAST ONE 9/16" DIAMETER TRUSS ROD.
5. CONTRACTOR SHALL PROVIDE THE GATE HARDWARE AS FOLLOWS:
   - STRETCHER BARS AND STRETCHER BAR BANDS AND FASTENERS FOR CHAIN LINK FABRIC.
   - LOCKING HASP, LATCH
   - EXTRACTABLE LOCKING ROD AND SLEEVE.
   - AN MISC. GATE HARDWARE REQUIRED FOR INSTALLATION.



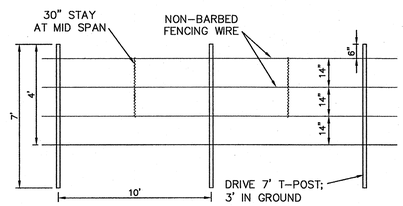
CHAIN LINK FENCE CORNER POST DETAIL

CHAIN LINK FENCE CORNER AND GATE DETAIL
NTS

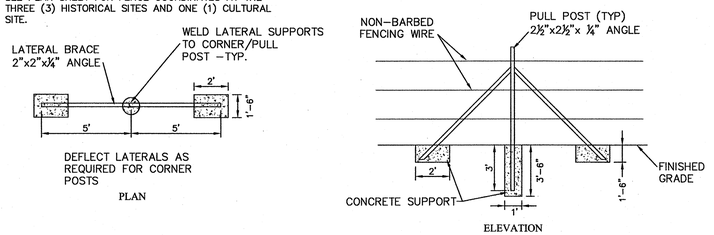
WIRE FENCING NOTES:

1. INSTALL NEW METAL POSTS AT 10' SPACING, PULL POSTS AT 350' MAX OR CHANGE OF DIRECTION AND CORNER POSTS AT ALL CORNERS.
2. ALL WELDS SHALL BE GROUND SMOOTH, PRIMED, AND PAINTED WITH TWO (2) COATS OF PAINT TO MATCH EXISTING METAL PAINT.
3. IN LIEU OF WELDING CONTRACTOR MAY AT HIS OPTION FASTEN LATERAL BRACE TO CORNER OF PULL POST WITH ½" GALVANIZED BOLTS INCLUDING LOCKING WASHERS AND NUTS.
4. CONTRACTOR MAY PROVIDE BARBED WIRE IN LIEU OF NON-BARBED FENCING WIRE

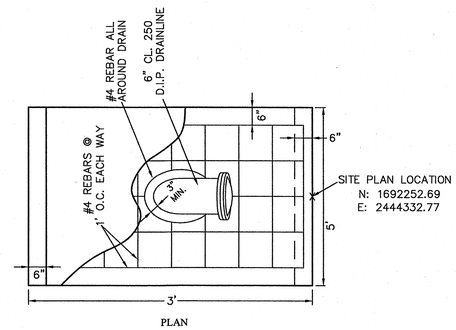
LOCATION NOTE:
SEE PLAN SHEET FOR FENCE COORDINATES AT THE THREE (3) HISTORICAL SITES AND ONE (1) CULTURAL SITE.



WIRE (NON BARBED) FENCE DETAIL

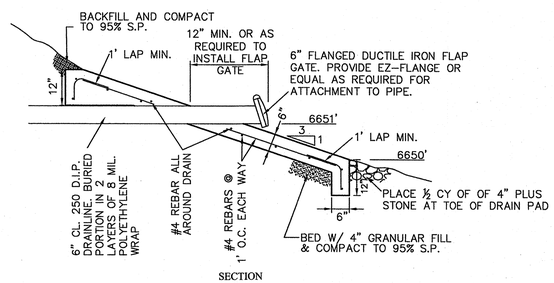


WIRE (NON-BARBED) FENCE CORNER AND PULL POST DETAIL
NTS

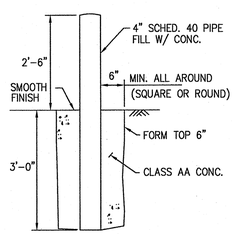


PLAN

NOTE: PAINT ALL EXPOSED PIPE: PRIME/SEAL AS REQUIRED AND APPLY 2 COATS FIELD APPLIED OF ALKYD ENAMEL

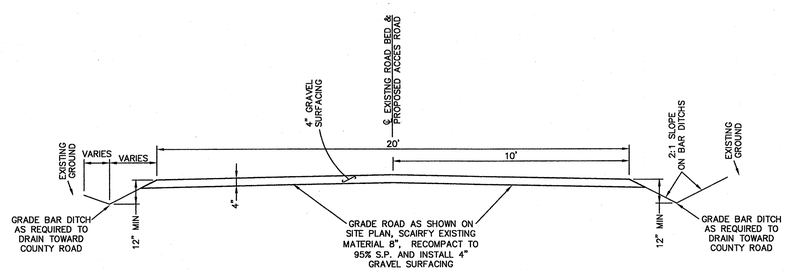


DRAIN PAD DETAIL
NTS



PAINT W/ TWO COMPONENT SYSTEM PER PROJECT SPECIFICATIONS

BOLLARD DETAIL
NTS



ACCESS ROAD DETAIL
NTS

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KURT A. SPOLAR NEW MEXICO 17637 11-12-13 LICENSED PROFESSIONAL ENGINEER

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GALLUP-RURAL NAVAJO WATER SUPPLY PROJECT
PROJECT 4

NTUA - TWIN LAKES 0.3 MG DISTRIBUTION RESERVOIR AND FLOW CONTROL STATION SITE DETAILS

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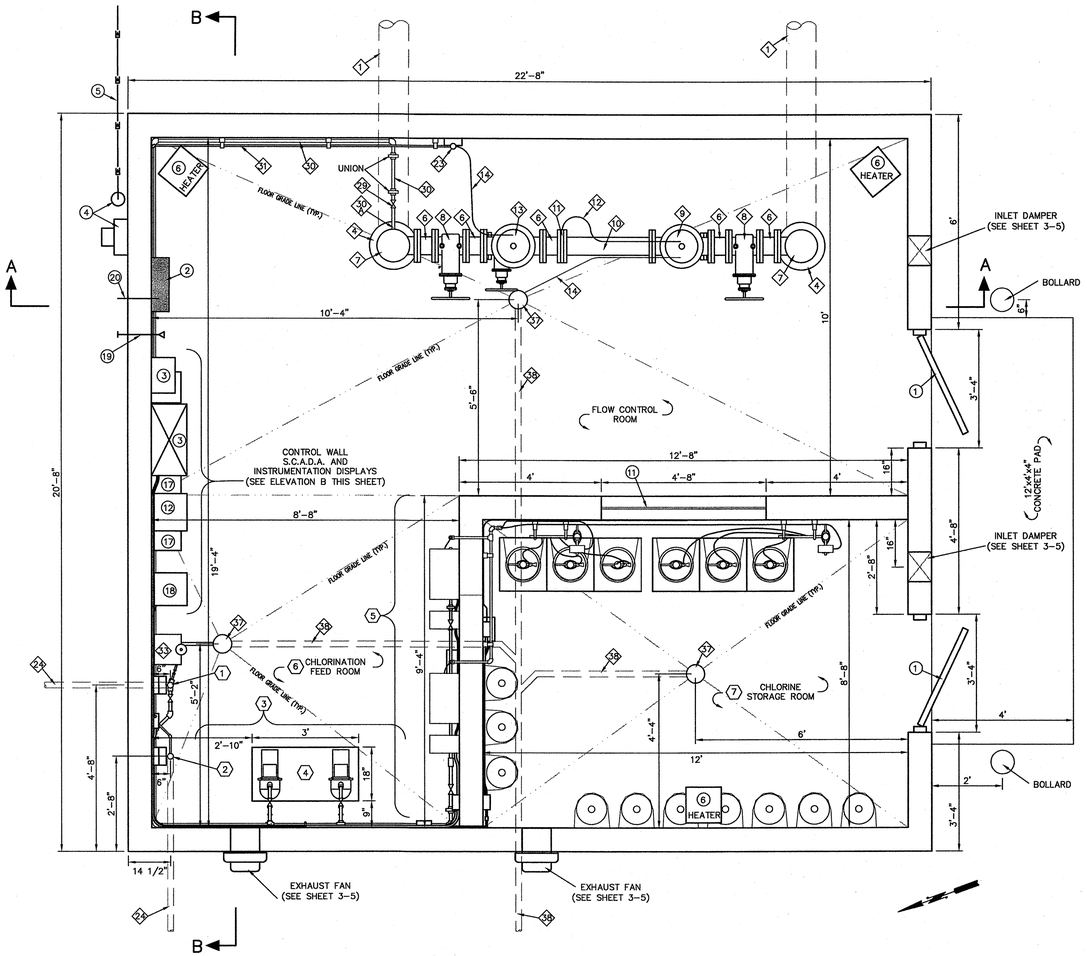
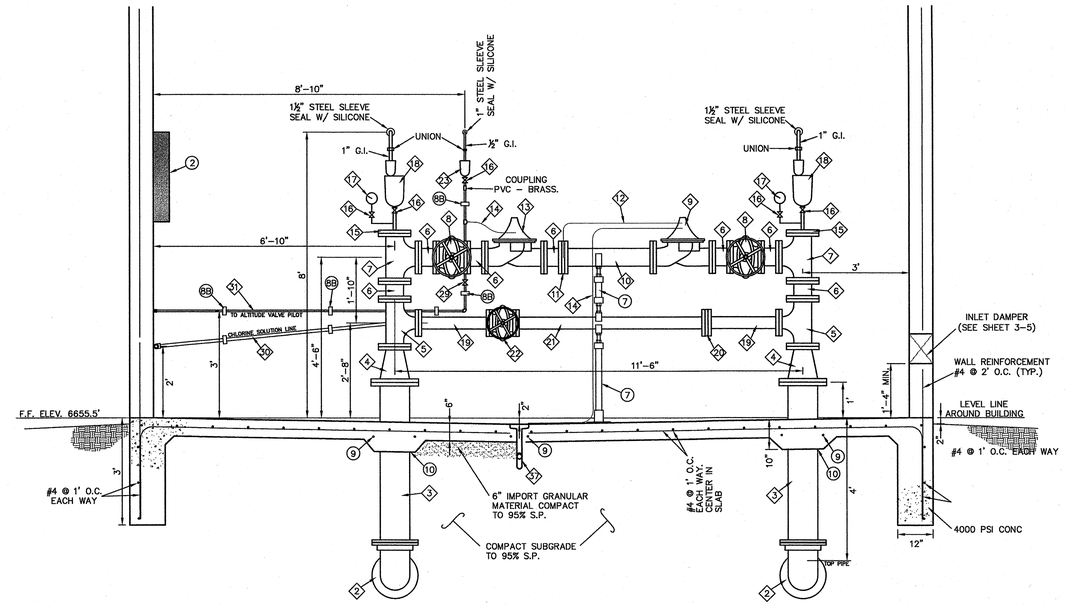
Dwg. No. ---
Date: Nov. 2013
Drawn By: KAS Checked By: MDP
Scale: SHOWN Sheet 3-2

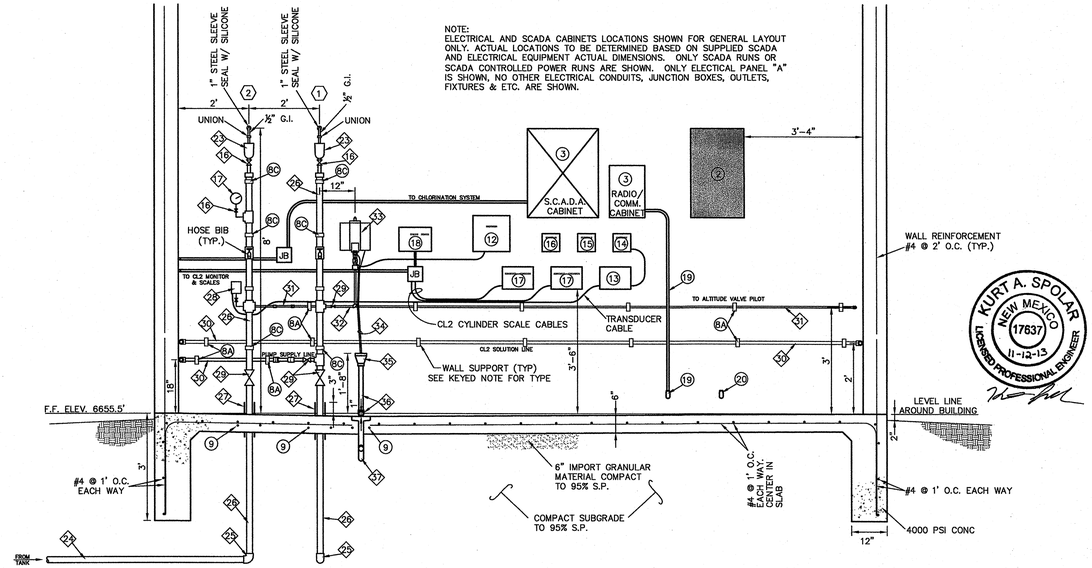
ADMIN04: G:\engineer\projects\dwg\tank site.dwg



TWIN LAKES CONTROL STATION LAYOUT
SCALE: 1/2"=1'



TWIN LAKES METERING STATION PIPING ELEVATION "A"
SCALE: 1/2"=1'



TWIN LAKES METERING STATION PIPING ELEVATION "B"
SCALE: 1/2"=1'

FITTING AND PIPING SCHEDULE:

1. 10" CL. 350 D.I. PIPE (WRAP IN TWO (2) LAYERS OF 8 MIL. POLYETHYLENE)
2. 10" MJ 90° ELL. (WRAP IN TWO (2) LAYERS OF 8 MIL. POLYETHYLENE)
3. 10" FLGxPE CL. 350 D.I. PIPE (WRAP BURIED PORTION IN TWO (2) LAYERS OF 8 MIL. POLYETHYLENE)
4. 10"x6" FLG'D REDUCER
5. 6"x4" FLG'D TEE, (ONE (1) W/ BOSS TAPPED AS REQUIRED FOR TO ATTACH CHLORINATION CHLORINATION PIPING
6. 6" FLG'D SPOOL, (L=6")
7. 6" FLG'D TEE
8. 6" FLG'D RESILIENT WEDGE GATE VALVE W/ HAND WHEEL
9. 6" FLG'D RATE OF FLOW CONTROL VALVE W/ 24V SOLENOID SHUT-OFF (DE-ENERGIZE TO OPEN, CLA-VAL MODEL 43-01 WITH 3.4" BORE ORIFICE PLATE OR EQUAL
10. 6" FLG'D SPOOL, LENGTH AS REQUIRED
11. 6" RATE OF FLOW CONTROL VALVE ORIFICE PLATE, CLA-VAL MODEL X52E WITH 4" BORE OR EQUAL
12. ⅜" TYPE K COPPER SENSING LINE FROM ORIFICE PLATE TO FLOW CONTROL VALVE. RUN NEATLY ALONG PIPE AND ADAPT AS REQUIRED..
13. 6" ALTITUDE VALVE W/ MOUNTED LIMIT SWITCH, CLA-VAL MODEL 210-01 OR EQUAL
14. ¾" TYPE K COPPER SENSING/SOLENOID DRAIN LINES RUN NEATLY FROM PVC SENSOR LINE PIPING TO ALTITUDE VALVE & FLOW CONTROL SOLENOID TO DRAIN.
15. 6" TAPPED BLIND FLANGE
16. HIGH QUALITY BRASS BODIED STAINLESS STEEL BALL VALVE, INSTALLED ON BRASS PIPE AND FITTINGS, SIZE AS REQUIRED. (150 PSI)
17. LIQUID FILLED PRESSURE GAUGE BY WIKA OR EQUAL, (RANGE 0 TO 50 PSI) (3" GLASS FACE GLYCERIN FILLED)
18. 1" DUAL BODY COMBINATION AIR VALVE (VAL-MATIC 101S/22.9 OR EQUAL)
19. 4" FLG'D SPOOL, (L=2'-0")
20. 4" ORIFICE PLATE , CLA-VAL MODEL X52E WITH 2.6" BORE OR EQUAL. PLUG SENSING PORT AS REQUIRED.
21. 4" FLG'D SPOOL, LENGTH AS REQUIRED
22. 4" FLG'D RESILIENT WEDGE GATE VALVE W/ HAND WHEEL
23. ½" AIR RELEASE VALVE, VAL-MATIC 15A OR EQUAL
24. 2" SDR 21 (BLUE) PVC SENSOR OR CHLORINATION LINE WITH PUSH ON JOINTS AND DUCTILE IRON MJ FITTINGS W/ ADAPTER GASKETS AS REQUIRED,
25. 2" PVC SOLVENT WELD 90° ELL.
26. 2" SCH. 80 PVC SENSOR STAND PIPING WITH SOLVENT WELD FITTINGS AS REQUIRED.
27. INSTALL 3" STEEL SLEEVE, L=10"
28. HIGH QUALITY PRESSURE TRANSDUCER W/ 4-20 ma OUTPUT FOR ALARMS AND NTUA WELL PUMP CONTROL. KPSI SERIES 30 PRESSURE TRANSDUCER OR EQUAL.
29. COMPACT HEAVY BODIED SOLVENT WELD PVC BALL VALVE, SIZE AS REQUIRED (150 PSI)
30. 1" SCH. 80 PVC CHLORINATION PIPING WITH SOLVENT WELD FITTINGS AS REQUIRED. ADAPT TO CHLORINE EJECTOR AS REQUIRED.
30A. 3/4" STANDARD BRASS BODY RETRACTABLE CORP STOP WITH PVC WETTED DIFFUSER EJECTOR (TO MIDDLE OF 6" PIPE)
31. ½" SCH. 80 PVC LEVEL SENSING LINE WITH SOLVENT WELD FITTINGS AS REQUIRED.
32. ½" SCH. 80 PVC CL2 ANALYZER LINE WITH SOLVENT WELD FITTINGS AS REQUIRED.
33. CHLORINE RESIDUAL ANALYZER, WALLACE & TIERNAN DEPOLOX 3 PLUS BARE-ELECTRODE FLOW CELL OR EQUAL.
34. CHLORINE RESIDUAL ANALYZER OUTLET (½") AND SAMPLE EXHAUST (¼") PVC TUBING LINES
35. 3"x1½" ECCENTRIC SCH. 80 REDUCER.
36. ½" SCH. 80 PVC WASTE DRAIN LINE WITH SOLVENT WELD FITTINGS AS REQUIRED.
37. HEAVY DUTY, RODABLE, OPEN FACE, C.I. FLOOR DRAIN W/ TRAP FOR 2" PIPE
38. 2" SDR 21 (GREEN) PVC DRAIN LINE WITH PUSH ON JOINTS. PROVIDE SOLVENT WELD FITTINGS AS REQUIRED

PIPING KEYED NOTES:

1. 2" CHLORINATION STAND, SEE ELEVATION B THIS SHEET
2. 2" TANK LEVEL SENSOR STAND, SEE ELEVATION B THIS SHEET
3. CHLORINATION PUMP WALL, SEE SHEET 3-4 FOR DETAILED LAYOUT & ELEVATION
4. CHLORINATION PUMPS AND PEDESTAL, SEE SHEET 3-4 AND DETAIL SHEET 3-6
5. CHLORINATION WALL, SEE SHEET 3-4 FOR DETAILED LAYOUT & ELEVATION
6. CHLORINE FEED ROOM, SEE SHEET 3-4 FOR DETAILED LAYOUT & ELEVATION
7. CHLORINE STORAGE ROOM, SEE SHEET 3-5 FOR DETAILED LAYOUT & ELEVATION

CONSTRUCTION KEYED NOTES:

1. 3'-0" FLUSH METAL DOOR W/ HORIZONTAL ACTUATING BAR EXIT DEVICE AND FRAME. PROVIDE DOOR STOP, THRESHOLD, DOOR CLOSURE, HARDWARE AND LOCK. (LOCK TO BE KEYED TO NTUA WATER SYSTEM STANDARD.)
2. NEMA 3R ELECTRICAL CABINET PANEL "A"
3. NEMA 3R S.C.A.D.A. SYSTEM CABINETS W/ COMMUNICATION AND BATTERY BACKUP
4. NEW ELECTRICAL METER, DISCONNECT, AND UNDERGROUND ELECTRIC
5. NEW UNDERGROUND ELECTRIC SERVICE
6. ELECTRIC UNIT HEATER. "QMARK" #MUH-07-2 WITH #MUHMT1 THERMOSTAT AND #MMB10 WALL MOUNTED BRACKET. MOUNT UP 7'-6" TO TOP OF UNIT, 240V, 1ϕ, 7.5KW
7. ADJUSTABLE PIPE SUPPORT STANDS (1 REQ'D) (BY ANVIL PIPING PRODUCT OR EQUAL) SEE DETAIL THIS SHEET
8X. TYP. WALL PIPE SUPPORTS (TYPE AS NOTE BY "X") (SEE DETAILS SHEET 3-6)
9. #4 ALL AROUND PIPE OR DRAIN W/ LAP
10. PROVIDE 2 LAYERS OF 30# FELT WRAP AROUND D.I. PIPE THROUGH FLOOR (TYP.)
11. CHLORINATION VIEWING WINDOW, ¼" TEMPERED GLAZED GLASS IN STOREFRONT FRAME ANCHOR TO BLOCK WALL
12. CHLORINE RESIDUAL ANALYZER, WALLACE & TIERNAN DEPOLOX 3 PLUS ELECTRONICS ENCLOSURE/DISPLAY
13. TRANSDUCER JUNCTION BOX WITH TRANSDUCER VENT SEAL TO MATCH TRANSDUCER MANUFACTURER
14. PRESSURE TRANSDUCER REMOTE DIGITAL DISPLAY (TANK WATER LEVEL) (KPSI MODEL 3019 DIGITAL DISPLAY OR EQUAL)
15. REMOTE DIGITAL DISPLAY (FLOW RATE VIA S.C.A.D.A. FROM TOHLAKAI PUMP STATION) (KPSI MODEL 3019 DIGITAL DISPLAY OR EQUAL)
16. REMOTE DIGITAL DISPLAY (CL2 RESIDUAL AT TOHLAKAI PUMP STATION VIA S.C.A.D.A.) (KPSI MODEL 3019 DIGITAL DISPLAY OR EQUAL)
17. ELECTRONIC WEIGH SCALE DISPLAY (WIZARD 4000 OR EQUAL)
18. DUAL POINT GAS DETECTION SYSTEM RECEIVER MODULE/DISPLAY. (WALLACE & TIERNAN ACUTEC 35 DUAL POINT DETECTION SYSTEM OR EQUAL)
19. ¾" EMT AND FOR RADIO ANTENNA WALL PENETRATION. (SEE DETAIL SHEET 3-4)
20. SPARE ¾" WALL PENETRATION. (SEE DETAIL SHEET 3-4)

NOTICE OF EXTENDED PAYMENT PROVISION:
THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITH IN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.

