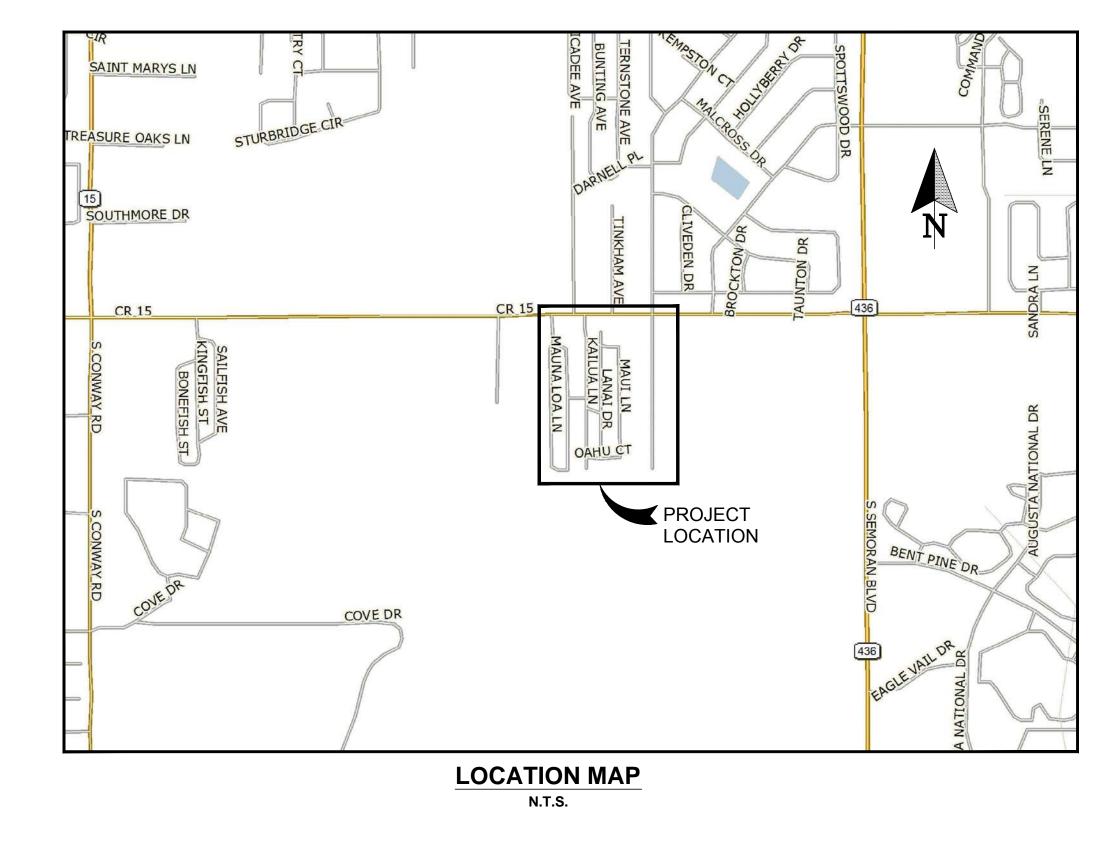
# **BALI HAI MOBILE HOME PARK UTILITY IMPROVEMENTS**



PARCEL ID: 21-23-30-0000-00-015 PS ADDRESS: 5301 LANAI DRIVE ZONING: R-T TYPE 6

## **CONSTRUCTION DRAWINGS FOR**

## **DISTRICT 4**

**OCTOBER 2013** 



TERESA JACOBS

**PREPARED BY: BFA** Environmental Consultants Barnes, Ferland and Associates, Inc. 1230 E. Hillcrest Street, Orlando, FL, 32803 FAX: (407) 896-1822 PH: (407) 896-8608 ENGINEERING BUSINESS No. 6899

Daniel L. Allen FLORIDA LICENSE No .: 37891

ENGINEER OF RECORD:

#### **OCTOBER 2013 - BID SET**

### ORANGE COUNTY UTILITIES 9150 CURRY FORD ROAD ORLANDO, FLORIDA 32825

## UTILITIES DIRECTOR: RAYMOND E. HANSON, P.E.

## COUNTY ADMINISTRATOR: AJIT LALCHANDANI

- DISTRICT 6: COMMISSIONER TIFFANY MOORE RUSSELL
- DISTRICT 5: COMMISSIONER TED EDWARDS
- DISTRICT 4: COMMISSIONER JENNIFER THOMPSON
- DISTRICT 3: COMMISSIONER PETE CLARKE
- DISTRICT 2: COMMISSIONER FRED BRUMMER
- DISTRICT 1: COMMISSIONER S. SCOTT BOYD

## BOARD OF COUNTY COMMISSIONERS

ORANGE COUNTY MAYOR

## PROJECT SEQUENCE No. 58188

CAPITAL PROJECT No. 1500-06WW/1553-11W

#### LEGEND

$\longrightarrow$	GUY WIRE AND ANCHOR	<b>•</b>	BENCHMARK
$\rightarrow$	POWER POLE		POWER POLE W/ TRANSFORMER
ф	LIGHT POLE	€	FLOOD LIGHT
$\begin{array}{c} \\ \\ \\ \\ \\ \\ \\ \end{array}$	TREE (TYPE & SIZE NOTED)	OE	EXISTING OVERHEAD ELECTRIC
	OAK TREE	—— BT ———	EXISTING BURIED TELEPHONE
$\int \cdot \int$	PINE TREE	FO	EXISTING FIBER OPTIC CABLE
×	PALM TREE	BE	EXISTING BURIED ELECTRIC
$\sim$	BOLLARD	GAS	EXISTING GAS LINE
63.77	PROPOSED ELEVATION	TV	EXISTING CABLE TV (BURIED)
	PROPOSED PIPELINE (SPECIFY)	×63.77	EXISTING ELEVATION
	PROPOSED CLEANOUT	PIPE	EXISTING PIPELINE (SPECIFY)
<b>)</b>	PROPOSED FIRE HYDRANT		EXISTING CLEANOUT
•	PROPOSED CHAIN-LINK FENCE	<b>X</b>	EXISTING FIRE HYDRANT
	PROPOSED WOOD FENCE	xx	EXISTING CHAN-LINK FENCE
	PROPOSED MANHOLE (SPECIFY)		EXISTING WOOD FENCE
	PROPOSED VALVE (SPECIFY)	S	EXISTING MANHOLE (SPECIFY)
M	PROPOSED WATER METER		EXISTING VALVE (SPECIFY)
	PROPOSED BACK-FLOW	W/M	EXISTING METER (SPECIFY)
— <u>[</u> ]—	PREVENTER	— <del>—</del> —	EXISTING HOSE BIBB
WPB	WIRING PULL BOX	$\bigotimes$	SOIL BORING
TR	TRANSFORMER	CB	CABLE TELEVISION BOX
T	TELEPHONE PEDESTAL	AC	AIR CONDITIONER
EP	ELECTRIC SERVICE PANEL		GAS REGULATOR VALVE
	SATELLITE DISH	GASI	GAS VALVE COVER
$\mathbb{P}$	PROPERTY LINE	GAS	GAS VALVE COVER
			GAS STORAGE TANK
			PAVER DRIVEWAY
UTILIT	Y PIPE DESIGNATION		