CAUTION
CALL NEW MEXICO ONE CALL
811
BEFORE YOU DIG!

KURT A. SPOLAR NEW MEXICO 17637 11-12-13 LICENSED PROFESSIONAL ENGINEER

DePAULI ENGINEERING & SURVEYING, LLC.
CIVIL ENGINEERS & LAND SURVEYORS

for the CITY OF GALLUP
McKINLEY COUNTY, NEW MEXICO

NO.	BY	DATE	REVISIONS

CITY OF GALLUP
GALLUP-RURAL NAVAJO WATER SUPPLY PROJECT
PROJECT 4

NTUA - TWIN LAKES
FLOW CONTROL STATION
FLOW CONTROL ROOM LAYOUT & PIPING

DePauli Engineering & Surveying LLC
- Civil Engineers and Land Surveyors -
307 S. 4th Street Gallup, NM 87301
Tel: (505)863-5440 depauliengineering.com

Dwg. No. ...
Date: Nov. 2013
Drawn By: KAS Checked By: MDP
Scale: SHOWN Sheet 3-3

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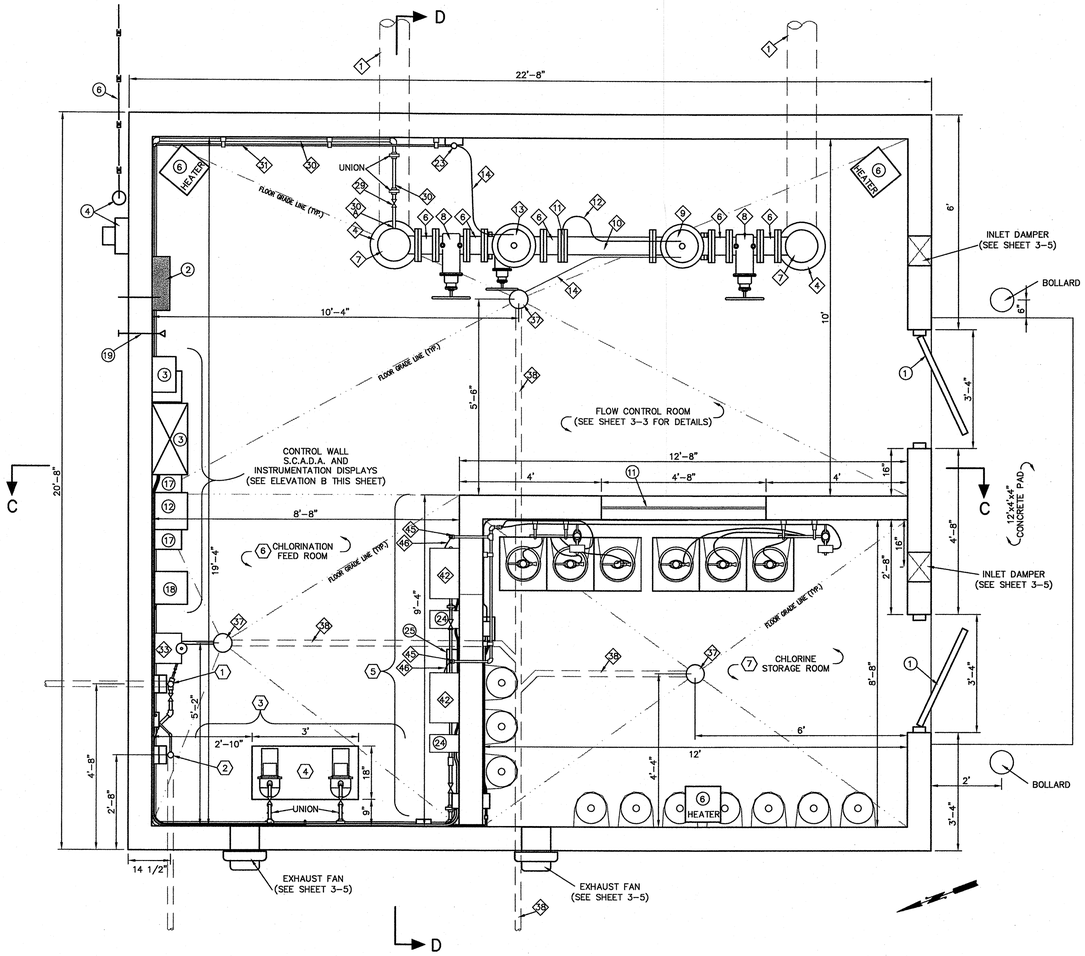
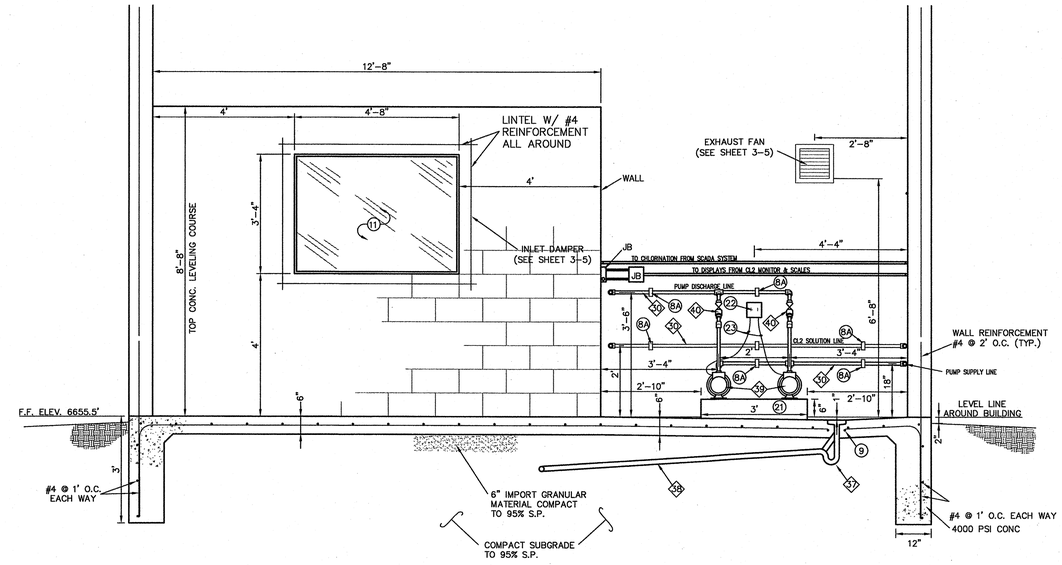
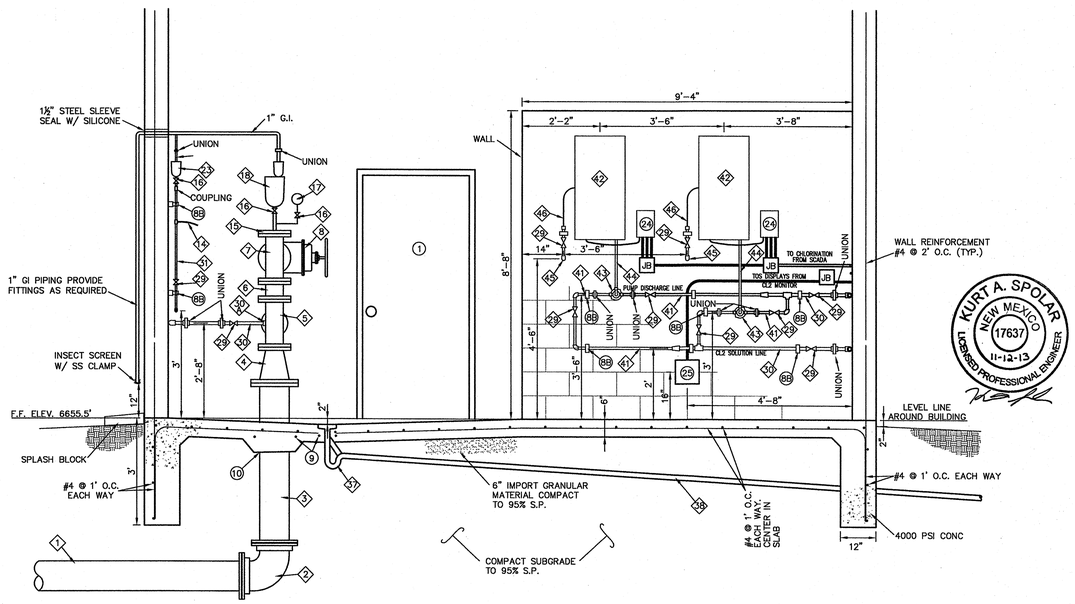


TWIN LAKES CONTROL STATION LAYOUT
SCALE: 1/2"=1'



TWIN LAKES METERING STATION PIPING ELEVATION "C"
SCALE: 1/2"=1'



TWIN LAKES METERING STATION PIPING ELEVATION "D"
SCALE: 1/2"=1'

CONSTRUCTION KEYED NOTES:

1 TO 20
SEE SHEET 3-3 FOR DESCRIPTION

21 CHLORINATION PUMP PEDESTAL (SEE DETAIL SHEET 3-6)

22 MANUAL SWITCH FOR EACH CHLORINATION PUMP

23 FLEXIBLE MEDAL CLAD ELECTRICAL CABLE TO PUMPS RUN NEATLY ALONG WALL AND PUMP PIPING.

24 CHLORINATION SYSTEM PROCESS CONTROL UNIT, WALLACE AND TIERNAN PCU OR EQUAL

25 DUAL POINT GAS DETECTION SYSTEM SENSER/TRANSMITTER. (WALLACE & TIERNAN ACUTEC 35 DUAL POINT DETECTION SYSTEM OR EQUAL)

PIPING KEYED NOTES:

1. 2" CHLORINATION STAND, SEE ELEVATION B SHEET 3-3
2. 2" TANK LEVEL SENSOR STAND, SEE ELEVATION B SHEET 3-3
3. CHLORINATION PUMP WALL, SEE ELEVATION C THIS SHEET FOR DETAILED LAYOUT & ELEVATION
4. CHLORINATION PUMPS AND PEDESTAL, SEE ELEVATION C THIS SHEET & DETAIL SHEET 3-6
5. CHLORINATION WALL, SEE ELEVATION D THIS SHEET FOR DETAILED LAYOUT AND ELEVATION
6. CHLORINE FEED ROOM, SEE ELEVATION C & D THIS SHEET FOR DETAILED LAYOUT & ELEVATION
7. CHLORINE STORAGE ROOM, SEE SHEET 3-5 FOR DETAILED LAYOUT & ELEVATION

FITTING AND PIPING SCHEDULE:

1 TO 38
SEE SHEET 3-3 FOR DESCRIPTION

39 CHLORINATION SOLUTION FEED PUMP.

40 PVC SWING CHECK BALL VALVE, SIZE AS REQUIRED BY SPEARS OR EQUAL.

41 ¾" SCH. 80 PVC CHLORINATION PIPING WITH SOLVENT WELD FITTINGS AS REQUIRED. ADAPT TO CHLORINE INJECTOR AS REQUIRED.

42 75 LB/DAY CHLORINATION SYSTEM, WALLACE & TIERNAN V10K GAS FEED SYSTEM OR EQUAL

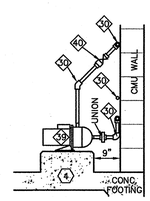
43 ¾" CHLORINE GAS INJECTORS, WALLACE & TIERNAN V10K GAS FEED SYSTEM OR EQUAL

44 RIGID PVC PIPING AS REQUIRED FOR CHLORINATION SYSTEM,

45 ¾" RIGID PVC CHLORINE GAS PIPING WITH FITTINGS WALL PENETRATIONS AS REQUIRED, (SEE WALL PENETRATION DETAIL SHEET __-__)

46 ½" O.D. (⅜" I.D) FLEXIBLE POLYETHYLENE PIPING RUN NEATLY ALONG WALL AND ADAPT AS REQUIRED

NOTE:
ELECTRICAL AND SCADA CABINETS LOCATIONS SHOWN FOR GENERAL LAYOUT ONLY. ACTUAL LOCATIONS TO BE DETERMINED BASED ON SUPPLIED SCADA AND ELECTRICAL EQUIPMENT ACTUAL DIMENSIONS. ONLY SCADA RUNS OR SCADA CONTROLLED POWER RUNS ARE SHOWN. ONLY ELECTICAL PANEL "A" IS SHOWN, NO OTHER ELECTRICAL CONDUITS, JUNCTION BOXES, OUTLETS, FIXTURES & ETC. ARE SHOWN.



CHLORINATION PUMP ELEVATION
SCALE: 1/2"=1'

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CIVIL ENGINEERS & LAND SURVEYORS

for the CITY OF GALLUP
McKINLEY COUNTY, NEW MEXICO

NO.	BY	DATE	REVISIONS

CITY OF GALLUP
GALLUP-RURAL NAVAJO WATER SUPPLY PROJECT
PROJECT 4

NTUA - TWIN LAKES
FLOW CONTROL STATION
CHLORINATION ROOM LAYOUT & PIPING

DePauli Engineering & Surveying LLC
- Civil Engineers and Land Surveyors -
307 S. 4th Street Gallup, NM 87301
Tel: (505)863-5440 depaulieng inee ring.com

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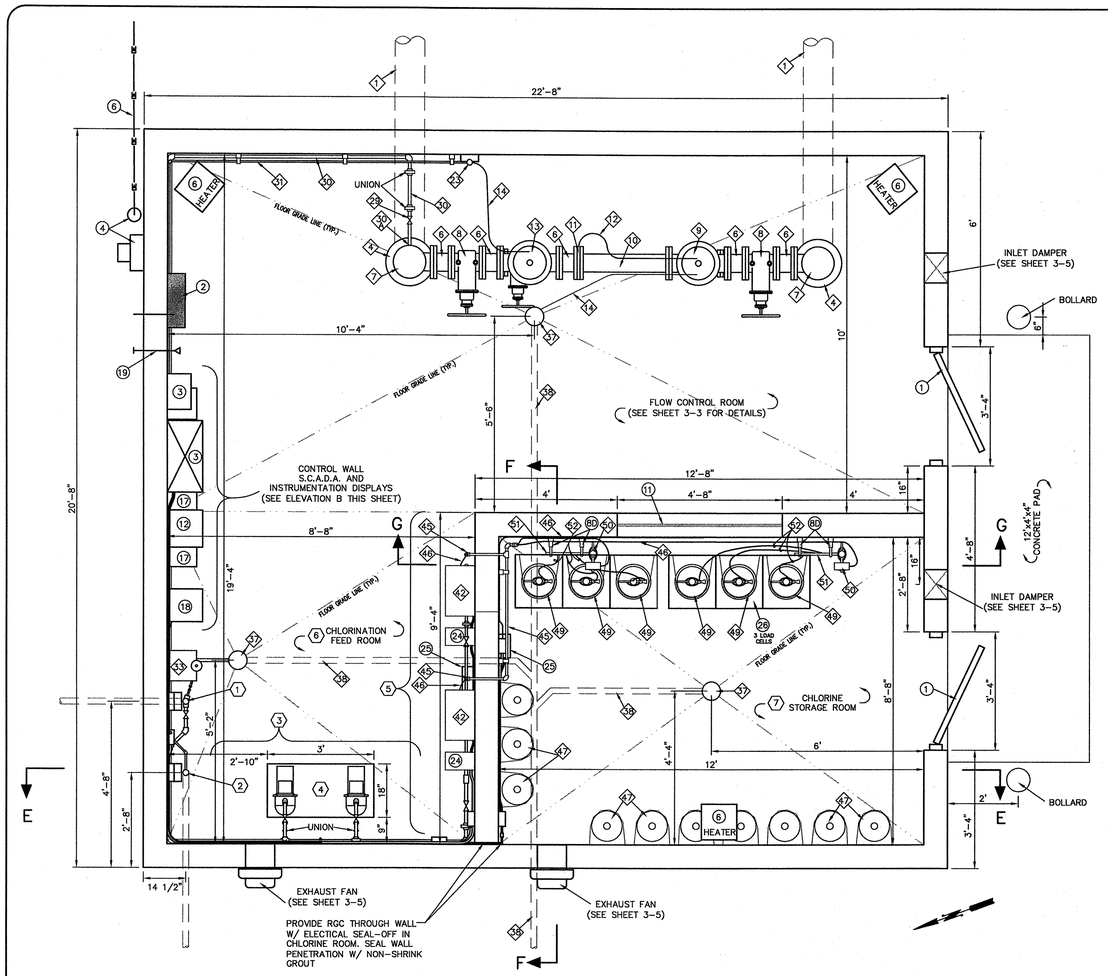
Date: Nov. 2013
Drawn By: KAS Checked By: MDP
Scale: SHOWN Sheet 3-4



TWIN LAKES CONTROL STATION LAYOUT
SCALE: 1/2"=1'

FITTING AND PIPING SCHEDULE:

(1) TO (38)
SEE SHEET 3-3 FOR DESCRIPTION

(39) TO (46)
SEE SHEET 3-3 FOR DESCRIPTION

(47) 150 LB GAS CHLORINE CYLINDER (NOT TO BE PROVIDED, SHOWN FOR LAYOUT PURPOSES

(48) 150 LB GAS CHLORINE CYLINDER SAFETY CHAIN (10 TO BE PROVIDED)

(49) 150 LB GAS CHLORINE CYLINDER YOKE TYPE AUXILIARY CYLINDER VALVE (WALLACE & TIERNAN OR EQUAL

(50) 200 PPD VACUUM REGULATOR W/ AUTOMATIC SWITCHOVER, WALLACE & TIERNAN V10K GAS FEED SYSTEM OR EQUAL

(51) THREE (3) 150 LB LB CYLINDER CHLORINE GAS MANIFOLD, BY WALLACE & TIERNAN

(52) ½" O.D. (⅜" I.D) FLEXIBLE POLYETHYLENE PIPING RUN NEATLY ALONG WALL AND ADAPT AS REQUIRED

CONSTRUCTION KEYED NOTES:

(1) TO (20)
SEE SHEET 3-3 FOR DESCRIPTION

(21) TO (25)
SEE SHEET 3-4 FOR DESCRIPTION

(26) ELECTRONIC WEIGH SCALE FOR 3 THREE CYLINDERS WITH INDICATOR W 4 – 20 mA OUTPUT FOR EACH CYLINDER AND CHAINING BRACKET WITH TOOL HOOKS (MOUNTED BELOW WINDOW) (TWO (2) REQUIRED). WALLACE & TIERNAN ELECTONIC CHLOR-SCALE 150 OR EQUAL

PIPING KEYED NOTES:

(1) 2" CHLORINATION STAND, SEE ELEVATION B SHEET 3-3

(2) 2" TANK LEVEL SENSOR STAND, SEE ELEVATION B SHEET 3-3

(3) CHLORINATION PUMP WALL, SEE ELEVATION C SHEET 3-4 FOR DETAILED LAYOUT & ELEVATION

(4) CHLORINATION PUMPS AND PEDESTAL, SEE ELEVATION C SHEET 3-3 & DETAIL SHEET 3-6

(5) CHLORINATION WALL, SEE ELEVATION D SHEET 3-4 FOR DETAILED LAYOUT AND ELEVATION

(6) CHLORINE FEED ROOM, SEE ELEVATION C & D SHEET 3-4 FOR DETAILED LAYOUT & ELEVATION

(7) CHLORINE STORAGE ROOM, SEE ELEVATIONS E, F, & G THIS SHEET FOR DETAILED LAYOUT & ELEVATION

NOTE:
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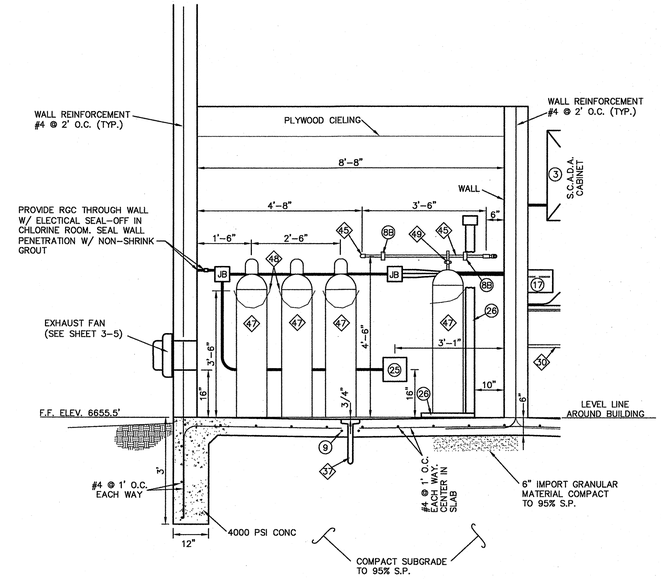
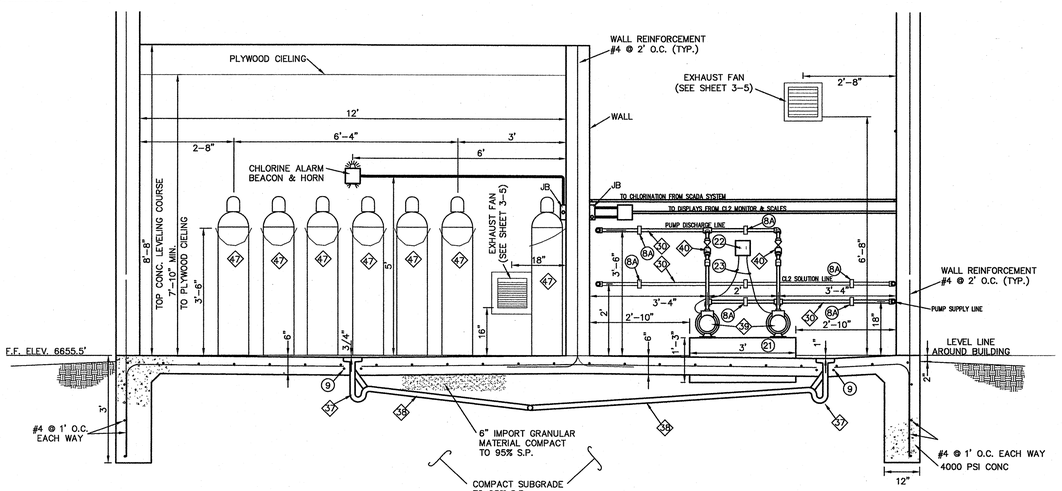


TWIN LAKES METERING STATION PIPING ELEVATION "F"
SCALE: 1/2"=1'



TWIN LAKES METERING STATION PIPING ELEVATION "E"
SCALE: 1/2"=1'

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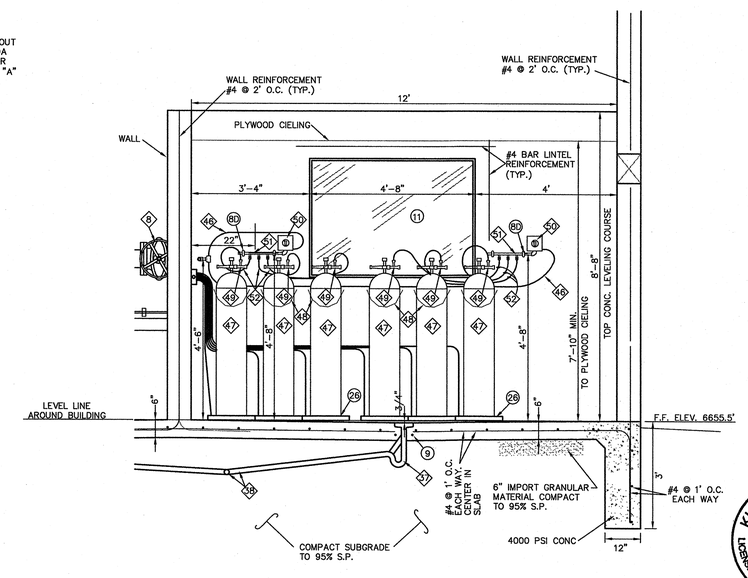

TWIN LAKES METERING STATION PIPING ELEVATION "G"
SCALE: 1/2"=1'

KURT A. SPOLAR
NEW MEXICO
17637
11-12-13
LICENSED PROFESSIONAL ENGINEER

DePAULI ENGINEERING & SURVEYING, LLC.
CIVIL ENGINEERS & LAND SURVEYORS

for the
CITY OF GALLUP
McKINLEY COUNTY, NEW MEXICO

NO.	BY	DATE	REVISIONS

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PROJECT 4

NTUA - TWIN LAKES
FLOW CONTROL STATION CHLORINE STORAGE ROOM LAYOUT & PIPING

DePauli Engineering & Surveying LLC
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307 S. 4th Street Gallup, NM 87301
Tel: (505)863-5440 depaulienginee ring.com

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Date: Nov. 2013
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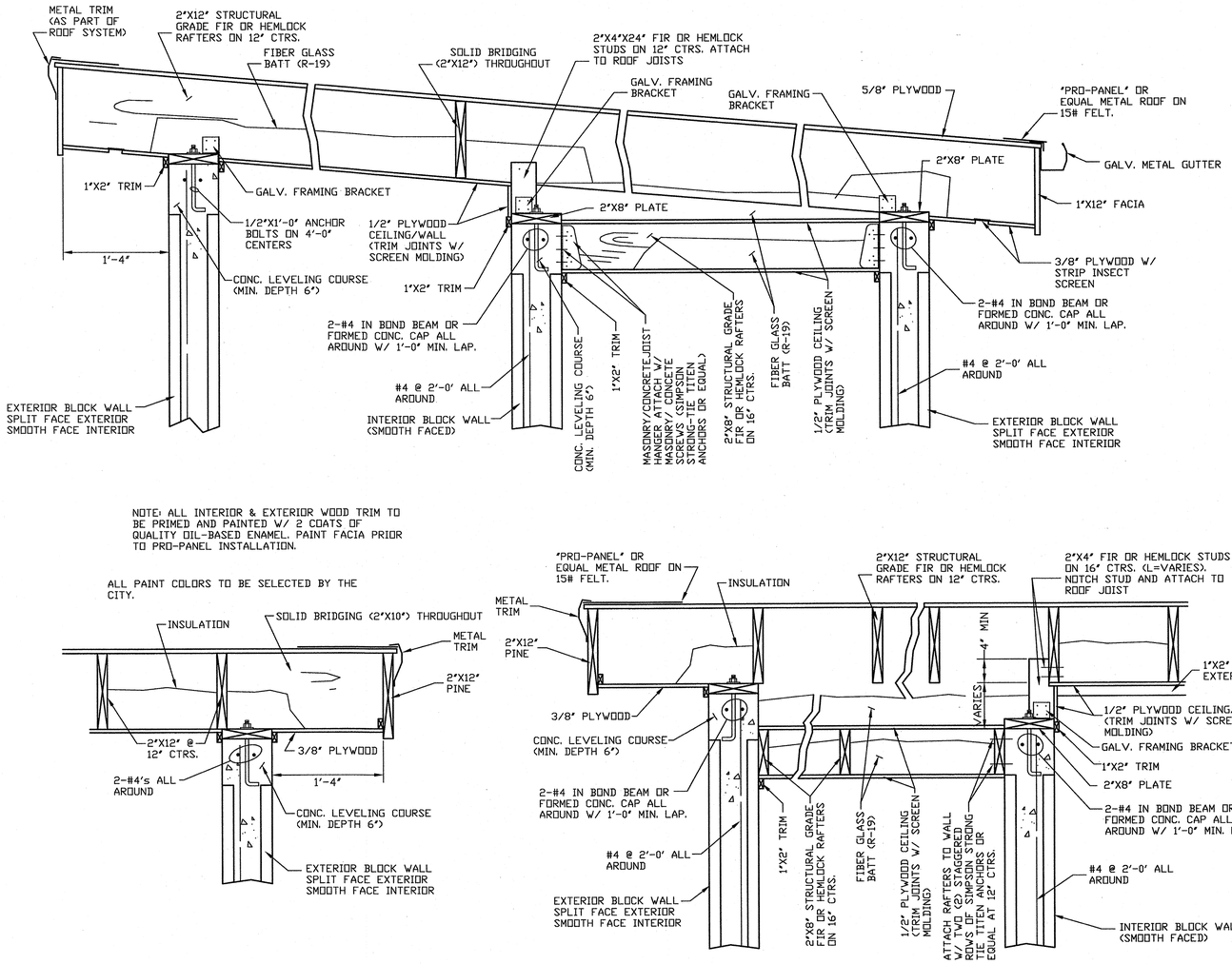
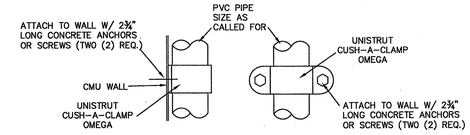


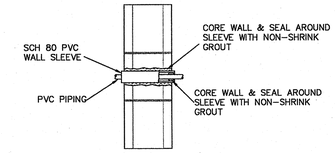
NOTE: ALL INTERIOR & EXTERIOR WOOD TRIM TO BE PRIMED AND PAINTED W/ 2 COATS OF QUALITY OIL-BASED ENAMEL. PAINT FACIA PRIOR TO PRO-PANEL INSTALLATION.

ALL PAINT COLORS TO BE SELECTED BY THE CITY.

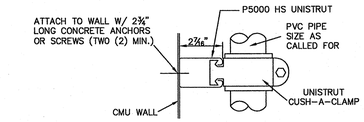
ROOF DETAILS: WOOD CONSTRUCTION
NTS



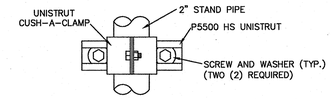
TYPE "A" PROFILE & ELEVATION
MAXIMUM SPACING 3' ON CENTER



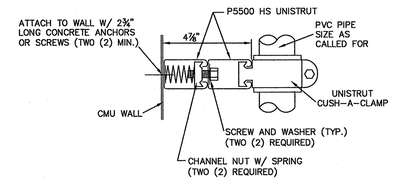
CHLORINE ROOM WALL PIPING PENETRATION
NTS



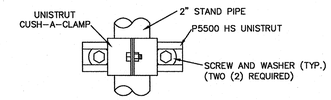
TYPE "B" PROFILE
MAXIMUM SPACING 3' ON CENTER



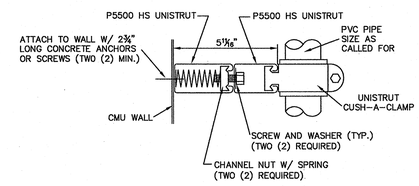
TYPE "B" ELEVATION



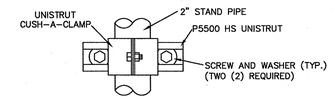
TYPE "C" PROFILE
MAXIMUM SPACING 2' ON CENTER



TYPE "C" ELEVATION

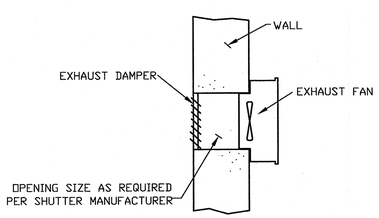


TYPE "D" PROFILE
MAXIMUM SPACING 2' ON CENTER



TYPE "D" ELEVATION

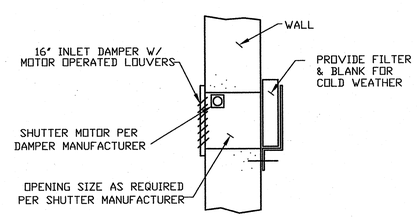
PIPE WALL SUPPORTS
ALL MATERIAL AND HARDWARE TO BE UNISTRUT OR EQUAL
NTS



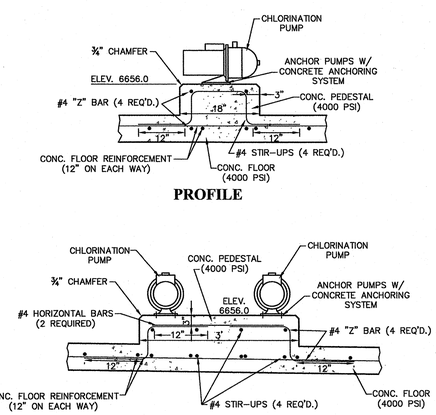
EXHAUST FAN DETAIL (TWO (2) REQUIRED)
NTS

VENTILATION SYSTEM NOTES:

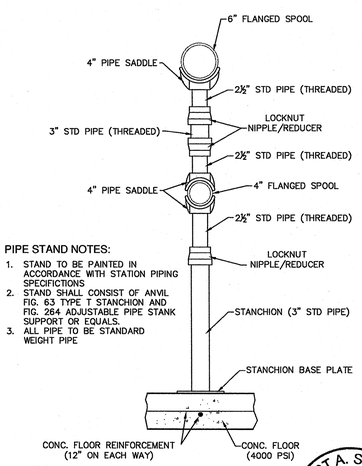
1. EXHAUST FAN: GRANGER MODEL 4HZ39 10 1/2" DIA FAN, 1/6 HP MOTOR, 750 CFM @ .5" S.P., MOTOR SPEED 1650 RPM. ALUMINUM DAYTON MODEL 4HZ39 WALL MOUNTED. MOUNT TOP OF UNIT 7'-6" ABOVE FLOOR.
2. EXHAUST DAMPER: GRANGER MODEL 4HX73 10"X10" MOTORIZED OR AS REQUIRED TO MATCH FAN. ALUMINUM DAYTON MODEL H4X73.
3. EXHAUST FAN MUST BE REMOVED FROM OUTSIDE OF BUILDING. CONTRACTOR SHALL PROVIDE TRANSITION FROM SQUARE TO CIRCULAR OPENINGS.
4. INLET DAMPER: MOTORIZED GRANGER MODEL 3C725 MOUNTED TO OUTSIDE WALL OVER OPENING



INLET DAMPER DETAIL (TWO (2) REQUIRED)
NTS



PUMP PEDESTAL DETAIL
NTS



PIPE STAND NOTES:

1. STAND TO BE PAINTED IN ACCORDANCE WITH STATION PIPING SPECIFICTIONS
2. STAND SHALL CONSIST OF ANVIL FIG. 63 TYPE T STANCHION AND FIG. 264 ADJUSTABLE PIPE STANK SUPPORT OR EQUALS.
3. ALL PIPE TO BE STANDARD WEIGHT PIPE

PIPE SUPPORT STAND
NTS

KURT A. SPOLAR NEW MEXICO 17637 11-12-13 LICENSED PROFESSIONAL ENGINEER

CAUTION
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DePAULI ENGINEERING & SURVEYING, LLC.
CIVIL ENGINEERS & LAND SURVEYORS

for the CITY OF GALLUP
McKINLEY COUNTY, NEW MEXICO

NO.	BY	DATE	REVISIONS

CITY OF GALLUP
GALLUP-RURAL NAVAJO WATER SUPPLY PROJECT
PROJECT 4

NTUA - TWIN LAKES FLOW CONTROL STATION BUILDING DETAILS

DePauli Engineering & Surveying LLC
- Civil Engineers and Land Surveyors -
307 S. 4th Street Gallup, NM 87301
Tel: (505)863-5440 depaulienginee ring.com

Dwg. No. ...
Date: Nov. 2013
Drawn By: KAS Checked By: MDP
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Sheet 3-6

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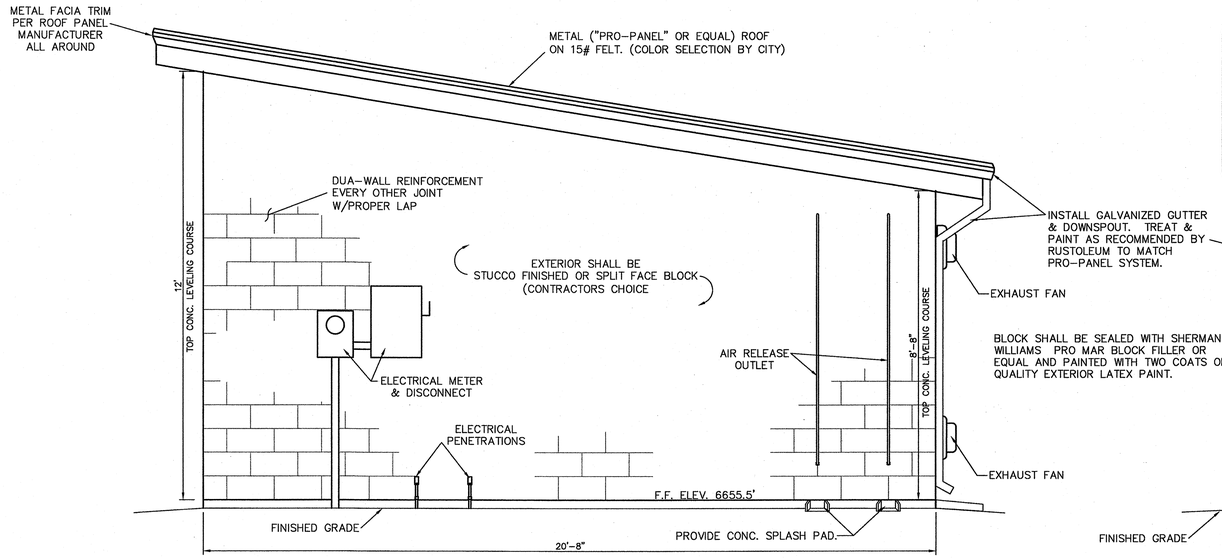
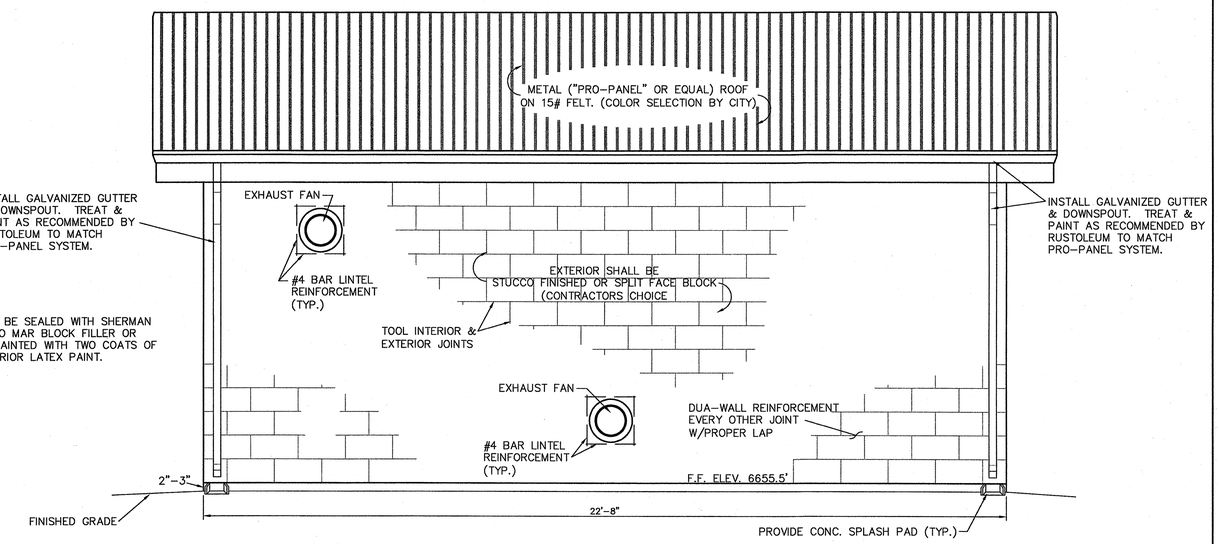


ELEVATION (LOOKING SOUTH)



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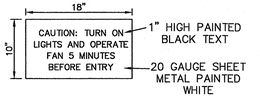
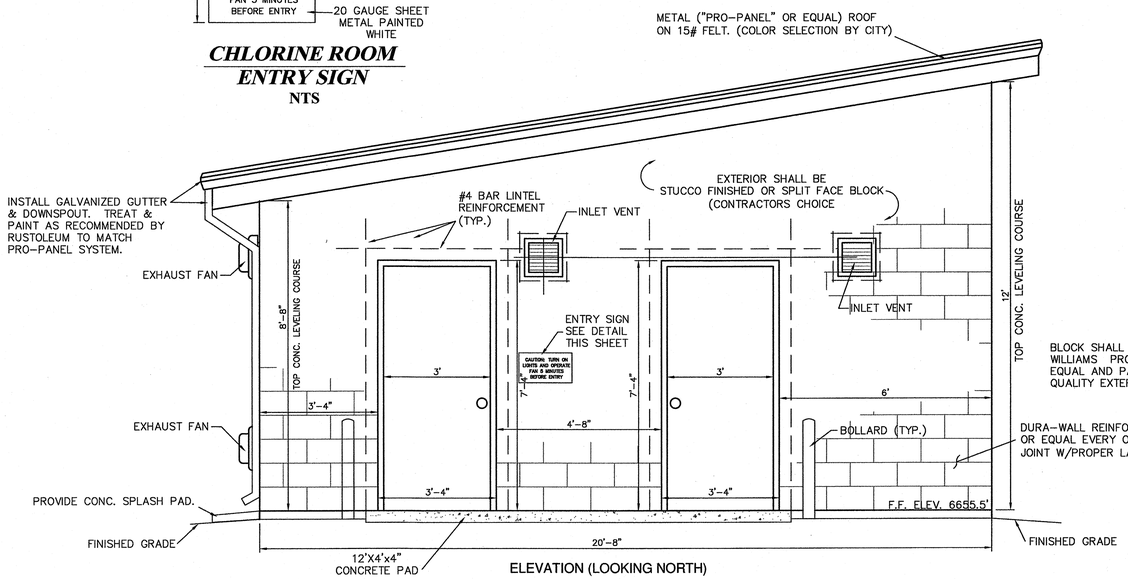
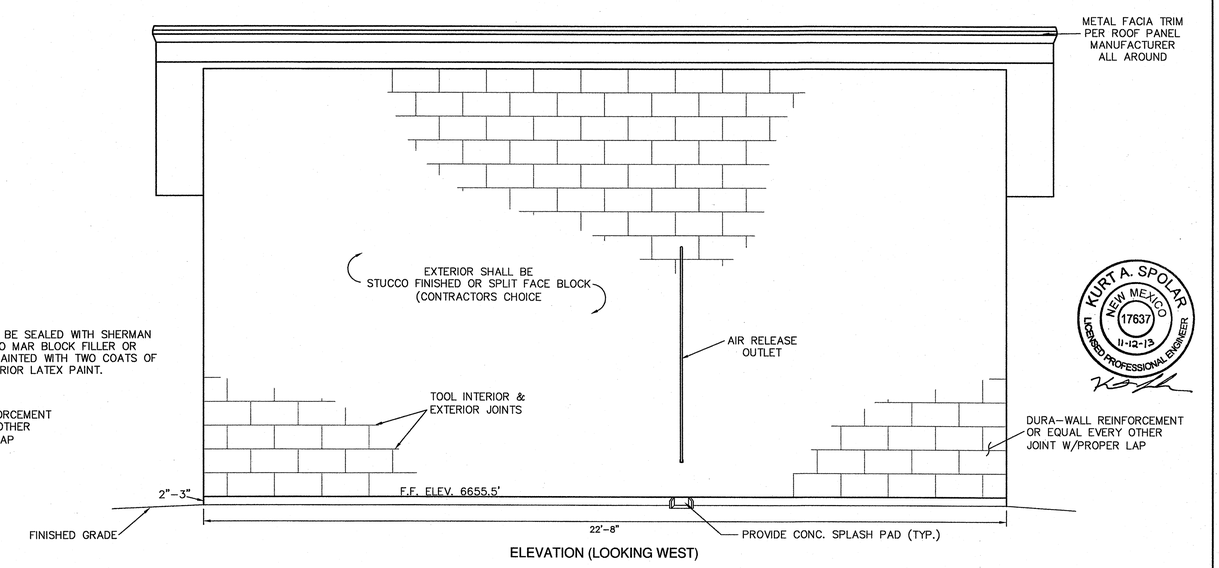