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SIZE	MATL 8" CI	 TYPE	-QUALIT` LEVEL	ſ

**NOTE:** THIS DRAWING WAS PREPARED IN CONFORMANCE WITH ASCE STANDARD CE/ASCE 38-02 "AMERICAN SOCIETY OF CIVIL ENGINEERS STANDARD GUIDELINE FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA"

#### CI/ASCE 3802 SUBSURFACE UTILITY QUALITY LEVEL INDEX

- 1. QUALITY LEVEL A (QLA): UTILITY INFORMATION WHICH HAS BEEN VISUALLY VERIFIED, SURVEY LOCATED (BOTH HORIZONTALLY AND VERTICALLY) AND ACCURATELY REDUCED ONTO THE DRAWINGS. THIS IS TYPICALLY SHOWN AS A HV VERIFICATION EXCAVATION HOLE.
- 2. QUALITY LEVEL B (QLB): UTILITY INFORMATION DERIVED BY MARKING THE APPROXIMATE SURFACE HORIZONTAL LOCATION OF UTILITY USING ELECTRONIC METHODS BY THE UTILITY OWNER. MARKINGS BY UTILITY OWNERS ARE ASSUMED TO BE LOCATED BY ELECTRONIC METHODS AND SEPARATE LOCATES WILL NOT BE PERFORMED BY THE ENGINEER. MARKING IS SUBSEQUENTLY FIELD SURVEY LOCATED AND ACCURATELY REDUCED ONTO THE DRAWINGS.
- 3. QUALITY LEVEL C (QLC): UTILITY INFORMATION OBTAINED AS BELOW FOR QUALITY LEVEL D, PLOTTED TO CORRELATE WITH SURFACE UTILITY FEATURES WHICH HAVE BEEN FIELD VERIFIED, SURVEY LOCATED AND ACCURATELY REDUCED ONTO THE DRAWINGS. INCLUDED IN THIS CATEGORY ARE AERIAL UTILITY INFORMATION AND UTILITY DEPICTIONS, WHICH IN THE PROFESSIONAL OPINION OF THE SUBSURFACE UTILITY ENGINEER, REPRESENT THE MOST PROBABLE APPROXIMATE HORIZONTAL LOCATION, TYPE AND / OR EXISTENCE OF A UTILITY.
- 4. QUALITY LEVEL D (QLD): UTILITY INFORMATION PLOTTED ON THE DRAWING BASED SOLELY ON RECORD INFORMATION, INDIVIDUAL RECOLLECTIONS OR THE EXISTENCE OF UTILITY SERVICE. IT SHALL BE NOTED THAT ALL INFORMATION SHOWN (OTHER THAN AT TEST HOLE LOCATIONS, SEE QLA ABOVE) WITH REFERENCE TO A UTILITIES SIZE, CAPACITY, MATERIAL COMPOSITION, CONDITION OR SERVICE STATUS SHALL BE CONSIDERED QLD EVEN THOUGH THE UTILITY MAY BE PLOTTED AND LABELED QLC OR QLB.

		DATE	BY	REVISIONS	No.
ΙU	LINE IS 2 INCHES				
	AT FULL SIZE				
	(IF NOT SCALE ACCORDINGLY)	10-24-13	DLA	BID SET	
GOV FL	SCALE: AS NOTED				

F:\CIVIL\PROJECTS\2011\2011-11 OCU Continuing\11-11.04 Bali Hai MHP\5.0 Drawings\2011-11.04 Bali Hai MHP G-02.dwg

AC	ASBESTOS CEMENT, AIR CONDITIONER	MCC	MOTOR CONTROL CENTER	SHEET	
ADPT	ADAPTER	MES	MITERED END SECTION	No.	_
ALT	ALTERNATE	MFR	MANUFACTURER	1	
ALUM	ALUMINUM	MGD	MILLION GALLONS PER DAY	2	
	APPROXIMATELY	MH	MANHOLE	3	+
ARV	AIR RELEASE VALVE ASSEMBLY	MIN	MINIMUM	3	
ASPH	ASPHALT	MOD		4	
ASSEM AUX	ASSEMBLY AUXILIARY	MOD MOT	MODIFIED MAINTENANCE OF TRAFFIC	5	
3	BEND	MTD	MAINTENANCE OF TRAFFIC		+
S BFP	BACKFLOW PREVENTER	MTG	MOUNTING	6	
BFV	BUTTERFLY VALVE	NG	NATURAL GROUND	7	
3L	BASE LINE	NIC	NOT IN CONTRACT	8	
BLDG	BUILDING	NO	NUMBER		_
BM	BENCHMARK	NOM	NOMINAL	9	
30	BLOW OFF	NPT	NATIONAL PIPE THREAD	10	
BOT	BOTTOM	NPW	NON-POTABLE WATER	44	
BRKT BV	BRACKET BALL VALVE	NTS OCU	NOT TO SCALE ORANGE COUNTY UTILITIES	11	
CB	CATCH BASIN	OD	OUTSIDE DIAMETER	12	
C/C	CENTER LINE TO CENTER LINE	0\E	OR EQUAL	13	
CFS	CUBIC FEET PER SECOND	0\0	OUTSIDE TO OUTSIDE	14	+
C&G	CURB AND GUTTER	OPER	OPERATOR	14	
CIP	CAST IRON PIPE	OPNG	OPENING	15	
CL		OUC	ORLANDO UTILITIES COMMISSION	16	T
CLF		PAVT	PAVEMENT		+
CM CMP	CONCRETE MONUMENT CORRUGATED METAL PIPE	PB PE	PULL BOX PLAIN END	17	
CO	CORRUGATED METAL PIPE CLEAN OUT	PE PG	PLAIN END PAGE	18	
	CONCRETE	PI	POINT OF INTERSECTION	19	T
CONN	CONNECT	PH	PHASE		+
CONST	CONSTRUCT	PL	PROPERTY LINE	20	$\downarrow$
CONT	CONTINUATION	PLS	PROFESSIONAL LAND SURVEYOR	21	
	CORPORATION	PLS		22	$\dagger$
CPLG CULV	COUPLING CULVERT	POLY PP	POLYETHYLENE POWER POLE		+
CV	COLVERT CHECK VALVE	PP PROP	POWER POLE PROPOSED	23	
CY	CUBIC YARD	PROP PS	PUMP STATION	24	
DBI	DITCH BOTTOM INVERT	PSI	POUNDS PER SQUARE INCH	25	T
OBL	DOUBLE	PSM	PROFESSIONAL SURVEYOR & MAPPER		+
DEFL	DEFLECTION	PUE	PERMANENT UTILITY EASEMENT	26	
DHW	DESIGN HIGH WATER	PV	PLUG VALVE	27	
AIC DIM	DIAMETER DIMENSION	PVC QTY	POLYVINYL CHLORIDE PIPE QUANTITY	28	
DIP	DUCTILE IRON PIPE	RAD PT	RADIUS POINT		
DWLS	DOWELS	R	RADIUS	29	
DWG	DRAWING	RJ	RESTRAINED JOINT		
ELEC	ELECTRIC	R\R	RAIL ROAD		
ΞA	EACH	RCP	REINFORCED CONCRETE PIPE		
EFF	EFFLUENT	RED	REDUCER		
ELEV EMB	ELEVATION EMBED OR EMBEDDED	REINF REQ	REINFORCED REQUIRED		
E\P	EDGE OF PAVEMENT	RESTR	RESTRAINED		
ESMT	EASEMENT	RPZ	REDUCED PRESSURE ZONE		
EW	EACH WAY	RT	RIGHT		
EXIST	EXISTING	RW	RECLAIMED WATER		
EXP JT FD	EXPANSION JOINT FLOOR DRAIN	R\W SAN	RIGHT OF WAY SANITARY SEWER		
-DEP	FLORIDA DEPT OF ENVIRON PROTECTION	SB	SOIL BORING		
DOT	FLORIDA DEPT OF TRANSPORTATION	SCH	SCHEDULE		
Ā	FLANGED ADAPTER	SD	STORM DRAIN		
F	FINISH FLOOR	SECT	SECTION		
-CA	FLANGED COUPLING ADAPTER	SF	SQUARE FEET		
=HA	FIRE HYDRANT ASSEMBLY	SHT	SHEET		
=IG =LG		SLV SPECS	SLEEVE SPECIFICATIONS		
-LG =L	FLANGE FLOW LINE	SPECS SQ	SQUARE		
-∟ =M	FORCE MAIN	SS	SQUARE STAINLESS STEEL		
T	FEET	STA	STATION		
-TG	FOOTING	STD	STANDARD		
GA	GAUGE	STL	STEEL		
GAL	GALLON	SY	SQUARE YARDS		
		SYS	SYSTEM TOP AND ROTTOM		
GEN GRD	GENERATOR GROUND	T&B TBM	TOP AND BOTTOM TEMPORARY BENCHMARK		
GSP	GROUND GALVANIZED STEEL PIPE	TCE	TEMPORARY BENCHMARK TEMPORARY CONSTRUCTION EASEMENT		
GM	GAS MAIN	TEL	TELEPHONE		
GPM	GALLONS PER MINUTE	TEMP	TEMPORARY		
GV	GATE VALVE	THD	THREADED		
ΗВ	HOSE BIBB	THK	THICK		
		TOB			
HFCA HT	HARNESSED FLANGE COUPLING ADAPTER HEIGHT	TOS TOW	TOP OF SLAB TOP OF WALL		
чі НР	HORSE POWER	TS&V	TAPPING SLEEVE AND VALVE		
" HORIZ	HORIZONTAL	TYP	TYPICAL		
HWL	HIGH WATER LEVEL	UG	UNDERGROUND		
E	INVERT ELEVATION	VAC	VOLTAGE ALTERNATING CURRENT		
D		VCP			
		VDC	VOLTAGE DIRECT CURRENT		
NV P	INVERT IRON PIPE	VERT VVH	VERTICAL VERIFIED VERTICALLY & HORIZONTALLY		
P R	IRON ROD	vvn w/	WITH		
JB	JUNCTION BOX	w/o	WITH OUT		
JUNC	JUNCTION	WL	WATER LEVEL		
AT	LATERAL	WM	WATER MAIN		
_F		W\M	WATER METER		
S	LIFT STATION	WP			
_SA _T	LANDSCAPE AREA LEFT	WS WS	WATER SERVICE WATER SURFACE		
LWL	LEFT LOW WATER LEVEL MAXIMUM MATERIAL	WS WWF	WATER SURFACE WELDED WIRE FABRIC		

RANGE OUNTY ORIDA MATL MATERIAL



BALI HAI MHP UTILITY I

LEGEND, ABBREVIATION AND UTILITY OWN

	DRAWING INDEX				
DRAWING No.	DRAWING TITLE				
G-1	COVER SHEET				
G-2	LEGEND, ABBREVIATIONS, DRAWING INDEX AND UTILITY OWNER CONTACTS				
G-3	GENERAL NOTES				
G-4	KEY MAP, PROJECT SCHEMATIC AND TEST HOLE DATA				
V-1	TOPOGRAPHIC SURVEY CONTROL POINTS				
C-1	BALI HAI MHP PLAN				
C-2	BALI HAI MHP PLAN				
C-3	BALI HAI MHP PLAN				
C-4	BALI HAI MHP PLAN				
C-5	BALI HAI MHP PLAN				
C-6	BALI HAI MHP PLAN				
C-7	BALI HAI MHP PLAN				
C-8	KEMPSTON DRIVE WATER SERVICE RELOCATIONS				
PS-1	PUMP STATION #3082 EXISTING SITE PLAN				
PS-2	PUMP STATION #3082 DEMOLITION PLAN				
PS-3	PUMP STATION #3082 PROPOSED SITE PLAN AND GRADING				
PS-4	PUMP STATION #3082 PLAN, SECTION AND DETAILS				
D-1	DETAILS				
D-2	DETAILS				
D-3	DETAILS				
D-4	DETAILS				
D-5	DETAILS				
D-6	DETAILS				
E-1	PUMP STATION #3082 ELECTRICAL SITE PLAN				
E-2	PUMP STATION #3082 ELECTRICAL DETAILS				
E-3	PUMP STATIION #3082 ELECTRICAL DETAILS				
CA-1	COORDINATE ASSET TABLE				
CA-2	COORDINATE ASSET TABLE				
CA-3	COORDINATE ASSET TABLE				