CHLORINE ROOM ENTRY SIGN

NTS



ELEVATION (LOOKING NORTH)



ELEVATION (LOOKING WEST)

KURT A. SPOLAR
NEW MEXICO
17637
11-12-13
LICENSED PROFESSIONAL ENGINEER

TWIN LAKES METERING STATION BUILDING ELEVATIONS

SCALE: 1/2"=1'

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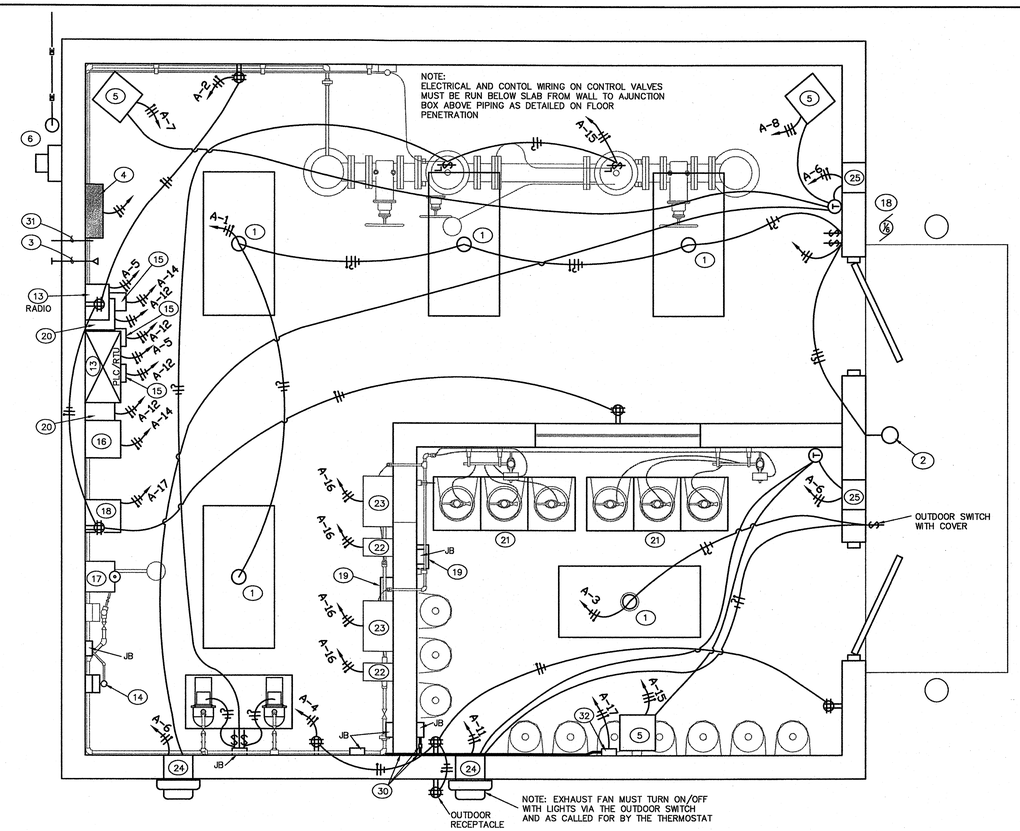
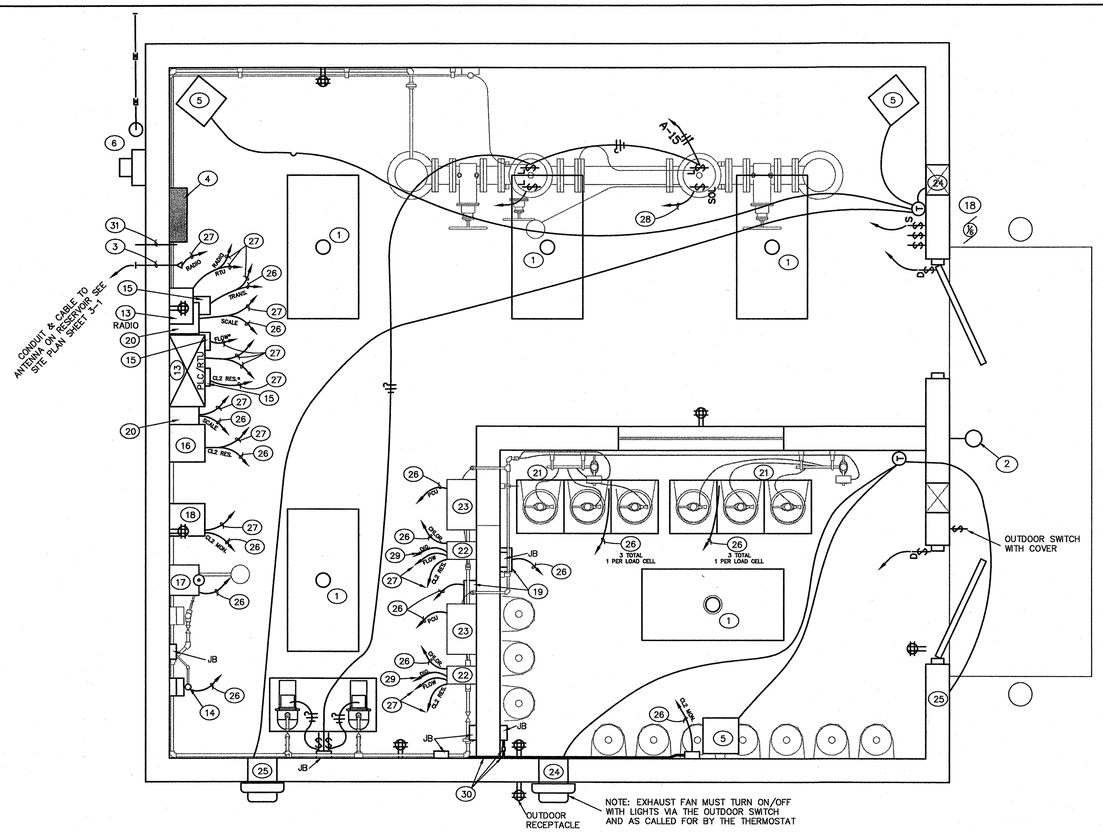


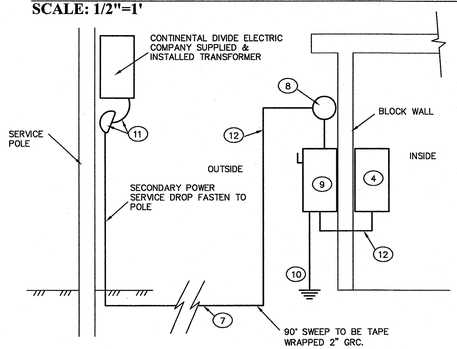
TWIN LAKES METERING STATION ELECTICAL PLAN

SCALE: 1/2"=1'



TWIN LAKES METERING STATION S.C.A.D.A./CONTROL WIRING PLAN

SCALE: 1/2"=1'



POWER RISER DIAGRAM

NTS

PANEL "A" SCHEDULE

120/240V, 1 PHASE, 200A, MAIN BREAKER, NEMA-4.

CIRCUIT	BREAKER	WIRE	LOAD	VOLTS	PHASE	AMPS	WATTS
1	20A-1P	#12	LIGHTS (FLOW CONTROL ROOM)	120	1	–	1000
2	20A-1P	#12	OUTLETS (FLOW CONTROL ROOM)	120	1	–	2000
3	20A-1P	#12	LIGHTS (CL2 STORAGE ROOM)	120	1	–	1000
4	20A-1P	#12	OUTLETS (CL2 STORAGE ROOM)	120	1	–	2000
5	20A-1P	#12	NTUA SCADA SYSTEM	120	1	–	1000
6	30A-1P	#10	EXHAUST FAN & INLET DAMPER	120	1	–	400
7	40A-2P	#8	HEATER	240	1	–	200
8	40A-2P	#8	HEATER	240	1	–	200
11	40A-2P	#8	HEATER	240	1	–	200
12	20A-1P	#12	DEVICES, CONTROLS, & LOW VOTLAGE	120	1	–	500
14	20A-1P	#12	TRANSDUCER/CL2 RESIDUAL EQUIPMENT	120	1	–	300
15	20A-1P	#12	CLORINATION PUMPS	120	1	–	1000
16	20A-1P	#12	CLORINATION SYSTEM	120	1	–	500
17	20A-1P	#12	CLORINATION GAS MONITORING SYSTEM	120	1	–	200
18	20A-1P	–	SPARE	120	1	–	500

ELECTRICAL KEYED NOTES:

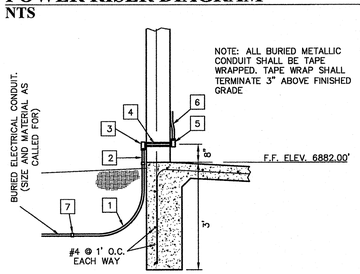
1. 4' LONG BY 2' WIDE 4 LAMP CEILING MOUNT FLUORESCENT FIXTURE WITH TUBE GUARDS AND WIRE BASKETS.
2. WALL MOUNTED OUTSIDE FIXTURE, 70 WATT WALL PACK WITH DUSK TO DAWN PHOTO CONTROL
3. 3/4" ELECTRICAL WALL PENETRATION FOR COMMUNICATION SERVICE/CABLE (SEE DETAIL THIS SHEET)
4. PANEL "A" 120/240V, SINGLE PHASE, 200 AMP MAIN LUGS, WITH 10 EACH 20 A – 1 POLE BREAKERS, ONE (1) EACH 40 A – 2 POLE BREAKER (A-7) FOR HEATER, 6 SPARE 20A BREAKERS, 6 SPARE SPACES, AND PROVIDE 1 #6 BARE COPPER GROUND
5. ELECTRIC UNIT HEATER. "QMARK" #MUH-07-2 WITH #MMB10 WALL MOUNTED BRACKET. MOUNT UP 7'-6" TO TOP OF UNIT, 240V, 1ϕ, 7.5KW (TO BE CONTROLLED W/ REMOTE THERMOSTAT)
6. ELECTRIC METER AND 200 A – 2 POLE, NEMA-3R DISCONNECT FUSED AT 200 AMPS (SEE POWER RISER DIAGRAM)
7. 3 #2 THWN PLUS 1 #6 GROUND IN 4" PVC. CONDUIT. 24" UNDERGROUND WITH WARNING TAPE. ADAPT AS REQUIRED
8. 200 AMP METER BASE
9. MAIN SERVICE DISCONNECT, 200 A – 2P + SN, NEMA-3R, FUSED AT 100 AMPS
10. GROUND PER N.E.C. AND STATE OF NEW MEXICO CODE (METAL ROOF AND SLAB REINFORMENT)
11. WEATHER HEAD AND SERVICE ATTACHMENT
12. 3-3/0 THWN PLUS 1 #6 GROUND IN 2" GRC. CONDUIT. TAPE WRAP BELOW GRADE GRC 90° ELL AND CONDUIT.
13. NTUA SCADA SYSTEM AND COMMUNICATION CENTER ANALOG/DIGITAL SIGNAL SPLITTERS, STEP DOWN TRANSFORMERS, BATTERY BACK-UP AND ETC. AS REQUIRED (SEE REQUIREMENTS)
14. TRANSDUCER ON SENSOR STAND WITH JUNCTION BOX (MOUNTED BELOW DIGITAL DISPLAY WITH VENT SEAL TO MATCH TRANSDUCER MANUFACTURER – NOT SHOWN)
15. REMOTE DIGITAL DISPLAY FOR CL2 RESIDUAL (VIA TOHLAKAI), FLOW (VIA TOHLAKAI) AND TANK LEVEL (ONSITE).
16. CHLORINE RESIDUAL ELECTRONICS ENCLOSURE/DISPLAY. WALLACE AND TIERNAN DEPOLOX 3 PLUS RESIDUAL ANALYZER OR EQUAL.
17. CHLORINE RESIDUAL BARE ELECTRODE FLOW CELL. WALLACE AND TIERNAN DEPOLOX 3 PLUS RESIDUAL ANALYZER OR EQUAL.
18. DUAL POINT GAS DETECTION SYSTEM RECEIVER MODULE/DISPLAY. (WALLACE & TIERNAN ACUTEC 35 DUAL POINT DETECTION SYSTEM OR EQUAL)
19. DUAL POINT GAS DETECTION SYSTEM SENSER/TRANSMITTER. (WALLACE & TIERNAN ACUTEC 35 DUAL POINT DETECTION SYSTEM OR EQUAL)
20. ELECTRONIC WEIGH SCALE DISPLAY (WIZARD 4000 OR EQUAL)
21. ELECTRONIC WEIGH SCALE FOR 3 THREE CYLINDERS (TWO (2) REQUIRED). WALLACE & TIERNAN ELECTONIC CHLOR-SCALE 150 OR EQUAL
22. CHLORINATION SYSTEM PROCESS CONTROL UNIT, WALLACE AND TIERNAN PCU OR EQUAL. UNIT RECEIVES ANALOG 4-20 MA FLOW & REDISUAL FROM TOHLAKIA AND DIGITAL OPERATION MODE SIGNAL.
23. 75 LB/DAY CHLORINATION SYSTEM, WALLACE & TIERNAN V10K GAS FEED SYSTEM OR EQUAL
24. EXHAUST FAN W/ DAMPER (SEE DETAIL SHEET 3-6)
25. MOTORIZED INLET DAMPER (SEE DETAIL SHEET 3-6)
26. CONDUIT & WIRE OR DEVICE CABLE FOR LOW VOLTAGE POWER AND ANALOG SIGNALS FROM ANALYTICAL MEASUREMENT, AND CONTROL DEVICES TO DISPLAY/ ELECTRONIC ENCLOSURE AS REQUIRED
27. CONDUIT & WIRE OR DEVICE CABLE FOR LOW VOLTAGE POWER AND ANALOG SIGNALS FROM ANALYTICAL, MEASUREMENT, AND CONTROL DISPLAY/ELECTRONICS ENCLOSURE TO S.C.A.D.A. SYSTEM AS REQUIRED
28. 24V DC CONDUIT & WIRE FROM SCADA FOR FLOW CONTROL VALVE SOLENOID. (DE-ENERGIZE TO OPEN)
29. 24V DC DIGITAL SIGNAL CONDUIT & WIRE FROM SCADA FOR CHLORINATION SYSTEM PROCESS CONTROL UNIT OPERATION (MANUAL, SHUTDOWN, FLOW)
30. SEALED ELECTRICAL WALL PENETRATIONS. PROVIDE RGC THROUGH WALL W/ CONDULETS, EMT ADAPTERS AND ELECTRICAL SEAL-OFFS AS REQUIRED BETWEEN CHLORINE FEED AND STORAGE ROOM. SEAL WALL PENETRATION W/ NON-SHRINK GROUT. ONE (1) PENETRATION EACH FOR ELECTRICAL AND CONTROL WIRING. NO OTHER ELECTRICAL PENETRATIONS SHALL BE MADE.
31. SPARE ELECTRICAL WALL PENETRATION (SEE DETAIL THIS SHEET)
32. CHLORINE GAS ALARM BEACON AND HORN, MOUNTED ON JUNCTION BOX. CONTROLLED ALARM 120V ALARM RELAY ON GAS DETECTION SYSTEM MONITOR/DISPLAY

ELECTRICAL LEGEND

SYMBOL	DESCRIPTION
$	SINGLE POLE WALL SWITCH.
JB	JUNCTION BOX, HEIGHT AS REQUIRED WITH CONNECTION TO EQUIPMENT.
	DUPLEX CONVENIENCE OUTLET, UP 18" OR AS INDICATED.
	COMMUNICATION ANTENNA – RADIO AND/OR WIRELESS PHONE AS REQUIRED
	ELECTRONIC DISPLAY W/ OUTPUT AS REQUIRED FOR SCADA OPERATION.
	CIRCUIT BREAKER PANEL BOARD.
	TIC MARKS REPRESENT: NEUTRAL, HOT, SWITCH LEG AND GROUND CONDUCTORS RESPECTIVELY.
A-2	HOME RUN TO PANEL WITH BRANCH CIRCUIT NUMBERS INDICATED.
	SCADA SYSTEM – SEE REQUIREMENTS
T	DUAL CONTROL (HEAT AND VENT) THERMOSTAT
$X	CONTROL SWITCH (TYPE AS NOTED: L-LIMIT, S-SECURITY, D-DOOR, SOL-SOLENOID)

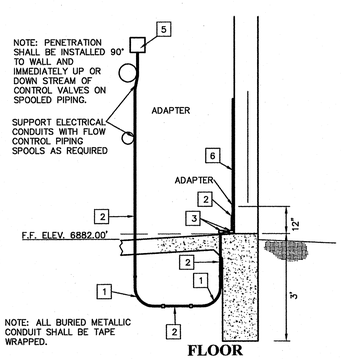
ELECTRICAL & S.C.A.D.A./CONTROL WIRING PLAN NOTES:

1. ELECTRICAL SERVICE (NEW POLE AND SEVICE DROP) TO BE PROVIDED AND INSTALLED BY CONTINENTAL DIVIDE ELECTRIC COMPANY.
2. ALL ELECTRICAL WORK SHALL CONFORM TO THE NEC ELECTRICAL CODE, NEW MEXICO STATE ELECTRICAL CODE, NTUA ELECTICAL CODE AND THE CITY OF GALLUP REQUIREMENTS.
3. RADIO ANTENNAS ARE TO BE INSTALL AS REQUIRED. ANTENNAS ARE NOT SHOWN HEREON
4. ELECTRICAL AND CONTOL WIRING ON CONTROL VALVES MUST BE RUN BE RUN UNDERGROUND FROM WALL TO JUNCTION BOX BELOW PIPING AS DETAILED



ELECTRICAL PENETRATION KEYED NOTES

1. G.R.C. 90° LONG SWEEP ELBOW, SIZE AS REQUIRED OR CALLED FOR BURIED CONDUIT ON SITE PLAN AND BUILDING LAYOUT.
2. G.R.C. ELECTRICAL CONDUIT, SIZE AS REQUIRED OR CALLED FOR BURIED CONDUIT ON SITE PLAN AND BUILDING LAYOUT
3. GALVANIZED CONDULET AS REQUIRED, SIZE AS REQUIRED OR CALLED FOR ON BURIED CONDUIT ON SITE PLAN AND BUILDING LAYOUT
4. G.R.C. ELECTRICAL CONDUIT (SIZE AS CALLED FOR BURIED CONDUIT ON SITE PLAN) IN GALVANIZED WALL SLEEVE. SIZE SLEEVE AS REQUIRED TO FIT CONDUIT AND CONDULET CONNECTIONS. SEAL PENETRATION W/ SILICONE
5. CONDULET OR JUNCTION BOX AS REQUIRED, SIZE AND/OR REDUCTION AS REQUIRED OR CALLED FOR ON SITE PLAN AND BUILDING LAYOUT
6. EMT CONDUIT AS REQUIRED FOR CONTROL WIRING. NOT REQUIRED FOR SPARE PENETRATION(S).
7. CONNECT/ADAPT TO BURIED ELECTRICAL CONDUIT AS REQUIRED OR SEAL WITH THREADED CAP OR PLUG



ELECTRICAL WALL AND FLOOR PENETRATION DETAIL

SCALE: 1"=2'

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NTUA - TWIN LAKES
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ELECTRICAL PLAN

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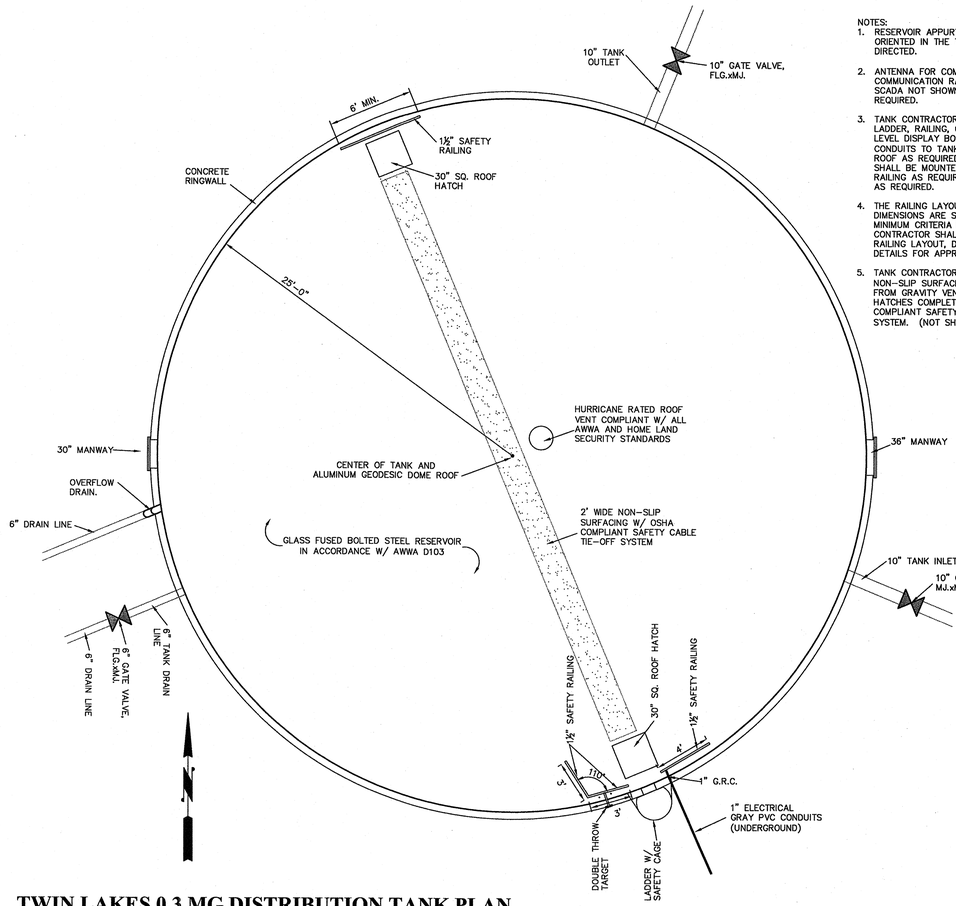
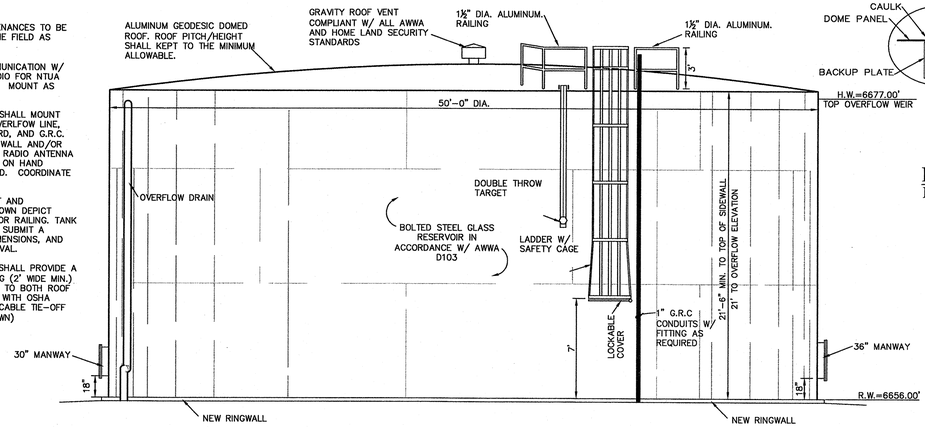
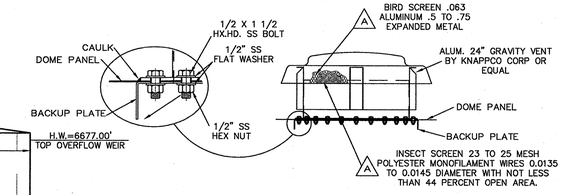
NOTES:
1. RESERVOIR APPURTENANCES TO BE ORIENTED IN THE THE FIELD AS DIRECTED.
2. ANTENNA FOR COMMUNICATION W/ COMMUNICATION RADIO FOR NTUA SCADA NOT SHOWN. MOUNT AS REQUIRED.
3. TANK CONTRACTOR SHALL MOUNT LADDER, RAILING, OVERLFOW LINE, LEVEL DISPLAY BOARD, AND G.R.C. CONDUITS TO TANK WALL AND/OR ROOF AS REQUIRED. RADIO ANTENNA SHALL BE MOUNTED ON HAND RAILING AS REQUIRED. COORDINATE AS REQUIRED.
4. THE RAILING LAYOUT AND DIMENSIONS ARE SHOWN DEPICT MINIMUM CRITERIA FOR RAILING. TANK CONTRACTOR SHALL SUBMIT A RAILING LAYOUT, DIMENSIONS, AND DETAILS FOR APPROVAL.
5. TANK CONTRACTOR SHALL PROVIDE A NON-SLIP SURFACING (2' WIDE MIN.) FROM GRAVITY VENT TO BOTH ROOF HATCHES COMPLETE WITH OSHA COMPLIANT SAFETY CABLE TIE-OFF SYSTEM. (NOT SHOWN)



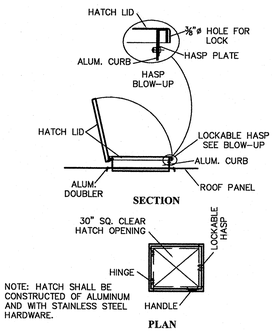
TWIN LAKES 0.3 MG DISTRIBUTION TANK PLAN
SCALE: 1"=5'



TWIN LAKES 0.3 MG DISTRIBUTION TANK ELEVATION
SCALE: 1"=5'

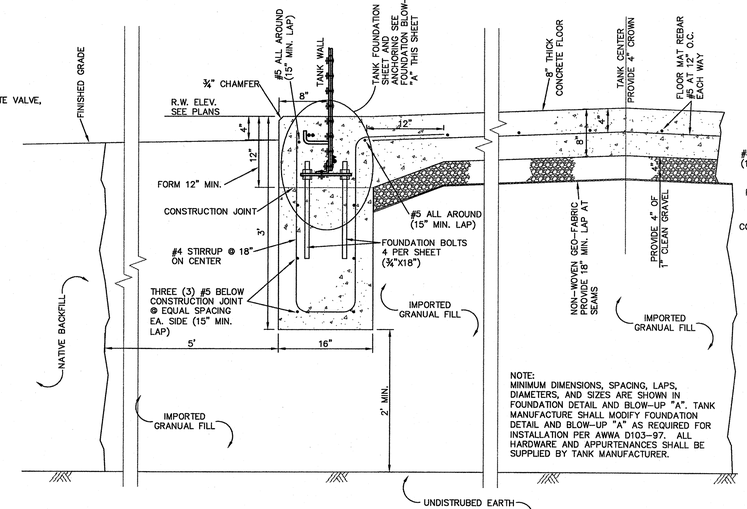


ROOF GRAVITY VENT DETAIL
NTS



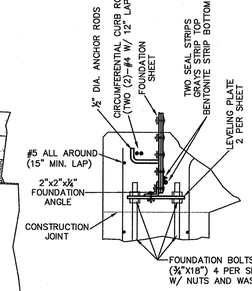
NOTE: HATCH SHALL BE CONSTRUCTED OF ALUMINUM AND WITH STAINLESS STEEL HARDWARE.

ROOF HATCH DETAIL
NTS

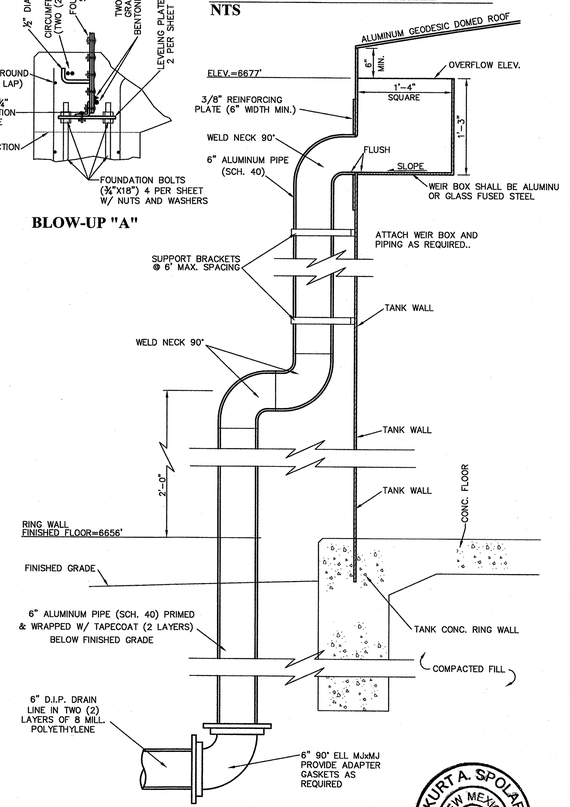


NOTE:
MINIMUM DIMENSIONS, SPACING, LAPS, DIAMETERS, AND SIZES ARE SHOWN IN FOUNDATION DETAIL AND BLOW-UP "A". TANK MANUFACTURE SHALL MODIFY FOUNDATION DETAIL AND BLOW-UP "A" AS REQUIRED FOR INSTALLATION PER AWWA D103-97. ALL HARDWARE AND APPURTENANCES SHALL BE SUPPLIED BY TANK MANUFACTURER.

TANK RING WALL & FOUNDATION DETAIL
NTS



BLOW-UP "A"



TANK OVERFLOW DRAIN DETAIL
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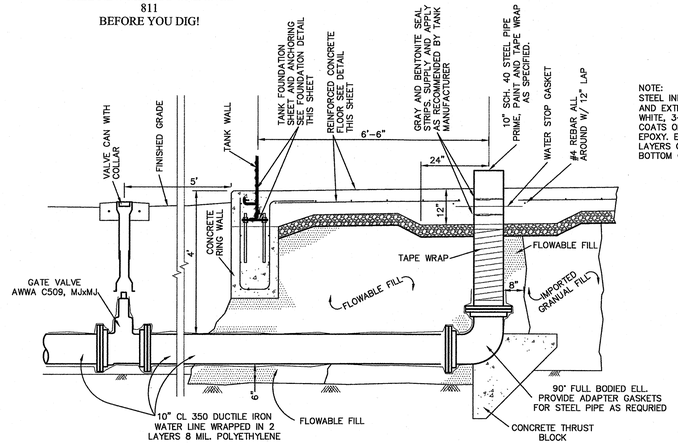
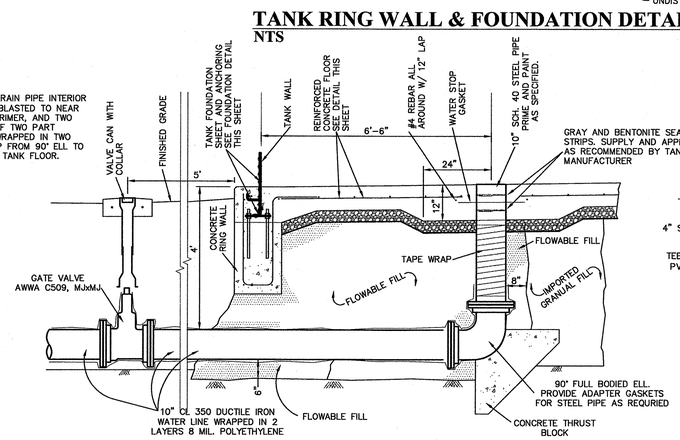
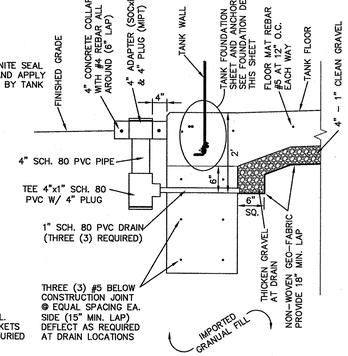


TANK INLET OR OUTLET DETAIL
NTS

NOTE:
STEEL INLET/OUTLET/DRAIN PIPE INTERIOR AND EXTERIOR TO BE BLASTED TO NEAR WHITE, 3-5 MILS OF PRIMER, AND TWO COATS OF 4-6 MILS OF TWO PART EPOXY. EXTERIOR TO WRAPPED IN TWO LAYERS OF TAPE WRAP FROM 90° ELL TO BOTTOM OF CONCRETE TANK FLOOR.



TANK DRAIN DETAIL
NTS



RING WALL DRAIN DETAIL
NTS

KURT A. SPOLAR
NEW MEXICO
17637
11-12-13
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GALLUP-RURAL NAVAJO WATER SUPPLY PROJECT
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NTUA - TWIN LAKES 0.3 MG
DISTRIBUTION TANK LAYOUT & DETAILS

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307 S. 4th Street Gallup, NM 87301
Tel: (505)863-5440 depaulienginenring.com

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Date: Nov. 2013
Drawn By: KAS Checked By: MDP
Scale: SHOWN
Sheet 3-9

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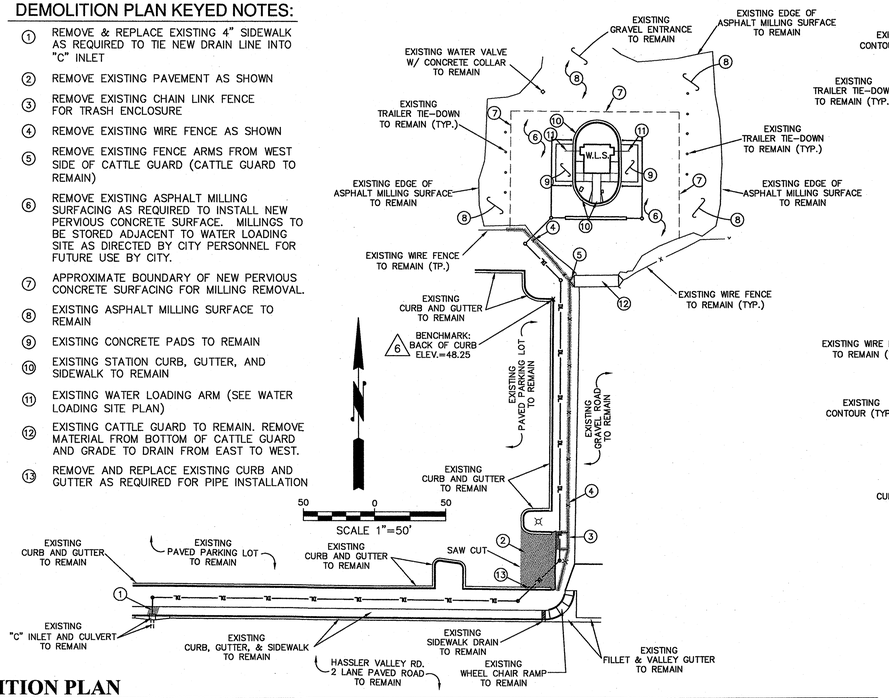
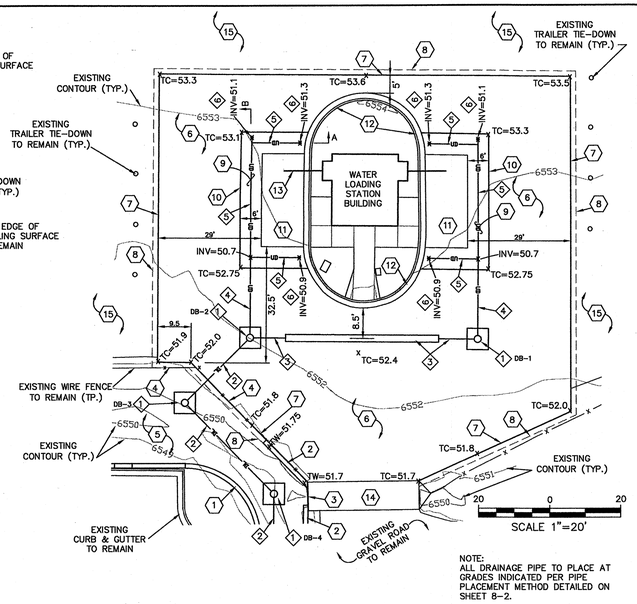
DEMOLITION PLAN KEYED NOTES:

1. REMOVE & REPLACE EXISTING 4" SIDEWALK AS REQUIRED TO TIE NEW DRAIN LINE INTO "C" INLET
2. REMOVE EXISTING PAVEMENT AS SHOWN
3. REMOVE EXISTING CHAIN LINK FENCE FOR TRASH ENCLOSURE
4. REMOVE EXISTING WIRE FENCE AS SHOWN
5. REMOVE EXISTING FENCE ARMS FROM WEST SIDE OF CATTLE GUARD (CATTLE GUARD TO REMAIN)
6. REMOVE EXISTING ASPHALT MILLING SURFACING AS REQUIRED TO INSTALL NEW PERVIOUS CONCRETE SURFACE. MILLINGS TO BE STORED ADJACENT TO WATER LOADING SITE AS DIRECTED BY CITY PERSONNEL FOR FUTURE USE BY CITY.
7. APPROXIMATE BOUNDARY OF NEW PERVIOUS CONCRETE SURFACING FOR MILLING REMOVAL.
8. EXISTING ASPHALT MILLING SURFACE TO REMAIN
9. EXISTING CONCRETE PADS TO REMAIN
10. EXISTING STATION CURB, GUTTER, AND SIDEWALK TO REMAIN
11. EXISTING WATER LOADING ARM (SEE WATER LOADING SITE PLAN)
12. EXISTING CATTLE GUARD TO REMAIN. REMOVE MATERIAL FROM BOTTOM OF CATTLE GUARD AND GRADE TO DRAIN FROM EAST TO WEST.
13. REMOVE AND REPLACE EXISTING CURB AND GUTTER AS REQUIRED FOR PIPE INSTALLATION



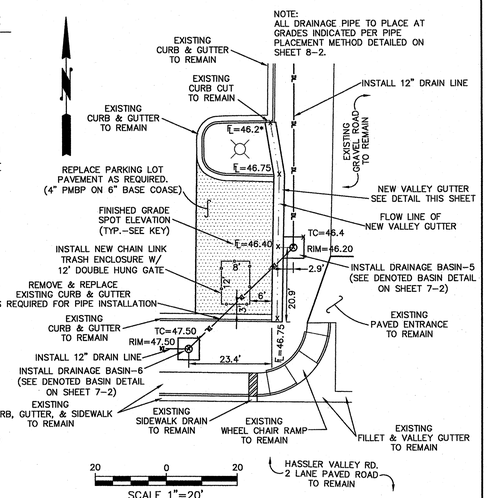
DEMOLITION PLAN
SCALE: 1"=50'



NOTE:
ALL DRAINAGE PIPE TO PLACE AT GRADES INDICATED PER PIPE PLACEMENT METHOD DETAILED ON SHEET 8-2.