UTILITY OWNER CONTACTS						
UTILITIES	ORANGE COUNTY DISPATCH	407-836-2777	(24 HOUR ASSISTANCE)			
WASTEWATER	ORANGE COUNTY UTILITIES (O.C.U)	407-254-9680				
WATER	ORANGE COUNTY UTILITIES (O.C.U.)	407-254-9850				
TRAFFIC / FIBER	ORANGE COUNTY PUBLIC WORKS	407-836-7814				
POWER	PROGRESS ENERGY	800-778-9140				
POWER	OUC ELECTRIC	800-778-9140				
PHONE	AT&T	903-753-3145				
GAS	TECO PEOPLES GAS	407-420-6650				
CABLE TV	BRIGHTHOUSE NETWORKS	407-532-8167				

IMPROVEMENTS	DESIGN ENGINEER	PROJECT No.: 2011-11.04	DRAWING No.
	DANIEL L. ALLEN, P.E.	PROJECT DATE: OCT 2013	
NS, DRAWING INDEX		DESIGNED BY: EG	G-2
NO, DRAWING INDEA		DRAWN BY: BA/JAB	
ER CONTACTS	FLORIDA REGISTRATION No.	CHECKED BY: DLA	SHEET
	37891	DRAWING FILE: SEE MARGIN	<u>2</u> OF <u>29</u>

#### **GENERAL NOTES**

ALL WORK AND REQUIREMENTS FROM THE NOTES IN THIS PAGE SHALL BE A REQUIREMENT OF THE CONTRACT AND EXECUTED BY THE CONTRACTOR AT NO ADDITIONAL COST TO ORANGE COUNTY.

- 1. ALL UTILITIES FACILITIES CONSTRUCTION CONNECTING TO THE ORANGE COUNTY PUBLIC UTILITIES SYSTEM SHALL CONFORM TO THE 29. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DE-WATERING REQUIRED DURING CONSTRUCTION AND TO OBTAIN AND PAY FOR ALL ORANGE COUNTY UTILITIES STANDARDS AND CONSTRUCTION SPECIFICATIONS MANUAL, AND BE ONE OF THE APPROVED PRODUCTS PERMITS REQUIRED FOR THE TEMPORARY DE-WATERING. LISTED IN APPENDIX 'D' OF THE MANUAL
- 30. INSTALL AIR RELEASE VALVES (ARV) AT ALL HIGH POINTS IN THE SYSTEM WHERE AIR CAN ACCUMULATE. AIR RELEASE VALVES AND 2. THE UTILITIES IMPROVEMENTS AND ADJUSTMENT SHOWN ON THESE DRAWINGS ARE INTENDED TO MAINTAIN THE INTEGRITY OF THE APPURTENANCES SHALL BE COLOR CODED BLUE FOR WATER, GREEN FOR SEWER, AND PURPLE FOR RECLAIMED. STATIONING FOR AIR ORANGE COUNTY WATER, WASTEWATER, AND RECLAIMED WATER SYSTEMS. THE DRAWINGS DO NOT INCLUDE WORK PERFORMED ON, RELEASE VALVES IS APPROXIMATE. CONTRACTOR SHALL INSTALL AIR RELEASE VALVES AT HIGH POINTS ON MAIN. COORDINATE WITH THE OR FOR UTILITY SYSTEMS OWNED BY OTHERS, UNLESS STATED OTHERWISE ON THE DRAWINGS ORANGE COUNTY UTILITIES INSPECTOR.
- COORDINATION AND COMMUNICATIONS WITH ORANGE COUNTY STAFF SHALL BE MADE THROUGH THE ORANGE COUNTY UTILITIES 31. WHERE SHOWN ON THE PLANS, LINE STOPS WILL BE USED TO ISOLATE PORTIONS OF THE EXISTING MAINS. THE ORANGE COUNTY CONSTRUCTION DIVISION INSPECTOR. INSPECTOR SHALL BE NOTIFIED 72 HOURS IN ADVANCE OF LINE STOP INSTALLATION.
- 4. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY ORANGE COUNTY UTILITIES DISPATCH (EMERGENCY ONLY) IN THE EVENT OF UTILITY MAIN 32. ALL CONNECTIONS TO EXISTING MAINS SHALL BE MADE BY THE CONTRACTOR ONLY AFTER THE PROPOSED CONNECTION PROCEDURE BREAK OR DAMAGE AT 407-836-2777. AND WORK SCHEDULE HAVE BEEN REVIEWED AND ACCEPTED BY THE OWNER. THE CONTRACTOR SHALL SUBMIT A WRITTEN REQUEST TO THE OWNER A MINIMUM OF FIVE (5) WORKING DAYS PRIOR TO SCHEDULING ANY CONNECTIONS. THE REQUEST SHALL REFERENCE THE 5. THE ORANGE COUNTY UTILITIES CONSTRUCTION DIVISION SHALL BE NOTIFIED AT LEAST SEVEN (7) DAYS PRIOR TO ANY CONSTRUCTION PROFESSIONAL LAND SURVEYOR CERTIFIED COMPLETED AS-BUILT RECORD DRAWINGS PREVIOUSLY SUBMITTED AND SHALL OUTLINE THE ACTIVITY, OR PRIOR TO ANY ACTIVITY REQUIRING THE PRESENCE OF OR AN ACTION BY UTILITIES STAFF SUCH AS SCHEDULING VALVE FOLLOWING:
- OPERATION, PRESSURE TESTING, PIPE CONNECTION, PUMP STATION OPERATIONS OR SHUTDOWNS, ETC.
- 6. WATER, WASTEWATER AND RECLAIMED WATER VALVES, PUMP STATIONS OR OTHER UTILITY INFRASTRUCTURE ARE TO BE OPERATED ONLY BY ORANGE COUNTY UTILITIES PERSONNEL. ALL VALVES BEING INSTALLED ARE TO REMAIN CLOSED DURING CONSTRUCTION.
- 7. ORANGE COUNTY UTILITIES DEPARTMENT TELEPHONE NUMBERS:

407-836-2777 ORANGE COUNTY UTILITIES DISPATCH 407-254-9798 ORANGE COUNTY UTILITIES CONSTRUCTION DIVISION 407-254-9680 ORANGE COUNTY UTILITIES WATER RECLAMATION DIVISION 407-254-9850 ORANGE COUNTY UTILITIES WATER DIVISION 407-254-9900 ORANGE COUNTY UTILITIES ENGINEERING DIVISION

- 8. SUPPORT AND PROTECT ALL EXISTING UTILITIES. CONTRACTOR SHALL CONTACT UTILITY OWNERS FOR LOCATION OF ALL EXISTING FACILITIES. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH UTILITY OWNERS AND FOR PROVIDING TEMPORARY SUPPORT FOR THE UTILITY POLES, ANCHOR GUYS, AND ALL OTHER UTILITIES DURING CONSTRUCTION.
- IMMEDIATELY AT ONSET OF CONSTRUCTION, CONTRACTOR SHALL FIELD VERIFY HORIZONTAL AND VERTICAL LOCATIONS OF ALL EXISTING 32. PROTECT EXISTING IMPROVEMENTS TO THE MAXIMUM EXTENT POSSIBLE. RESTORE ALL EXISTING IMPROVEMENTS AND DISTURBED 9. AREAS TO ORIGINAL CONDITION. PAVEMENT TO BE RESTORED IN ACCORDANCE WITH THE PAVEMENT RESTORATION DETAILS SHOWN ON UTILITIES CRITICAL TO COMPLETING THE PROJECT (INCLUDING WATER, SEWER, RECLAIMED WATER, POWER, TELEPHONE, GAS, FIBER OPTIC AND CABLE TV) AND SHALL EVALUATE POTENTIAL CONFLICTS IN A WRITTEN REPORT. ANY CONFLICTS SHALL BE REPORTED TO THE CONSTRUCTION DETAIL SHEETS. ALL DAMAGED MAILBOXES, IRRIGATION SYSTEMS, FENCING, SIDEWALK, ROADWAY PAVEMENT AND OTHER IMPROVEMENTS SHALL BE RESTORED TO ORIGINAL CONDITION. ENGINEER/OWNER IMMEDIATELY UPON DISCOVERY AND DETAILED IN THE REPORT.
- 10. CONTRACTOR SHALL COORDINATE WITH ALL OTHER UTILITY OWNERS FOR RESOLUTION OF CONFLICTS. CONTRACTOR SHALL HAVE 48 HOURS TO DETERMINE THE RESOLUTION OF ANY UNKNOWN OR UNFORESEEN CONFLICTS. COSTS INCURRED SHALL BE BORNE BY THE UTILITY OWNER AND/OR CONTRACTOR AND NO CLAIMS MAY BE MADE AGAINST ORANGE COUNTY OR THE ENGINEER FOR THESE CONFLICTS. NO ADDITIONAL COMPENSATION SHALL BE MADE FOR THE PERIOD OF TIME TO RESOLVE ANY CONFLICTS.
- 11. ALL MAIN REPAIRS TO BE COMPLETED IMMEDIATELY BY THE CONTRACTOR, AT THE CONTRACTOR'S COST. IF THE MAIN IS NOT REPAIRED IN A TIMELY MANNER, AS DETERMINED BY THE ENGINEER, ORANGE COUNTY UTILITIES PERSONNEL MAY REPAIR MAIN AND THE CONTRACTOR WILL BE BACK CHARGED FOR REPAIRS.
- 12. USE EXTREME CAUTION WHEN EXCAVATING OR CONNECTING TO ASBESTOS CEMENT PIPE. THE CONTRACTOR WILL BE REQUIRED TO SUPPLY TRUCKS CAPABLE OF PUMPING OUT THE PUMP STATION UPSTREAM FROM BREAKS OR CONNECTION POINT. WHEN CONNECTING TO ASBESTOS CEMENT WATER MAIN OR FORCE MAIN THE CONTRACTOR IS REQUIRED TO REPLACE ANY DAMAGED LENGTHS OF PIPE. THE AMOUNT OF REPLACED PIPE WILL BE DETERMINED BY THE ORANGE COUNTY UTILITIES INSPECTOR.
- 13. ALL EXISTING AND NEW OCU WATER AND SEWER VALVES, VALVE BOXES, AND MANHOLES SHALL BE PROTECTED AND ADJUSTED TO FINISHED GRADE AS SHOWN ON THE DRAWINGS. VALVE AND VALVE BOXES SHALL REMAIN ACCESSIBLE AT ALL TIMES. ANY VALVES THAT MIGHT BE COVERED DURING CONSTRUCTION SHALL BE MARKED WITH A MARKER (GREEN FOR SEWER, BLUE FOR WATER, AND PURPLE FOR RECLAIMED WATER MAIN), A MINIMUM OF FOUR (4) FEET ABOVE GRADE.
- 14. SEE DETAIL SHEET FOR SEPARATION REQUIREMENTS BETWEEN WATER MAINS, SEWER MAINS AND OTHER PIPELINES AND MAINS. NO CONCRETE ENCASEMENT OF PIPES WILL BE PERMITTED.
- 15. PVC PIPE 4-INCH TO 12-INCH SHALL CONFORM TO THE REQUIREMENTS OF AWWA STANDARD C900, DR18.PVC PIPE 16-INCH TO 30-INCH SHALL CONFORM TO THE REQUIREMENTS OF AWWA STANDARD C905, DR18. 36-INCH PVC PIPE SHALL CONFORM TO AWWA C905, DR21. ALL 38. ALL EXISTING MAINS SHALL REMAIN IN SERVICE UNTIL THE PROPOSED MAIN(S) ARE ACCEPTED FOR SERVICE AND ALL SERVICES ARE PVC PRESSURE PIPE SHALL USE DUCTILE IRON FITTINGS. ALL DUCTILE IRON WATER MAIN SHALL CONFORM TO ANSI/AWWA A25.1/C151. TRANSFERRED TO THE MAIN(S). ALL MATERIAL FOR USE IN POTABLE WATER SYSTEMS SHALL BE LISTED AS MEETING NSF-61.
- 16. ALL PIPE, PIPE FITTINGS AND APPURTENANCES INSTALLED UNDER THIS PROJECT WILL BE COLOR CODED OR MARKED IN ACCORDANCE WITH SUBPARAGRAPH 62-555.320 (21) (B) 3, F.A.C., USING BLUE AS A PREDOMINANT COLOR FOR WATER; GREEN FOR WASTEWATER; PURPLE FOR RECLAIMED WATER.
- 40. FOR PVC PIPE NO HORIZONTAL/VERTICAL PIPE DEFLECTION WILL BE ALLOWED. CONTRACTOR SHALL USE FITTINGS TO OBTAIN THE REQUIRED CLEARANCES. ON DUCTILE IRON PIPE CONTRACTOR SHALL NOT EXCEED 75% OF THE MANUFACTURES RECOMMENDATION FOR 17. ALL PROPOSED DUCTILE IRON MECHANICAL JOINT FITTINGS. PIPES, OR PIPE RESTRAINTS WITHIN FORTY (40) FEET OF EXISTING GAS MAINS PIPE DEFLECTION. OTHERWISE USE FITTINGS TO OBTAIN REQUIRED CLEARANCES. ALL FITTINGS SHALL BE ADDED TO THE COORDINATE SHALL BE POLYETHYLENE ENCASED. ASSET ATTRIBUTE TABLE.
- 18. ALL BACKFILL SHALL BE COMPACTED TO NOT LESS THAN 95% OF MAXIMUM DRY DENSITY AS MEASURED BY AASHTO T-180 METHOD 'D' 41. UTILITY MAIN MARKERS ARE REQUIRED WHEN UTILITY MAIN IS LOCATED OVER 30 FEET FROM EDGE OF PAVEMENT OR IN AN EASEMENT TEST (MODIFIED PROCTOR) IN OPEN AREAS AND TO NOT LESS THAN 98% MAXIMUM DRY DENSITY AS MEASURED BY AASHTO T-180 METHOD NOT ADJACENT TO THE RIGHT OF WAY. 'D' TEST (MODIFIED PROCTOR) UNDER ASPHALT OR CONCRETE PAVEMENT AND WITHIN 3-FT OF PAVEMENT. ALL SOIL TESTING TO BE CONDUCTED BY THE COUNTY. THE CONTRACTOR SHALL PROVIDE ALL REASONABLE ASSISTANCE DURING SOIL TESTING.
- 19. PIPE LENGTHS SHOWN ON PLANS ARE APPROXIMATE. ACTUAL LENGTHS ARE TO BE DETERMINED DURING CONSTRUCTION.
- 20. ALL NORTHING AND EASTING COORDINATES ARE BASED ON THE STATE PLAIN COORDINATE SYSTEM. STATIONING IS FOR REFERENCE ONLY.

- 44. EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO, OR AS THE FIRST STEP IN CONSTRUCTION AND ARE THE 21. ALL STATIONS AND OFFSET REFER TO BASELINE OF STATIONING. MINIMUM REQUIRED. CONTRACTOR TO FURNISH ADDITIONAL CONTROLS AS NEEDED AT NO ADDITIONAL COST. MATERIALS FROM WORK ON THIS PROJECTS SHALL BE CONTAINED AND NOT ALLOWED TO COLLECT ON ANY OFF PERIMETER AREAS OR IN WATERWAYS. SILT 22. MAINTAIN EMERGENCY VEHICLE ACCESS TO ALL BUSINESSES AND RESIDENCES AT ALL TIMES. SCREENS, HAY BALES, AND TURBIDITY BARRIERS MUST REMAIN IN PLACE AND IN GOOD CONDITION AT ALL LOCATIONS IN PLANS OR AS REQUIRED UNTIL THE CONTRACT IS COMPLETED AND SOILS ARE STABILIZED AND VEGETATION HAS BEEN ESTABLISHED. MEASURES 23. IN AREAS WHERE CONSTRUCTION ACTIVITIES RESTRICT NORMAL ACCESS TO PROPERTIES, THE CONTRACTOR SHALL PROVIDE AND SHOWN ARE THE MINIMUM REQUIRED, AND THE CONTRACTOR WILL ENSURE THAT THERE IS NO DIRECT OR INDIRECT DISCHARGE OF MAINTAIN ALTERNATE ACCESS ROUTES WHICH ARE SUBJECT TO APPROVAL BY THE ENGINEER, AS PART OF THE M.O.T. PLAN. CONSTRUCTION MATERIALS IN TURBID WATERS TO OFF SITE AREAS OR WATERWAYS.
- 24. LOCAL RESIDENTIAL ACCESS SHALL BE MAINTAINED AT ALL TIMES. PROVIDE WRITTEN NOTIFICATION TO RESIDENTS SEVEN (7) DAYS 45. RESTORE DISTURBED AREAS WITH SOD MATCHING EXISTING TYPE. RESTORE DISTURBED EXISTING TREES, SHRUBS AND OTHER PRIOR TO IMPLEMENTING ANY ROADWAY OR DRIVEWAY CLOSURE. LANDSCAPE MATERIALS TO EXISTING OR BETTER CONDITION. RESTORE ALL LANDSCAPE IRRIGATION SYSTEMS.
- 25. ALL EXCAVATIONS SHALL BE BACK FILLED AT THE END OF EACH WORK DAY. ALL FINAL BACK FILL SHALL BE COMPACTED TO 98% OF MAXIMUM MODIFIED PROCTOR.
- 26. ALL MAINS SHALL BE CONSTRUCTED AS SHOWN ON THE PLANS. A MINIMUM COVER OF 30-INCHES SHALL BE MAINTAINED ON ALL MAINS, WHERE IT IS NOT OTHERWISE SPECIFIED ON PLANS OR DIRECTED BY THE ENGINEER.
- 27. ALL PIPES SHALL BE RESTRAINED IN ACCORDANCE WITH THE RESTRAINT TABLES SHOWN ON THE DETAIL SHEETS. IN ADDITION, ALL FITTINGS SHALL BE MECHANICAL JOINT RESTRAINED. NO THRUST BLOCKS SHALL BE PERMITTED. RESTRAIN EXISTING PIPE WHERE REQUIRED IN ACCORDANCE WITH THE RESTRAINT TABLES.