W.L.S. PLAN CONSTRUCTION KEYED NOTES:

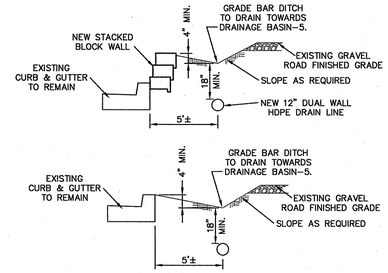
1. INSTALL STACKED CONCRETE BLOCK WALL BEHIND CURB AND GUTTER AS SHOWN. (SEE DETAILS ON SHEET 7-2)
2. INSTALL STACKED CONCRETE BLOCK WALL AND TIE INTO CATTLE GUARD AS SHOWN. (SEE DETAILS ON SHEET 7-2)
3. INSTALL NEW HAND RAIL ON EXISTNG CATTLE GUARD. (SEE DETAILS SHEET 7-2)
4. INSTALL NEW WIRE FENCE AS SHOWN. (SEE WIRE FENCE DETAIL SHEET 3-9)
5. SEE DETAILED WALL AREA PLAN FOR ADDITIONAL DRAINAGE, SITE, AND GRADING INFORMATION (SEE DETAIL THIS SHEET)
6. INSTALL PERVIOUS CONCRETE -12" THICK (SEE DETAILS SHEET 7-2).
7. TOP EDGE OF PROPOSED PERVIOUS CONCRETE.
8. BOTTOM EDGE OF PROPOSED PERVIOUS CONCRETE.
9. INSTALL DRAINED PERVIOUS CONCRETE AROUND EXISTING CONCRETE PADS. (SEE DETAIL SHEET 7-2)
10. BOUNDARY OF DRAINED PERVIOUS CONCRETE (6' OFF OF EXISTING CONCRETE PAD) (SEE DETAIL ON SHEET 7-2)
11. EXISTING CONCRETE PAD TO REMAIN
12. EXISTING CURB, GUTTER AND SIDEWALK TO REMAIN
13. CORRECT LOADING ARM FLANGE ORIENTATION (SEE DETAIL ON THIS SHEET)
14. EXISTING CATTLE GUARD TO REMAIN. REMOVE MATERIAL FROM BOTTOM OF CATTLE GUARD AND GRADE TO DRAIN FROM EAST TO WEST.
15. EXISTING ASPHALT MILLING SURFACE TO REMAIN



VALLEY GUTTER PLAN
SCALE: 1"=20'

W.L.S. PLAN DRAINAGE SYSTEM KEYED NOTES:

1. INSTALL 30" DRAIN BASIN (NYLOPLAST OR EQUAL) SEE DETAIL ON SHEET 7-2 FOR DENOTED BASIN CONSTRUCTION DETAIL.
2. INSTALL 12" DUAL WALL HDPE PIPE W/ WATER TIGHT JOINTS (ADS NT-12 WT IB OR EQUAL
3. INSTALL STORAGE CISTERN BETWEEN DRAINAGE BASINS 1 AND 2. SEE DETAIL SHEET 7-2.
4. INSTALL 4" DUAL WALL HDPE PIPE W/ WATER TIGHT JOINTS (ADS NT-12 WT IB OR EQUAL. ADAPT AS REQUIRED AT TRANSITIONS, DRAINAGE BASINS, & INLET BASINS. FITTINGS TO BE INJECTION MOLDED.
5. INSTALL 4" PERFORATED AASHTO M252 DUAL WALL HDPE PIPE, (ADS NT-12 W/ 402 LEACH BED PERFORATIONS OR EQUAL). INSTALL INLET BASINS AND FITTINGS AS DETAILED ON SHEET 7-2. ADAPT AS REQUIRED AT FITTINGS AND TRANSITIONS. FITTING TO BE INJECTION MOLDED.
6. INSTALL 12" INLINGE DRAIN BASIN (NYLOPLAST OR EQUAL) (SEE DETAIL ON SHEET 7-2, SECTION A AND B)

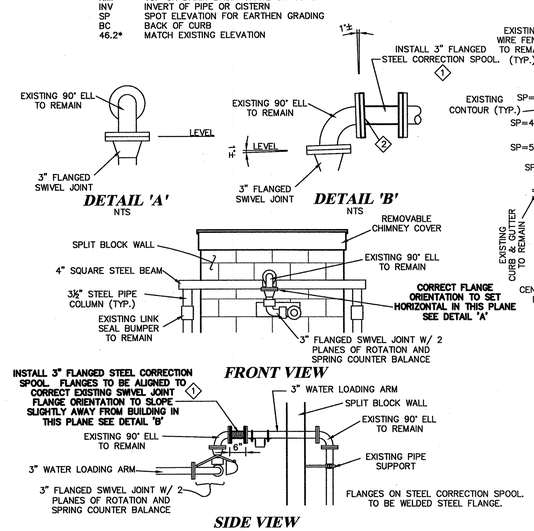


BAR DITCH DETAIL
NTS

WATER LOADING SITE (W.L.S.) PLAN
SCALE: 1"=20'

FINISHED GRADE SPOT ELEVATION KEY

FL	FLOWLINE OF VALLEY GUTTER
TC	TOP OF CONCRETE (PERVIOUS OR STANDARD)
RIM	TOP OR DRAIN BASIN GRATE OR COVER
INV	INVERT OF PIPE OR CISTERN
SP	SPOT ELEVATION FOR EARTHEN GRADING
BC	BACK OF CURB
46.2*	MATCH EXISTING ELEVATION



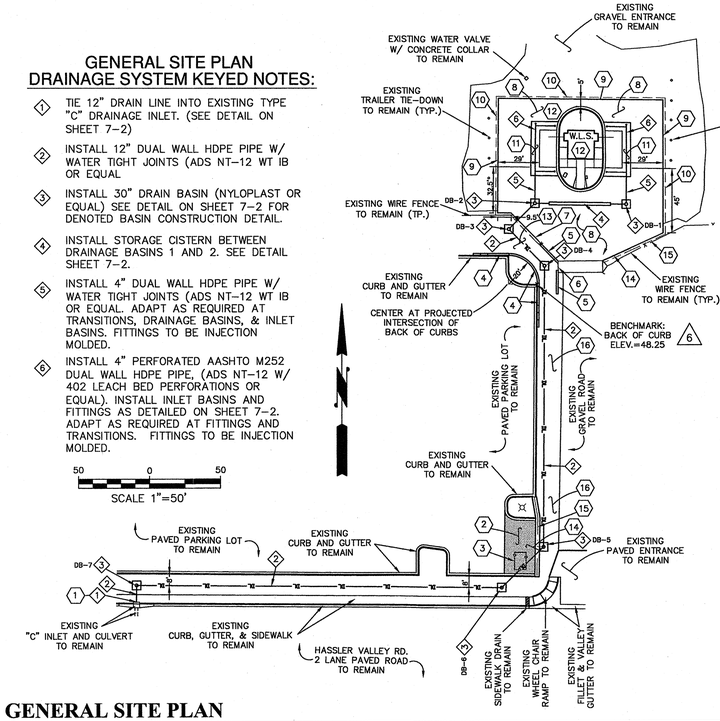
LOADING ARE KEYED NOTES:

1. FLANGES ON STEEL CORRECTION SPOOL TO BE WELDED STEEL FLANGE
2. TACK WELD CORRECTION FLANGE, RE-ATTACH 90° FITTING AND OTHER APPARATUSES FOR TRIAL OPERATION. REPEAT AS REQUIRED AND COMPLETE FINAL WELDING WHEN PROPER ARIENTATION IS ACHIEVED.

LOADING ARM FLANGE CORRECTION
NTS

GENERAL SITE PLAN DRAINAGE SYSTEM KEYED NOTES:

1. TIE 12" DRAIN LINE INTO EXISTING TYPE "C" DRAINAGE INLET. (SEE DETAIL ON SHEET 7-2)
2. INSTALL 12" DUAL WALL HDPE PIPE W/ WATER TIGHT JOINTS (ADS NT-12 WT IB OR EQUAL
3. INSTALL 30" DRAIN BASIN (NYLOPLAST OR EQUAL) SEE DETAIL ON SHEET 7-2 FOR DENOTED BASIN CONSTRUCTION DETAIL.
4. INSTALL STORAGE CISTERN BETWEEN DRAINAGE BASINS 1 AND 2. SEE DETAIL SHEET 7-2.
5. INSTALL 4" DUAL WALL HDPE PIPE W/ WATER TIGHT JOINTS (ADS NT-12 WT IB OR EQUAL. ADAPT AS REQUIRED AT TRANSITIONS, DRAINAGE BASINS, & INLET BASINS. FITTINGS TO BE INJECTION MOLDED.
6. INSTALL 4" PERFORATED AASHTO M252 DUAL WALL HDPE PIPE, (ADS NT-12 W/ 402 LEACH BED PERFORATIONS OR EQUAL). INSTALL INLET BASINS AND FITTINGS AS DETAILED ON SHEET 7-2. ADAPT AS REQUIRED AT FITTINGS AND TRANSITIONS. FITTINGS TO BE INJECTION MOLDED.



NOTE:
ALL DRAINAGE PIPE TO PLACE AT GRADES INDICATED PER PIPE PLACEMENT METHOD DETAILED ON SHEET 8-2.

GENERAL SITE PLAN CONSTRUCTION KEYED NOTES:

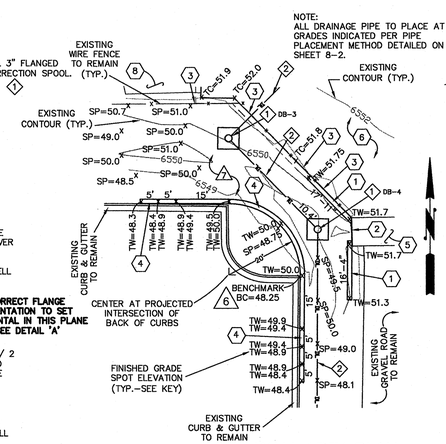
1. REPLACE 4" SIDEWALK AS REQUIRED.
2. REPLACE PARKING LOT PAVEMENT AS REQUIRED. (4" PMBP ON 6" BASE COURSE)
3. INSTALL 6' HIGH 8'x12' CHAIN LINK FENCE TRASH ENCLOSURE WITH 12' DOUBLE HUNG GATE AS DIRECTED. (SEE CHAIN LINK FENCE DETAIL SHEET 3-9)
4. INSTALL STACKED CONCRETE BLOCK WALL BEHIND CURB AND GUTTER AS SHOWN. (SEE DETAILS ON SHEET 7-2)
5. INSTALL STACKED CONCRETE BLOCK WALL AND TIE INTO CATTLE GUARD AS SHOWN. (SEE DETAILS ON SHEET 7-2)
6. INSTALL NEW HAND RAIL ON EXISTNG CATTLE GUARD. (SEE DETAILS SHEET 7-2)
7. INSTALL NEW WIRE FENCE AS SHOWN. (SEE WIRE FENCE DETAIL SHEET 3-9)
8. INSTALL PERVIOUS CONCRETE -12" THICK (SEE DETAILS SHEET 7-2).
9. TOP EDGE OF PROPOSED PERVIOUS CONCRETE.
10. BOTTOM EDGE OF PROPOSED PERVIOUS CONCRETE.
11. INSTALL DRAINED PERVIOUS CONCRETE AROUND EXISTING CONCRETE PADS. (SEE DETAIL SHEET 7-2)
12. SEE DETAILED WATER LOADING SITE (WLS) PLAN FOR ADDITIONAL DRAINAGE, SITE, AND GRADING INFORMATION (SEE DETAIL THIS SHEET)
13. SEE DETAILED WALL AREA PLAN FOR ADDITIONAL DRAINAGE, SITE, AND GRADING INFORMATION (SEE DETAIL THIS SHEET)
14. SEE DETAILED VALLEY GUTTER PLAN FOR ADDITIONAL DRAINAGE, SITE, AND GRADING INFORMATION (SEE DETAIL THIS SHEET)
15. INSTALL NEW CONCRETE VALLEY GUTTER (SEE DETAIL THIS SHEET)
16. GRADE BAR DITCH BETWEEN EXISTNG CURB AND GRAVEL ROAD TO DRAIN TOWARDS DRAINAGE BASIN-5. SEE BAR DITCH DETAIL THIS SHEET.

DB-1	RIM=52.3	TC=52.3
	N INV=49.2	W INV=46.5
	CENTER COORDS: N: 1652080.6	E: 2458577.6
DB-2	RIM=52.3	TC=52.3
	N INV=49.2	E INV=46.2
	SW INV=48.5	CENTER COORDS: N: 1652081.1
	E: 2458513.4	
DB-3	RIM=49.7	TC=49.8
	INV=46.7	CENTER COORDS: N: 1652063.0
	E: 2458494.9	
DB-4	RIM=48.7	TC=48.8
	INV=45.0	CENTER COORDS: N: 1652037.5
	E: 2458520.0	
DB-5	RIM=46.2	TC=43.4
	INV=43.0	CENTER COORDS: N: 1651841.2
	E: 2458519.0	
DB-6	RIM=47.5	INV=42.6
	CENTER COORDS: N: 1651812.9	E: 2458489.4
DB-7	RIM=44.9	INV=40.0
	CENTER COORDS: N: 1651815.1	E: 2458232.6

GENERAL SITE PLAN
SCALE: 1"=50'

WALL AREA PLAN CONSTRUCTION KEYED NOTES:

1. INSTALL STACKED CONCRETE BLOCK WALL AND TIE INTO CATTLE GUARD AS SHOWN. (SEE DETAILS ON SHEET 7-2)
2. INSTALL NEW HAND RAIL ON EXISTNG CATTLE GUARD. (SEE DETAILS SHEET 7-2)
3. INSTALL NEW WIRE FENCE AS SHOWN. (SEE WIRE FENCE DETAIL SHEET 3-9)
4. INSTALL STACKED CONCRETE BLOCK WALL BEHIND CURB AND GUTTER AS SHOWN. (SEE DETAILS ON SHEET 7-2)
5. EXISTING CATTLE GUARD TO REMAIN. REMOVE MATERIAL FROM BOTTOM OF CATTLE GUARD AND GRADE TO DRAIN FROM EAST TO WEST.
6. INSTALL PERVIOUS CONCRETE -12" THICK (SEE DETAILS SHEET 7-2).
7. GRADE AREA TO MATCH SHOWN SPOT ELEVATIONS
8. EXISTING ASPHALT MILLING SURFACE TO REMAIN



WALL AREA PLAN DRAINAGE SYSTEM KEYED NOTES:

1. INSTALL 30" DRAIN BASIN (NYLOPLAST OR EQUAL) SEE DETAIL ON SHEET 7-2 FOR DENOTED BASIN CONSTRUCTION DETAIL.
2. INSTALL 12" DUAL WALL HDPE PIPE W/ WATER TIGHT JOINTS (ADS NT-12 WT IB OR EQUAL

WALL AREA PLAN
SCALE: 1"=20'

KURT A. SPOLAR NEW MEXICO 17637 11-12-13 LICENSED PROFESSIONAL ENGINEER

CAUTION
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811
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NOTICE OF EXTENDED PAYMENT PROVISION :
THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITH IN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.

DePAULI ENGINEERING & SURVEYING LLC
- CIVIL ENGINEERS AND LAND SURVEYORS -
307 S 4th STREET, GALLUP, NM 87301
TEL: (505)863-5440 depauliengineering.com

for the CITY OF GALLUP
McKINLEY COUNTY, NEW MEXICO

NO.	BY	DATE	

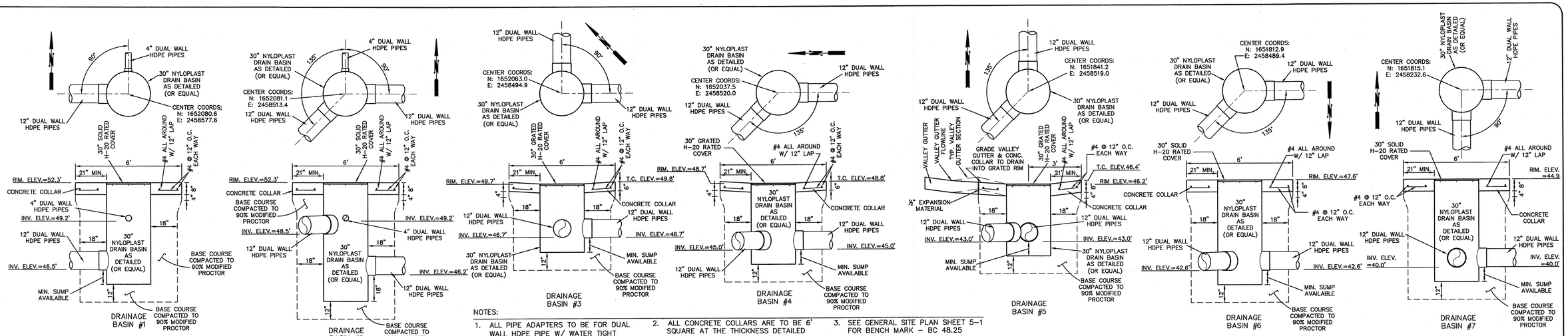
CITY OF GALLUP
GALLUP-RURAL NAVAJO WATER SUPPLY PROJECT
PROJECT 4

CITY OF GALLUP
WATER LOADING STATION
SITE & BUILDING MODIFICATIONS

SCALE:	SHOWN
DATE:	NOV. 2013
DRAWN BY:	DS
CHECKED BY:	MDP KAS

SHEET 4-1

ENGINEER: G:\Documents\engineer\water loading improvement 2011\dwg\grid 5 design.dwg

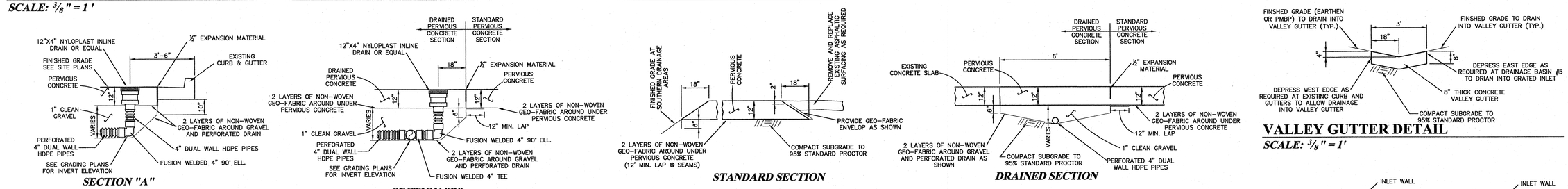


NOTES:

1. ALL PIPE ADAPTERS TO BE FOR DUAL WALL HDPE PIPE W/ WATER TIGHT JOINTS (ADS NT-12 WT IB OR EQUAL)
2. ALL CONCRETE COLLARS ARE TO BE 6' SQUARE AT THE THICKNESS DETAILED W/ THE EXCEPTION OF BASIN 5 THAT TIES INTO THE VALLEY GUTTER.
3. SEE GENERAL SITE PLAN SHEET 5-1 FOR BENCH MARK – BC 48.25

DRAINAGE BASIN DETAILS

SCALE: 3/8" = 1'



12" INLINE DRAIN DETAILS

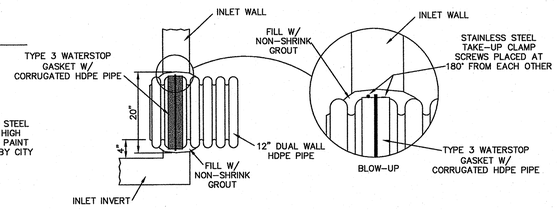
SCALE: 3/8" = 1'

PERVIOUS CONCRETE DETAILS

SCALE: 3/8" = 1'

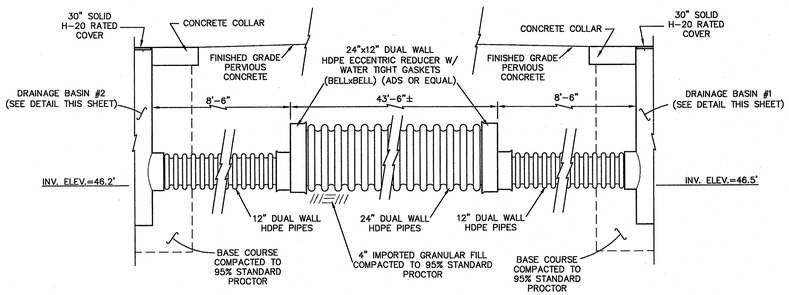
VALLEY GUTTER DETAIL

SCALE: 3/8" = 1'



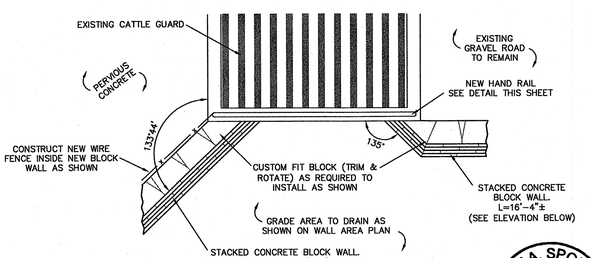
DUAL WALL HDPE TO TYPE "C" DRAINAGE INLET CONNECTION DETAIL

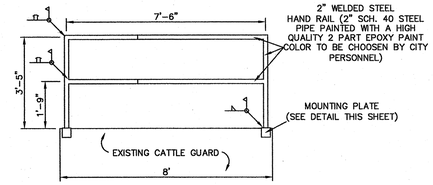
NTS



CISTERN DETAIL

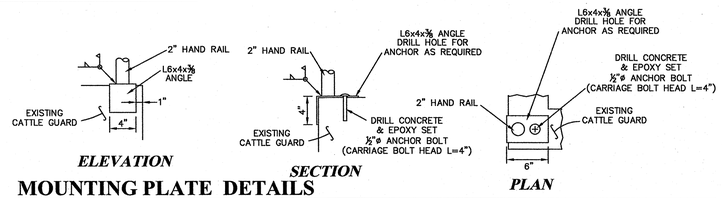
SCALE: 3/8" = 1'





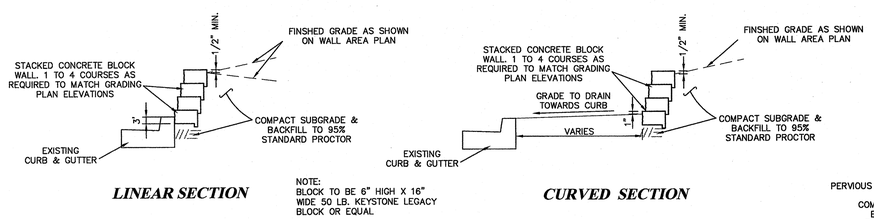
HAND RAIL DETAILS

SCALE: 3/8" = 1'



MOUNTING PLATE DETAILS

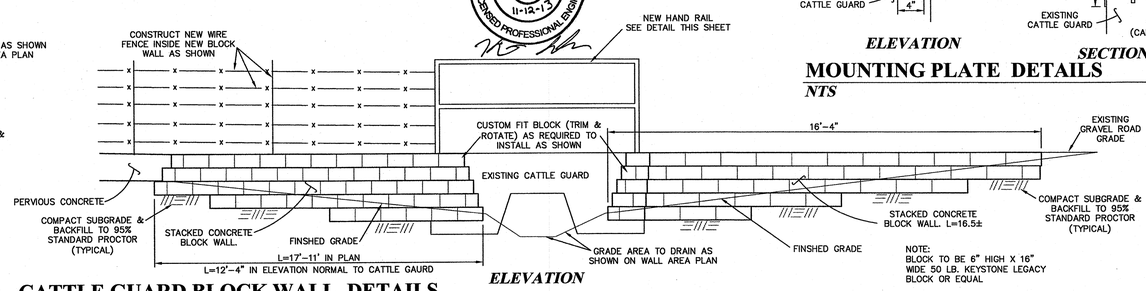
NTS



NOTE:
BLOCK TO BE 6" HIGH X 16" WIDE 50 LB. KEYSTONE LEGACY BLOCK OR EQUAL

STACKED BLOCK WALL DETAIL

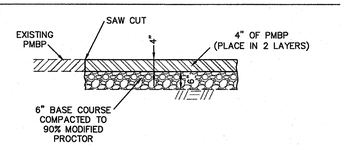
SCALE: 3/8" = 1'