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28. COMPLETE ALL CONSTRUCTION WITHIN RIGHT OF WAY LIMITS AND EASEMENT LIMITS, UNLESS OTHERWISE NOTED.

- A. POINTS OF CONNECTION, FITTINGS TO BE USED, METHODS OF FLUSHING AND DISINFECTION AND VERIFICATION OF RESTRAINT ON
- EXISTING PIPE. B. ESTIMATED CONSTRUCTION TIME FOR THE CONNECTIONS.

THE OWNER SHALL REVIEW THE SUBMITTAL WITHIN FIVE (5) WORKING DAYS AFTER RECEIVING IT AND INFORM THE CONTRACTOR REGARDING APPROVAL OR DENIAL OF THE REQUEST. IF THE OWNER REJECTS THE REQUEST, THE CONTRACTOR SHALL RESUBMIT THE REQUEST MODIFYING IT IN A MANNER ACCEPTABLE TO THE OWNER. ALL CONNECTIONS SHALL ONLY BE MADE ON THE AGREED UPON DATE AND TIME.

SHOULD THE CONTRACTOR NOT INITIATE AND COMPLETE THE CONNECTION WORK IN THE AGREED UPON MANNER, HE SHALL BE REQUIRED TO RESCHEDULE THE CONNECTION BY FOLLOWING THE PROCEDURE OUTLINED ABOVE.

THE CONTRACTOR SHALL NOT OPERATE ANY VALVES IN THE SYSTEM.

KEEP VALVES ON ALL WET TAPS CLOSED UNTIL CLEARED BY FDEP. DO NOT CONNECT ANY PROPOSED WATER MAIN TO ANY EXISTING WATER MAIN UNLESS CLEARED BY FDEP.

AS-BUILT DRAWINGS MUST BE COMPLETED AND SUBMITTED PRIOR TO WATER MAIN CHLORINATION.

- 33. ALL COUNTY ROADS TO BE OPEN CUT SHALL BE APPROVED BY ORANGE COUNTY PUBLIC WORKS PRIOR TO OPEN-CUTS. SUBMIT A MAINTENANCE OF TRAFFIC (MOT) PLAN CONFORMING TO ORANGE COUNTY RIGHT-OF-WAY UTILIZATION REGULATIONS TO ORANGE COUNTY PUBLIC WORKS A MINIMUM OF FOURTEEN (14) DAYS PRIOR TO ANY WORK WITHIN COUNTY RIGHT-OF-WAY. A COPY OF THIS PLAN SHALL ALSO BE SUBMITTED TO THE ENGINEER AND UTILITY COUNTY INSPECTOR. NOTIFY THE COUNTY ENGINEER 48 HOURS PRIOR TO ANY OPEN CUT OF ROADWAYS OR JACK AND BORE OPERATIONS WITHIN THE COUNTY RIGHT-OF-WAY. TWO WAY TRAFFIC MUST BE MAINTAINED AT ALL TIMES DURING THE COURSE OF CONSTRUCTION. MAINTAIN A SET OF COUNTY APPROVED CONSTRUCTION PLANS AND MOT PLANS AT THE CONSTRUCTION SITE AT ALL TIMES WHEN WORKING WITHIN THE COUNTY RIGHT-OF-WAY.
- 34. BENCHMARK LOCATIONS AND ELEVATIONS ARE SHOWN IN THE PLANS AS REPRESENTED BY THE SURVEYOR AT THE TIME OF SURVEY. CONTRACTOR SHALL VERIFY ITS CORRECTNESS AT THE TIME OF CONSTRUCTION AND INSTALL HIS OWN TEMPORARY BENCHMARKS. ANY DISCREPANCIES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE OCU UTILITIES INSPECTOR.
- 35. NO VALVE BOXES, METERS, PORTIONS OF MANHOLES, OR OTHER APPURTENANCES OF ANY KIND RELATING TO ANY UNDERGROUND UTILITIES SHALL BE LOCATED IN ANY PORTION OF A CURB-AND-GUTTER SECTION. CONTRACTOR SHALL ADVISE ENGINEER IMMEDIATELY UPON DISCOVERY OF A POTENTIAL CONFLICT.
- 36. WHERE REQUIRED, AT NO ADDITIONAL COST TO THE COUNTY, THE CONTRACTOR SHALL USE TEMPORARY SHEETING OR TRENCH BOXES TO MINIMIZE THE SIZE OF EXCAVATIONS AND PROTECT EXISTING ROADWAYS, UTILITIES AND OTHER FACILITIES OR AS NEEDED TO REMAIN WITHIN THE LIMITS OF CONSTRUCTION. CONTRACTOR TO COMPLY WITH OSHA TRENCH SAFETY REQUIREMENTS AT ALL TIMES.
- 37. CONTRACTOR TO PROVIDE DETAILED AS-BUILT DRAWINGS OF ALL UTILITIES UNCOVERED IN TRENCHES. THE AS-BUILT SHALL RECORD LOCATION, SIZE, TYPE, ELEVATION AND OWNER OF ALL UTILITY FACILITIES UNCOVERED.
- 39. CONTRACTOR SHALL APPLY FOR AND SECURE ALL NECESSARY PERMITS FROM STATE, COUNTY, AND LOCAL MUNICIPALITIES. PERMITS SHALL INCLUDE, BUT NOT BE LIMITED TO, RIGHT OF WAY USE, CONSTRUCTION, BUSINESS LICENSE, AND DEWATERING.
- 42. SALVAGE AND/OR DISPOSAL OF ALL EXISTING EQUIPMENT SHALL BE AT THE DIRECTION OF THE ORANGE COUNTY UTILITIES INSPECTOR..
- 43. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER DISPOSAL OF ALL STRUCTURES, PIPE, CONDUIT, WIRE, FITTINGS, PANELS, ETC. THAT ARE DEMOLISHED. DISASSEMBLED. OR REMOVED.

#### POWER AND WATER SUPPLY NOTES

- INSTALLATION WITH THE SUPPLIER.

#### SPILL NOTES

DAMAGE NOTIFICATION:

IMMEDIATE REPAIR:

#### **BY-PASS NOTES**

- CUSTOMERS.
- DOCUMENTS.
- CONSTRUCTION PROCESS.