NOTE:
BLOCK TO BE 6" HIGH X 16" WIDE 50 LB. KEYSTONE LEGACY BLOCK OR EQUAL

CATTLE GUARD BLOCK WALL DETAILS

SCALE: 3/8" = 1'



TYPICAL PAVEMENT SECTION

NTS

KURT A. SPOLAR
NEW MEXICO
17637
11-12-13
LICENSED PROFESSIONAL ENGINEER

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for the
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NO.	BY	DATE	

CITY OF GALLUP
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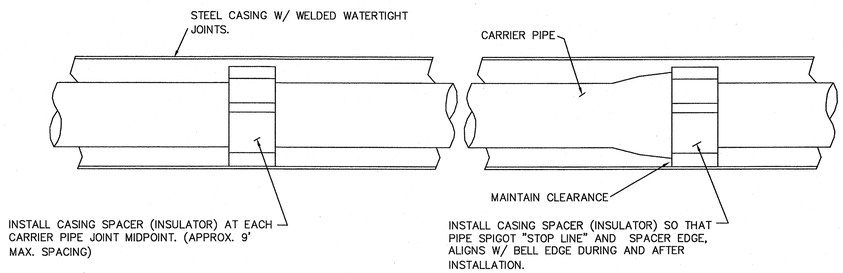
PROJECT 4

CITY OF GALLUP
WATER LOADING STATION
SITE & BUILDING MODIFICATIONS

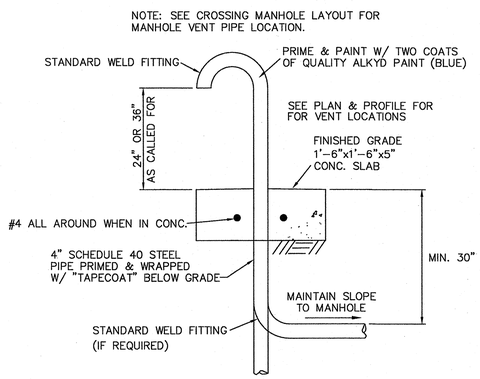
SCALE:	SHOWN
DATE:	NOV. 2013
DRAWN BY:	DS
CHECKED BY:	MDP KAS

SHEET
4 - 2

ENGINEER3. G:\Documents\engineer\water loading improvement 2011\dwg\proj 5 design.dwg



CASING SPACER DETAILS
NTS



VENT DETAILS
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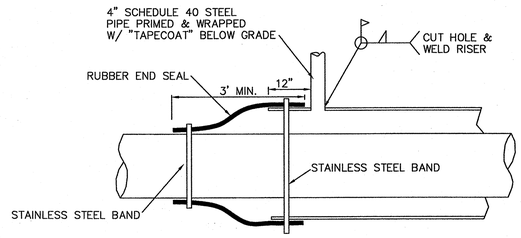
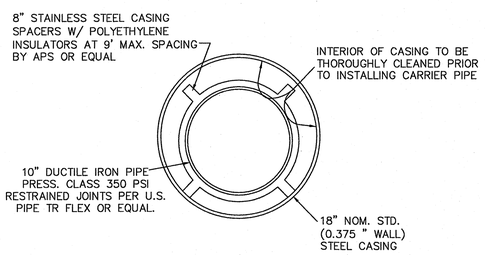


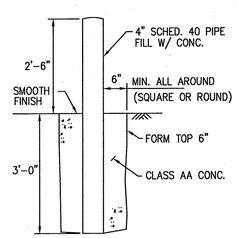
CASING END W/O MANHOLE
NTS



INTERSTATE 40 & NM HWY. CROSSINGS
ON THE TWIN BUTTES WATERLINE
NTS

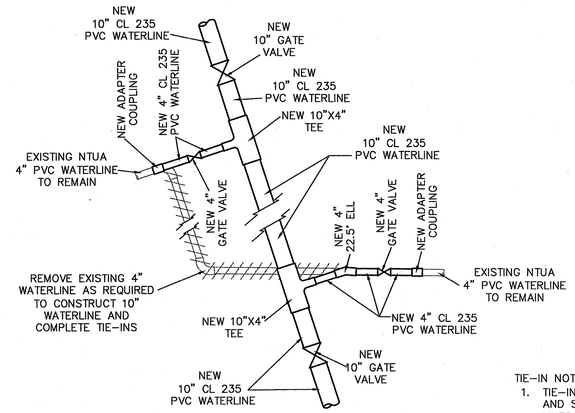
SPACERS TO PROVIDE FOR ADEQUATE CLEARANCE OF PIPE BELLS AT CASING INVERT FOR ANY ORIENTATION OF SPACER.

CASING & CARRIER PIPE DETAILS

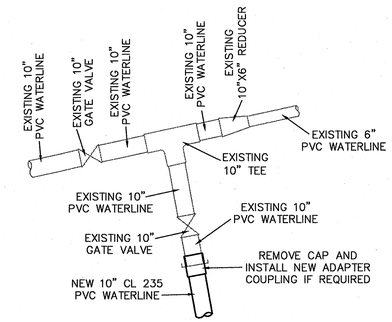


PAINT W/ TWO COMPONENT SYSTEM
PER PROJECT SPECIFICATIONS

BOLLARD DETAIL
NTS



TIE-IN "B"
NTUA 4"



TIE-IN "C"
NTUA 10"

TIE-IN NOTES:
1. TIE-IN DETAILS ARE BASED ON CONSTRUCTION DRAWINGS, ASBUILT DRAWINGS, AND SURFACE INFORMATION. CONTRACTOR SHALL EXPOSE AND VERIFY EXISTING LINES SIZE, LOCATION (VERTICAL AND HORIZONTAL), AND MATERIAL AS REQUIRED. ADDITIONAL OR ALTERNATIVE FITTINGS SHALL BE PROVIDED AS REQUIRED AND BE CONSIDERED INCIDENTAL TO TIE-INS.
2. PROVIDE ADAPTER GASKETS AS REQUIRED FOR TIE-INS

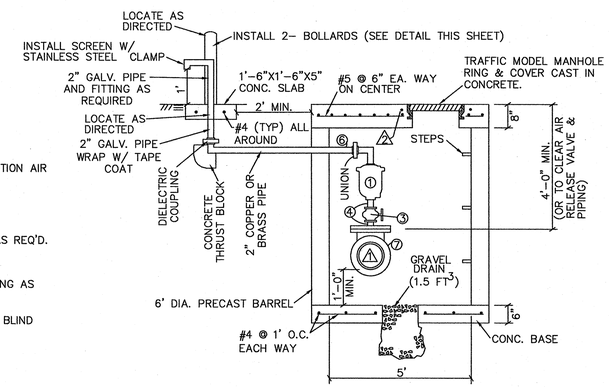
TIE-IN DETAILS
NTS

KEYED NOTES:

1. PIPING ON EACH SIDE OF TEE TO GRADE UP TO TEE TO PROVIDE AIR TRAP. USE D.I.P. OR CL235 PVC THOUGH M.H.
2. EXTRA #5 ALL AROUND RIM W/ LAP

① VAL-MATIC SINGLE BODY 2" COMBINATION AIR VALVE MODEL 202C.2 (OR EQUAL)
② NOT USED
③ 2" BRASS VALVE
④ 2" THR'D. BRASS NIPPLES OR TEES AS REQ'D.
⑤ NOT USED
⑥ 2" BRASS OR COPPER PIPING & FITTING AS REQ'D.
⑦ (LINE SIZE)X10" M.J. TEE W/ TAPPED BLIND FLG.

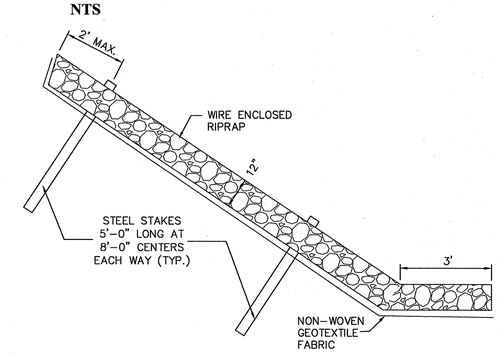
NOTE: ALL FITTINGS, VALVES, SPECIALS, & PIPING SHALL BE RATED FOR 250 PSI WORKING PRESSURE



TYPE 2 AIR RELEASE STATION
NTS

GENERAL RIP-RAP NOTES:

1. WIRE FABRIC FOR RIPRAP SHALL BE "W" OR HEXAGONAL MESH MEETING THE REQUIREMENTS LISTED IN THE SPECIFICATIONS.
2. STEEL STAKES MAY BE RAILROAD RAILS, WEIGHING NOT LESS THAN 30LBS. PER YARD, 4" O.D. STANDARD STRENGTH GALVANIZED STEEL PIPE OR 4x4x3/8 STEEL ANGLES. STEEL STAKES SHALL PROJECT 1" ABOVE TOP OF RIPRAP. STEEL STAKES ARE CONSIDERED INCIDENTAL TO THE COMPLETION OF THE WORK AND NO DIRECT MEASUREMENT OR PAYMENT WILL BE MADE THEREFOR.
3. IF LENGTH OF SLOPE IS 15' OR LESS, ONLY ONE ROW OF STEEL STAKES 2' FROM THE TOP EDGE OF THE RIPRAP WILL BE REQUIRED UNLESS OTHERWISE NOTED ON PLANS.
4. T-12" UNLESS OTHERWISE SHOWN ON PLANS. T-18" AT BRIDGES.
5. LONGITUDINAL SPLICES MAY BE MADE WITH ON LAP OF GALVANIZED 9 GAGE TIE WIRE, 9 GAGE GALVANIZED HOG RINGS OR 11 1/2 INTERLOCKING WIRE CLIPS. SPLICES SHALL HAVE A MIN. LAP OF 8"
6. 8' WIDE SECTION SHALL HAVE A MIN. TWO (20) STEEL STAKES HORIZONTALLY @ 8' VERTICALLY.



RIP-RAP DETAIL
NTS

CAUTION
CALL NEW MEXICO ONE CALL
811
BEFORE YOU DIG!

NOTICE OF EXTENDED PAYMENT PROVISION :
THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITH IN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.

KURT A. SPOLAR NEW MEXICO 17637 11-12-13 LICENSED PROFESSIONAL ENGINEER

DePAULI ENGINEERING & SURVEYING, LLC.
CIVIL ENGINEERS & LAND SURVEYORS

for the CITY OF GALLUP
McKINLEY COUNTY, NEW MEXICO

NO.	BY	DATE	REVISIONS

CITY OF GALLUP
GALLUP-RURAL NAVAJO WATER SUPPLY PROJECT
PROJECT 4

BORE, CASING, TIE-IN & AIR RELEASE STATION DETAILS

DePauli Engineering & Surveying LLC
- Civil Engineers and Land Surveyors -
307 S. 4th Street Gallup, NM 87301
Tel: (505)863-5440 depaulienginee ring.com

Dwg. No. ...
Date: Nov. 2013
Drawn By: KAS Checked By: MDP
Scale: SHOWN
Sheet 5-1

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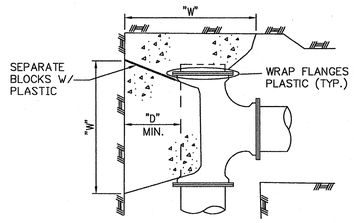
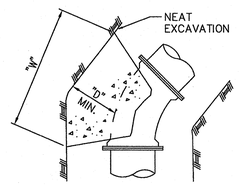


PLAN

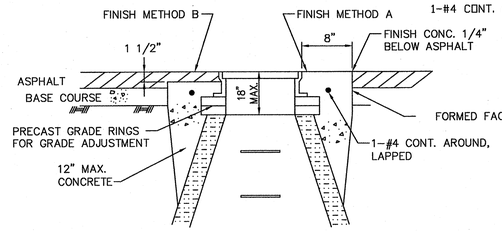
PLUGGED TEE



PLAN

TYPICAL ELL

NOTE: BACKFILL SHALL NOT BE PLACED UNTIL THRUST BLOCK CONCRETE HAS FIRMLY SET.

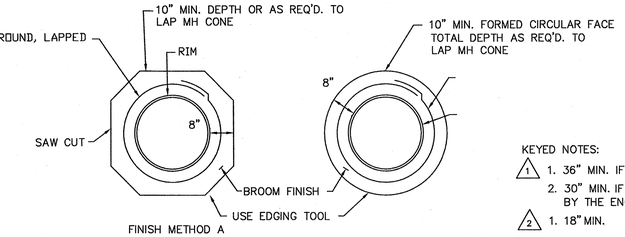


TOP OF RING ELEVATION TO BE SET BY ENGINEER OR AS SHOWN ON P&P SHEETS.

SAW CUT ASPHALT, RAISE RIM & POUR CONC. COLLAR AFTER ASPHALT PAVING IS COMPLETE, (WHEN CALLED FOR.)

SEWER MANHOLE RIM DETAILS

NTS

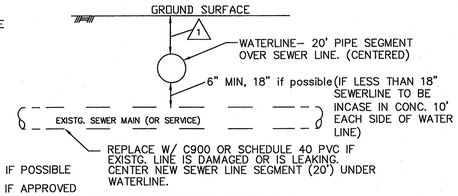


WHEN ASPHALT PAVING IS COMPLETE, SAW CUT ASPHALT, REMOVE PAVEMT., RAISE (OR LOWER) RIM & POUR

POUR CIRCULAR COLLAR IN UNPAVED AREAS AND WHEN COLLAR IS POURED PRIOR TO FINAL PAVING (FINISH METHOD "B")

MANHOLE RIM COLLAR PLAN DETAIL

NTS



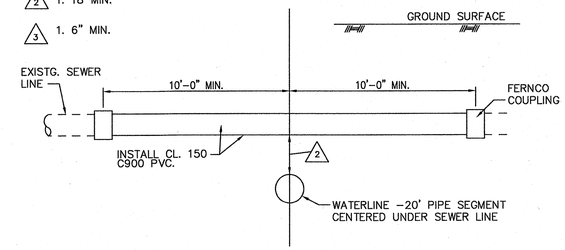
KEYED NOTES:

1. 36" MIN. IF POSSIBLE
2. 30" MIN. IF APPROVED BY THE ENGINEER

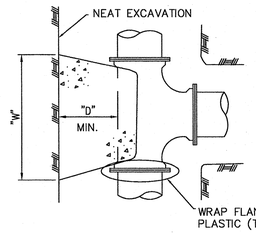
2. 18" MIN.

3. 6" MIN.

WATER MAIN OVER SEWER

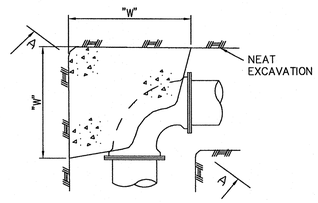


WATER MAIN UNDER SEWER



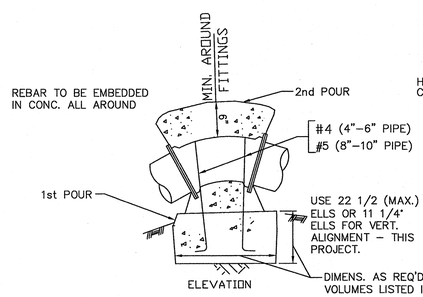
PLAN

TEE



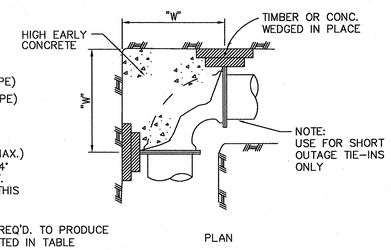
PLAN

90° ELL



ELEVATION

VERTICAL THRUST BLOCK

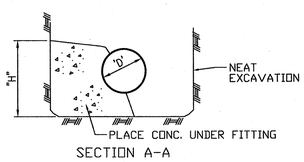


PLAN

90° ELL

VERTICAL ANCHOR BLOCK VOLUMES (FT^3)

PIPE SIZE	45° ELL	22½° ELL	11¼° ELL
4"	8	4	–
6"	14	8	–
8"	25	13	–
10"	40	21	10
12"	60	31	17
14"	85	45	26
16"	115	58	33
24"	150	76	45



SECTION A-A

MINIMUM THRUST BLOCK DIMENSIONS FOR HORIZONTAL FITTINGS

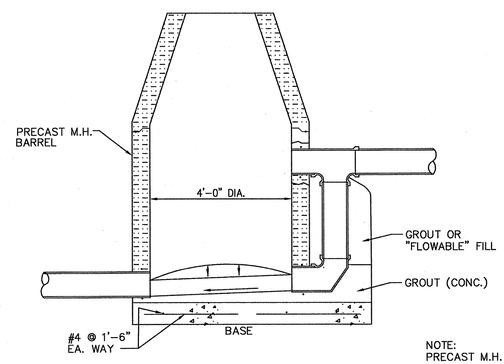
PIPE	TEE		90° ELL		45° ELL		22 1/2°– 11 1/4° ELL	
"D"	"W"	"H"	"W"	"H"	"W"	"H"	"W"	"H"
4"	14"	10"	14"	10"	12"	10"	12"	10"
6"	18"	14"	18"	14"	16"	12"	14"	10"
8"	24"	16"	22"	16"	18"	16"	16"	14"
10"	30"	30"	30"	30"	24"	16"	18"	12"
12"	32"	32"	32"	32"	30"	18"	20"	14"
14"	36"	36"	36"	36"	32"	24"	24"	16"
16"	48"	36"	48"	36"	36"	26"	30"	16"
24"	60"	42"	60"	42"	42"	30"	36"	26"

NOTE: HIGHLY SATURATED OR UNCONSOLIDATED SOILS MAY REQUIRE AN INCREASE IN THRUST BLOCK SIZE. VERIFY W/ PROJECT ENGINEER.

NOTE: PROVIDE RESTRAINING GLANDS (MEGALUG OR EQUAL) FOR MJ CONNECTIONS AND DETAILED THRUST BLOCKS AT ALL HORIZONTAL AND VERTICAL FITTINGS AS DETAILED.

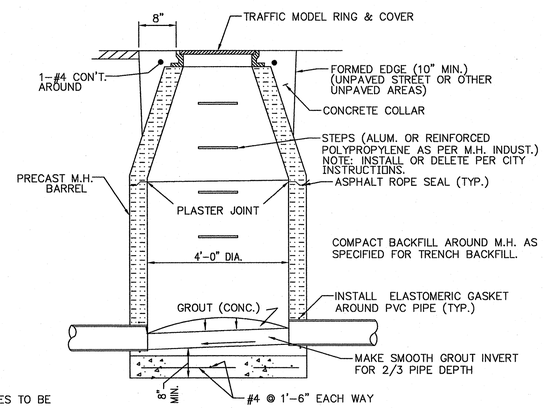
THRUST BLOCK DETAILS

NTS



TYPE B
TYPICAL SEWER DROP MANHOLE

NTS

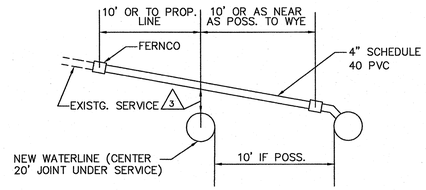


NOTE: PRECAST M.H. CONES TO BE ECCENTRIC TYPE

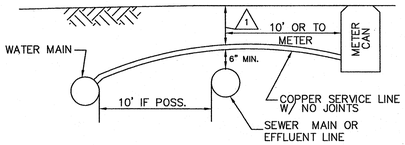
TYPE A
TYPICAL SEWER MANHOLE

NTS

NOTE: INVERT GROUT TO BE 4000 PSI CONCRETE



SEWER SERVICE CROSSING

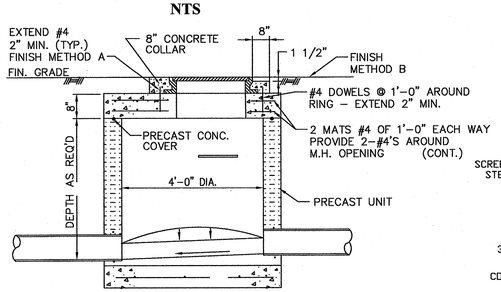


WATER SERVICE CROSSING

PROXIMITY OF WATER AND SEWER LINES: WHENEVER POSSIBLE IT IS DESIRABLE TO LAY PARALLEL WATER AND SEWER MAINS AT LEAST 10 FEET APART HORIZONTALLY WITH THE WATERLINE AT A HIGHER ELEVATION THAN THE SEWER. WHEN WATER AND SEWER LINES CROSS EACH OTHER, THE WATERLINE SHALL BE AT LEAST 18" ABOVE THE SEWER, OTHERWISE THE CROSSINGS SHALL CONFORM TO DETAILS ABOVE. ALL WATER SERVICE LINES SHALL CROSS ABOVE SEWER MAINS.

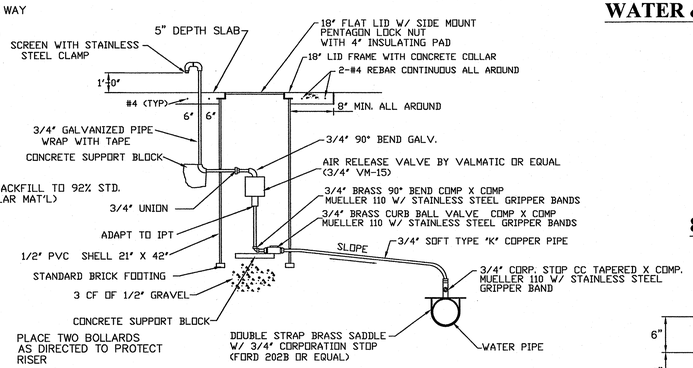
WATER & SEWER CROSSING DETAILS

NTS



TYPE C
FLAT TOP MANHOLE

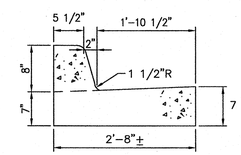
NTS



NOTE: COMPACT BACKFILL TO 92% STD. PROCTOR (GRANULAR MAT'L)

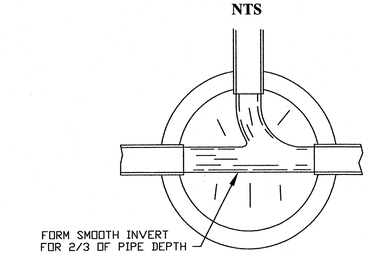
TYPE 1 AIR RELEASE DETAIL

NTS (NONE THIS PROJECT)



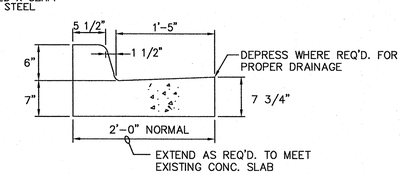
8" CURB & GUTTER SECTION

NTS



TYPICAL MANHOLE INVERT PLAN

NTS



CURB & GUTTER STONES SHALL HAVE MAX. 10' LENGTH WITH EXPANSION MATERIAL EVERY THIRD JOINT UNLESS OTHERWISE NOTED.

6" CURB & GUTTER SECTION

NTS

KURT A. SPOLAR
NEW MEXICO
17637
11-12-13
LICENSED PROFESSIONAL ENGINEER

CAUTION
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811
BEFORE YOU DIG!

NOTICE OF EXTENDED PAYMENT PROVISION:
THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITH IN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.

DePAULI ENGINEERING & SURVEYING, LLC.
CIVIL ENGINEERS & LAND SURVEYORS

for the
CITY OF GALLUP
McKINLEY COUNTY, NEW MEXICO

NO.	BY	DATE	REVISIONS

CITY OF GALLUP
GALLUP-RURAL NAVAJO WATER SUPPLY PROJECT
PROJECT 4

MISCELLANEOUS DETAILS

DePauli Engineering & Surveying LLC
- Civil Engineers and Land Surveyors -
307 S. 4th Street Gallup, NM 87301
Tel: (505)863-5440 depaulienginneering.com

Dwg. No. ...
Date: Nov. 2013
Drawn By: KAS Checked By: MDP
Scale: SHOWN
Sheet 5-2

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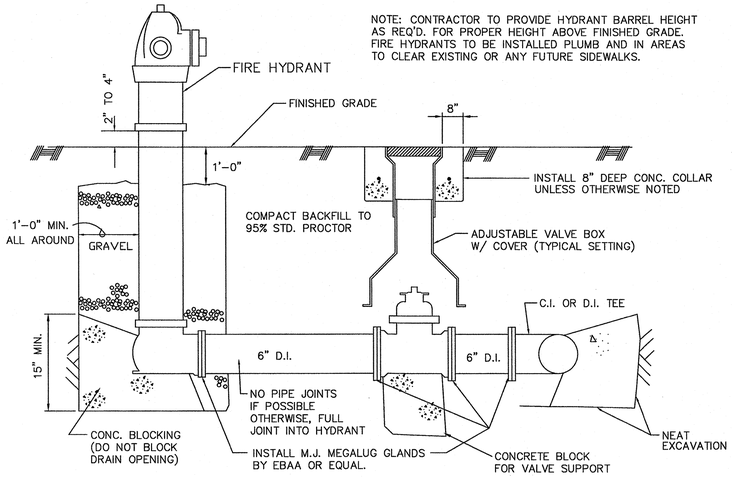
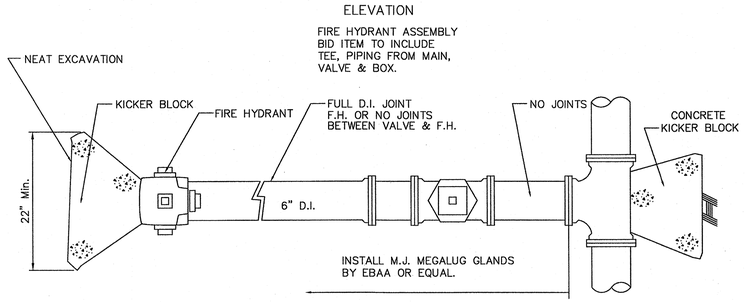


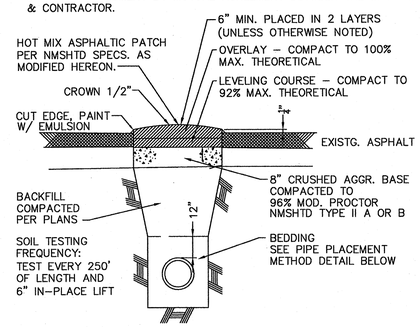
ELEVATION



PLAN

FIRE HYDRANT DETAILS

NTS

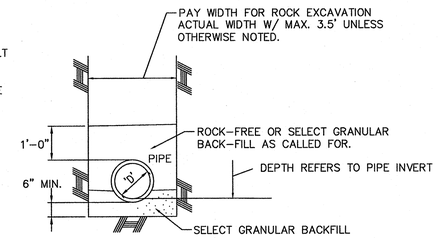


MAXIMUM PAVING PATCH PAY WIDTH

ACTUAL WIDTH BASED ON TRENCH WIDTH GOVERNED BY SAFETY REQUIREMENTS. PATCHING REQ'D. BECAUSE OF CARELESS CONSTRUCTION NOT ELIGIBLE FOR PAYMENT.

ASPHALTIC PATCH DETAIL

NTS



ROCK EXCAVATION DETAIL

NTS

WATERLINE FILLING AND FLUSHING METHODS

LINES SHALL BE FILLED W/ CHLORINE SOLUTION, PRESSURE TESTED, FLUSHED TO LOWER RESIDUAL AND THEN TESTED FOR BIOLOGICAL CONFORMANCE PRIOR TO ANY TIE-INS BY EITHER OF THE FOLLOWING METHODS. CONTRACTOR TO BE RESPONSIBLE FOR APPARATUS REQUIRED INCLUDING METHODS OF PIPE & FITTING RESTRAINT UNDER PRESSURE.

METHOD 1 – FILL THE LINE WITH PRE-MIXED CHLORINE SOLUTION FROM CLEAN WATER TANKER. NOTE: CHLORINE CONCENTRATE MAY BE INTRODUCED WHILE PUMPING WATER INTO LINE IF CONTINUED DISPERSEMENT IS ASSURED. AFTER PRESSURE TEST AND 24 HOUR CONTACT PERIOD, REPLACE CHLORINATED WATER WITH LOW RESIDUAL WATER BY PUMPING FROM CLEAN WATER TANKER. COMPLETE BIOLOGICAL SAMPLING AND TESTING AFTER 48 HRS. TIE-IN TO CITY SYSTEM WHEN TEST RESULTS ARE ACCEPTABLE. FLUSH LINES WITH CITY PRESSURE.

METHOD 2 – CONNECT TO NEW MAIN AND EXISTING CITY MAIN WITH A LINE EQUIPPED WITH 2 CHECK VALVES AND A MANUAL VALVE OR WITH A STANDARD COMMERCIAL BACKFLOW PREVENTOR. (NOTE: THE CONNECTING LINE AND ACCESSORIES ARE USUALLY OF A SMALLER SIZE THAN THE MAINS.) FILL THE NEW MAIN THROUGH THE CONNECTING LINE WHILE INTRODUCING A SEPARATE CHLORINE CONCENTRATE FEED. CLOSE THE VALVE AND DISCONNECT THE CONNECTING LINE. COMPLETE PRESSURE TESTING AND 24 HOUR CONTACT PERIOD. RECONNECT THE LINE AND FLUSH TO ACCEPTABLE RESIDUAL FROM THE CITY MAIN. CLOSE THE VALVE AND DISCONNECT THE CONNECTING LINE. CONDUCT BIOLOGICAL SAMPLING FOR TESTING AFTER 48 HRS. TIE-IN TO CITY MAIN WHEN TEST RESULTS ARE ACCEPTABLE. FLUSH LINES TO ACHIEVE SCOURING VELOCITY WITH CITY PRESSURE.

WATER AND SEWER SPECIFICATIONS

NOTE: REFERENCE TO PUBLISHED SPECIFICATIONS ARE FOR LATEST REVISION THEREOF.

A. SANITARY SEWER LINE AND APPURTENANCES

1. PVC SEWER PIPE: PVC SEWER PIPE SHALL MEET THE REQUIREMENTS OF ASTM SPECIFICATIONS D-3034 WITH A MINIMUM SDR-35. PIPE CONNECTIONS SHALL BE BELL-SPIGOT WITH RUBBER RING AND SHALL BE WATER TIGHT AT 15 PSI HYDROSTATIC HEAD.

2. MANHOLES AND APPURTENANCES:

   A. MANHOLES SHALL BE CONSTRUCTED FROM APPROVED PRECAST BARREL AND CONE SECTIONS MANUFACTURED IN ACCORDANCE WITH ASTM C-478.

   B. MANHOLE FRAMES AND COVERS SHALL BE CAST IRON, SOLID LID, TRAFFIC MODEL AND SHALL CONFORM TO ASTM A48-36C.

3. SEWER SERVICE LATERALS:

   A. PVC SERVICE WYE, SDR-35 (GXGXG) – GASKET

   B. PVC SADDLE TEE SDR-35 (RUBBER SEAL TO MAIN X G BRANCH) WITH STAINLESS STEEL BANDS.

   C. PVC SCHD. 40 PIPE, ASTM D-1785 WITH RUBBER RING JOINTS OR SOLVENT WELD.

   D. CONNECTION TO EXISTING SERVICE LINES, FERNCO ELASTOMERIC SLEEVES WITH STAINLESS STEEL BANDS.

4. HYDROSTATIC (EXFILTRATION) TESTING: COMPLETED SEWER LINES BETWEEN MANHOLES TO BE SUBJECTED TO MINIMUM 4 FT. OF HEAD FOR 2 HOUR PERIOD. LEAKAGE TO BE 1 GALLON OR LESS. MAXIMUM PERMISSIBLE LOSS IN MANHOLES FOR 2 HOUR PERIOD IS 5 GALLONS.

B. WATER LINES AND APPURTENANCES FOR POTABLE WATER

1. DUCTILE IRON: DUCTILE IRON FOR WATER LINES SHALL BE OF THE SIZE AND CLASS SPECIFIED, CEMENT LINED AND SHALL CONFORM TO AWWA C104 AND C151. JOINTS FOR DUCTILE IRON PIPE SHALL BE RUBBER RING "PUSH-ON" OR AS SPECIFIED ON THE DRAWINGS. DUCTILE IRON PIPE SHALL BE WRAPPED IN TWO (2) LAYER OF 8 MIL POLYETHYLENE PER AWWA C105.

2. PVC: PVC WATER LINES SHALL CONFORM TO REQUIREMENTS OF AWWA SPECIFICATION C900 WITH O.D. EQUIVALENT TO CAST IRON WITH RUBBER RING "PUSH-ON" TYPE GASKETS.

3. FITTINGS AND SPECIALS: FITTINGS AND SPECIALS SHALL BE DUCTILE IRON CEMENT LINED MECHANICAL JOINT DUCTILE IRON CONFORMING TO AWWA C104 AND C110 WITH RETAINER GLANDS.

4. GATE VALVES: GATE VALVES 4" AND LARGER SHALL BE EPOXY COATED, IRON BODY, RESILIENT WEDGE, NON-RISING STEM VALVES RATED FOR 250 PSI AND SHALL CONFORM TO AWWA C-509 OR C515. VALVES 2" OR LESS IN DIAMETER SHALL BE HIGH QUALITY ALL BRASS GATE VALVES. VALVE BOXES SHALL BE DUCTILE IRON, ADJUSTABLE LENGTH TYPE. CONNECTIONS FOR 4" AND LARGER GATE VALVES SHALL BE MECHANICAL JOINT WITH STAINLESS STEEL TRIM UNLESS OTHERWISE NOTED.

5. FIRE HYDRANTS: FIRE HYDRANTS SHALL HAVE A 6" DIAMETER INLET WITH 5 1/4" VALVE OPENING AND SHALL BE RATED FOR 150 PSI WORKING PRESSURE. CONNECTIONS FOR FIRE HYDRANTS SHALL BE MECHANICAL JOINT AND SHALL CONFORM TO AWWA C502. FIRE HYDRANTS SHALL BE MUELLER CENTURION A 423.

6. TESTING AND DISINFECTION OF WATER LINES AND APPURTENANCES:

   A. TESTING OF WATER LINES: ALL WATER LINES SHALL BE TESTED AFTER INSTALLATION IN ACCORDANCE WITH AWWA SPECIFICATION C600, PROVIDED ALLOWABLE LINE LEAKAGE SHALL NOT BE MORE THAN $NDP^{0.5}/7400$ GALLONS PER HOUR WHERE N = NUMBER OF JOINTS, D = PIPE DIAMETER IN INCHES AND P = TEST PRESSURE IN PSI.

AVERAGE TEST PRESSURE (PSI)	ALLOWABLE LEAKAGE PER 100 JOINTS (GALLONS/HR.) PIPE DIMENSION						
	4"	6"	8"	10"	12"	14"	16"
200	0.76	1.15	1.53	1.91	2.29	2.68	3.06
250	0.85	1.28	1.71	2.14	2.56	2.99	3.42

   B. DISINFECTION OF WATER LINES: COMPLETED LINES SHALL BE TREATED WITH CHLORINE SOLUTION OF NOT LESS THAN 25 PARTS PER MILLION KEPT IN CONTACT FOR AT LEAST 24 HOURS. AFTER THE 24 HOUR PERIOD, THE LINE SHALL BE FLUSHED UNTIL THE RESIDUAL CHLORINE HAS BEEN REDUCED TO CITY OF GALLUP SYSTEM RESIDUAL. WATER IN THE NEW LINE SHALL BE SAMPLED BY THE CONTRACTOR FOR BIOLOGICAL TESTING AFTER A PERIOD OF 48 HRS. REQUIRED TESTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. TESTS TO INDICATE COMPLIANCE WITH CITY STANDARDS PRIOR TO TYING-IN.

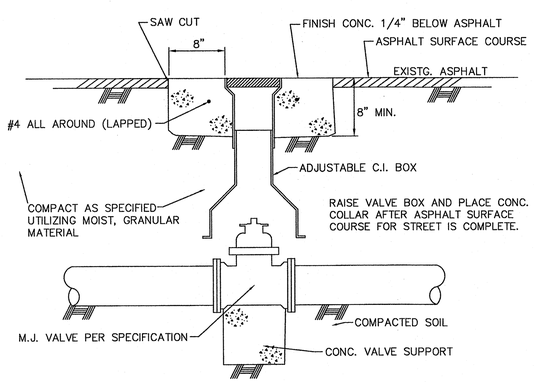
   DISINFECTION PROCEDURES SHALL BE IN ACCORDANCE W/ AWWA C651 SPECIFICATIONS AND AS MODIFIED HEREON.

CHLORINE SOLUTION SHALL NORMALLY BE INTRODUCED AT THE LOWEST ELEVATION OF THE WATER LINE. THE SOLUTION SHALL BE PUMPED INTO THE LINE IN SUCH A MANNER AS TO PREVENT TRAPPING AIR. CONTRACTOR SHALL PROVIDE FILLING, SAMPLING AND AIR RELEASE TAPS AS REQUIRED.

LIQUID CHLORINE CONCENTRATE OR GAS SHALL BE USED FOR CHLORINE SOLUTION. POWDER CHLORINE CONCENTRATE WILL NOT BE PERMITTED.
(SEE WATER LINE FILLING AND FLUSHING METHODS)

7. WATER SERVICE LINES:

   A. CORP. STOP – CC TAPERED INLET BY COMPRESSION FITTING AS MUELLER 110 WITH STAINLESS STEEL GRIPPER BAND.
   B. SERVICE LINE – TYPE "K" SOFT DRAWN COPPER 3/4" MIN.
   C. 1/8TH OR 1/4 BENDS – COMPRESSION OR TO CORP STOP. (W/ SS GRIPPER BAND)
   D. COUPLINGS – COMPRESSION BY COMPRESSION. (W/ SS GRIPPER BAND)
   E. SADDLES TO BE BRASS, DOUBLE STRAP AS FORD 202BS OR EQUAL. MAINTAIN 2' MIN. BETWEEN PIPE END TAP.

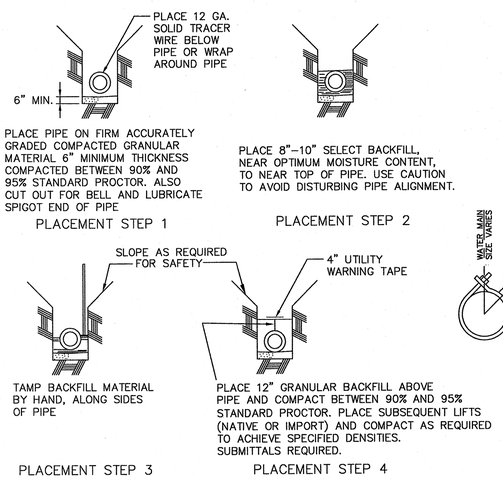


TYPICAL VALVE SETTING

NTS

CAUTION
CALL NEW MEXICO ONE CALL
811
BEFORE YOU DIG!

NOTICE OF EXTENDED PAYMENT PROVISION :
THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITH IN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.

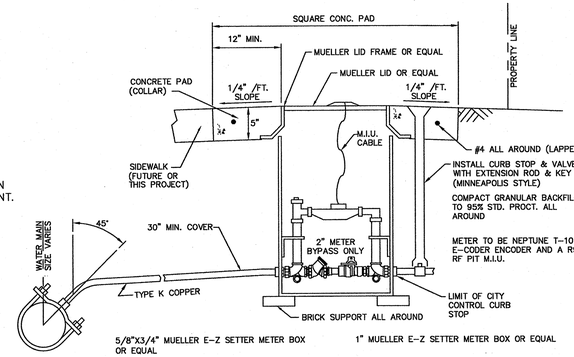


TEST FREQUENCIES TO BE DETERMINED BY THE ENGINEER

DEPICTED ABOVE ARE ACCEPTABLE METHODS FOR PLACING PIPE

PIPE PLACEMENT METHOD

NTS



5/8"x3/4" MUELLER E-Z SETTER METER BOX OR EQUAL.

MODEL 203-RS-15-30-F-S-A-N
15" BOX DIA.
30" BOX DEPTH
LOCKWING ANGLE BALL VALVE (FULL PORT)
A.S.S.E. DUAL CHECK
ALUM. BOTT.

700097 LID FRAME
282924 LID
790162 PAD

MUELLER SHUT OFF VALVE (CURB STOP)
MODEL H-15159

MUELLER VALVE BOX
MODEL H-10332

MUELLER EXTENSION ROD
MODEL 82863

1" MUELLER E-Z SETTER METER BOX OR EQUAL

MODEL 330-RS-18-26-F-S-A-S
18" BOX DIA.
26" BOX DEPTH
LOCKWING ANGLE BALL VALVE (FULL PORT)
A.S.S.E. DUAL CHECK
ALUM. BOTT.

70098 LID FRAME
282925 LID
790163 PAD

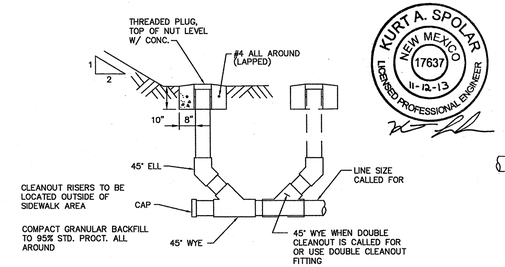
2" MUELLER E-Z SETTER METER BOX OR EQUAL

MUELLER-550-VB-27-36-F-B-A-N

70098 LID FRAME
282925 LID
790165 PAD
BYPASS REQUIRED

WATER SERVICE METER BOX DETAILS

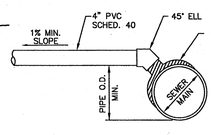
5/8"x3/4" - 1" AND 2" SIZE
NTS (NONE THIS PROJECT)



SEWER SERVICE CLEANOUT DETAILS

SCHED. 40 PVC
NTS

KURT A. SPOLAR
NEW MEXICO
17637
11-12-13
LICENSED PROFESSIONAL ENGINEER



SEWER SERVICE CONNECTION

NTS

ADMIN04: G:\engineer\convers\dwg\base dwgs.dwg

DePAULI ENGINEERING & SURVEYING, LLC.
CIVIL ENGINEERS & LAND SURVEYORS

for the
CITY OF GALLUP
McKINLEY COUNTY, NEW MEXICO

NO.	BY	DATE	REVISIONS

CITY OF GALLUP
GALLUP-RURAL NAVAJO WATER SUPPLY PROJECT
PROJECT 4

MISCELLANEOUS DETAILS

DePauli Engineering & Surveying LLC
- Civil Engineers and Land Surveyors -
307 S. 4th Street Gallup, NM 87301
Tel: (505)863-5440 depauliengineering.com

Dwg. No. ...
Date: Nov. 2013
Drawn By: KAS Checked By: MDP
Scale: SHOWN
Sheet 5-3