- 6.3 TIE-IN OF THE NEW PUMP STATION

#### SURVEY NOTES

- 1. GAS LINE SHOWN HEREON GAS SERVICE LOCATED AT
- 2. WATER LINE SHOWN HERE

9150 CURRY FORD ROAD ORLANDO, FLORIDA 32825

**ORANGE COUNTY UTILITIES** 

BFA Environmental Consultants Barnes, Ferland and Associates, Inc. 1230 E. Hillcrest Street, Orlando, FL, 32803 PH: (407) 896-8608 FAX: (407) 896-1822 ENGINEERING BUSINESS No. 6899

BALI HAI MHP UTILITY I

GENERAL

THE CONTRACTOR SHALL CONTACT THE APPROPRIATE UTILITY PROVIDER FOR POWER AND WATER SERVICE, AND SHALL INCLUDE IN HIS BID ALL PROVIDER CHARGES FOR MATERIALS, LABOR, ONE-TIME NONRECURRING CONSTRUCTION COST AND OTHER COST, INCLUDING WATER METER, ASSESSED BY THE PROVIDER, WHETHER OR NOT INDICATED ON THE DRAWINGS, OR SPECIFIED.

THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF THE POWER SUPPLY AND THE WATER SYSTEM RELOCATION AND

3. THE POWER PROVIDER SHALL MAKE ALL SECONDARY TERMINATIONS AT POWER TRANSFORMERS.

3.1. POWER SUPPLIER: PROGRESS ENERGY

4. THE CONTRACTOR SHALL PERFORM THE REQUIRED RELOCATIONS TO THE EXISTING WATER SYSTEM AT THE PUMP STATION.

5. WATER SUPPLIER: ORANGE COUNTY UTILITIES DEPARTMENT

EMERGENCY WASTEWATER SPILL, WATER MAIN, RECLAIMED WATER MAIN BREAKER PROCEDURES

THE ORANGE COUNTY UTILITY DISPATCH OPERATOR (407-836-2777) SHALL BE NOTIFIED IMMEDIATELY IN THE EVENT OF A WATER, FORCE MAIN, GRAVITY SEWER, OR RECLAIMED WATER MAIN BREAK OR DAMAGE.

2. ALL DAMAGE TO ORANGE COUNTY'S MAIN SHALL BE REPAIRED IMMEDIATELY WITHOUT DELAY BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE. IF THE REPAIR IS NOT MADE IN A TIMELY AND APPROVED MANNER, AS DETERMINED BY THE ORANGE COUNTY UTILITIES INSPECTOR, ORANGE COUNTY MAY PERFORM THE REPAIRS AND THE CONTRACTOR WILL BE CHARGED FOR THE REPAIRS.

CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING ADEQUATE BY-PASS PUMPING TO MAINTAIN WASTEWATER SERVICE TO ALL

2. CONTRACTOR SHALL SUBMIT A WRITTEN BY-PASS PLAN FOR APPROVAL AND ACCEPTANCE PRIOR TO CONSTRUCTION.

CONTRACTOR SHALL ADHERE TO ALL REQUIREMENTS AND PROVISIONS AS SPECIFIED IN SECTION 01516 OF THE CONTRACT

**OPERATION OF ORANGE COUNTY PUMP STATIONS** THE CONTRACTOR SHALL COORDINATE ALL PUMP STATION OPERATIONS AND SHUT DOWN CONTROL WITH THE ORANGE COUNTY ORANGE COUNTY UTILITIES INSPECTOR.

5. THE CONTRACTOR SHALL PROVIDE TEMPORARY BY-PASS PUMPING AS NEEDED FOR EACH PUMP STATION AND/OR MANHOLE TO BE REHABILITATED AND/OR REPLACED PRIOR TO THE START OF ANY WORK. BOTH THE PRIMARY AND THE BACKUP BY-PASS PUMPING SYSTEMS SHALL BE OF ADEQUATE CAPACITIES AND SIZES TO HANDLE THE FLOW AND SHALL MAINTAIN A CONTINUOUS SERVICE DURING THE ENTIRE CONSTRUCTION PROCESS UNTIL THE NEW OR REHABILITATED PUMP STATION OR MANHOLE HAS BEEN ACCEPTED BY THE COUNTY. THE BY-PASS PUMPING SYSTEMS SHALL BE APPROVED AND ACCEPTED BY THE COUNTY PRIOR TO INSTALLATION. THE CONTRACTOR SHALL NOT MAINTAIN MORE THAN TWO (2) PUMP STATION BY-PASS OPERATIONS AT THE SAME TIME DURING THE

6. THE CONTRACTOR SHALL PREPARE AND SUBMIT FOR APPROVAL BY THE COUNTY. A COMPREHENSIVE WRITTEN PROCEDURE THAT DESCRIBES THE INTENDED CONSTRUCTION SEQUENCE FOR MAINTAINING AND TRANSFERRING SERVICE FROM THE EXISTING PUMP STATION TO THE NEW PUMP STATION. ITEMS TO ADDRESS SHALL INCLUDE THE FOLLOWING AS A MINIMUM:

6.1 LOCATION AND METHOD OF BY-PASS PUMPING

6.2 PUMP STATION STARTUP AND DRAW-DOWN PROCEDURES

6.4 DISMANTLING OF EQUIPMENT AND CONVERSION OR REMOVAL OF OLD WET WELL

THIS PROCEDURE SHALL BE SUBMITTED WITH THE PROJECT SCHEDULE.

IS APPROXIMATE AND WAS GENERATED BY CONNECTING GAS VALVES PER PLANS PROVIDED BY TECO PEOPLES
600 WEST ROBINSON ST. ORLANDO, FL 32801; TELEPHONE: 407-420-6650 AND BY LIMITED FIELD MARKINGS.
ON IS APPROXIMATE AND WAS GENERATED BY CONNECTING WATER METERS AND/OR WATER VALVES BASED ON

A FIELD MEETING WITH ORANGE COUNTY UTILITIES, WATER DIVISION AND BY LIMITED FIELD MARKINGS. 3. FEATURES LOCATED BETWEEN THE TRAILERS SUCH AS PORCHES, AND WALKWAYS THAT WOULD NOT INFLUENCE THE LOCATION OF THE PROPOSED UTILITY IMPROVEMENTS WERE NOT LOCATED.

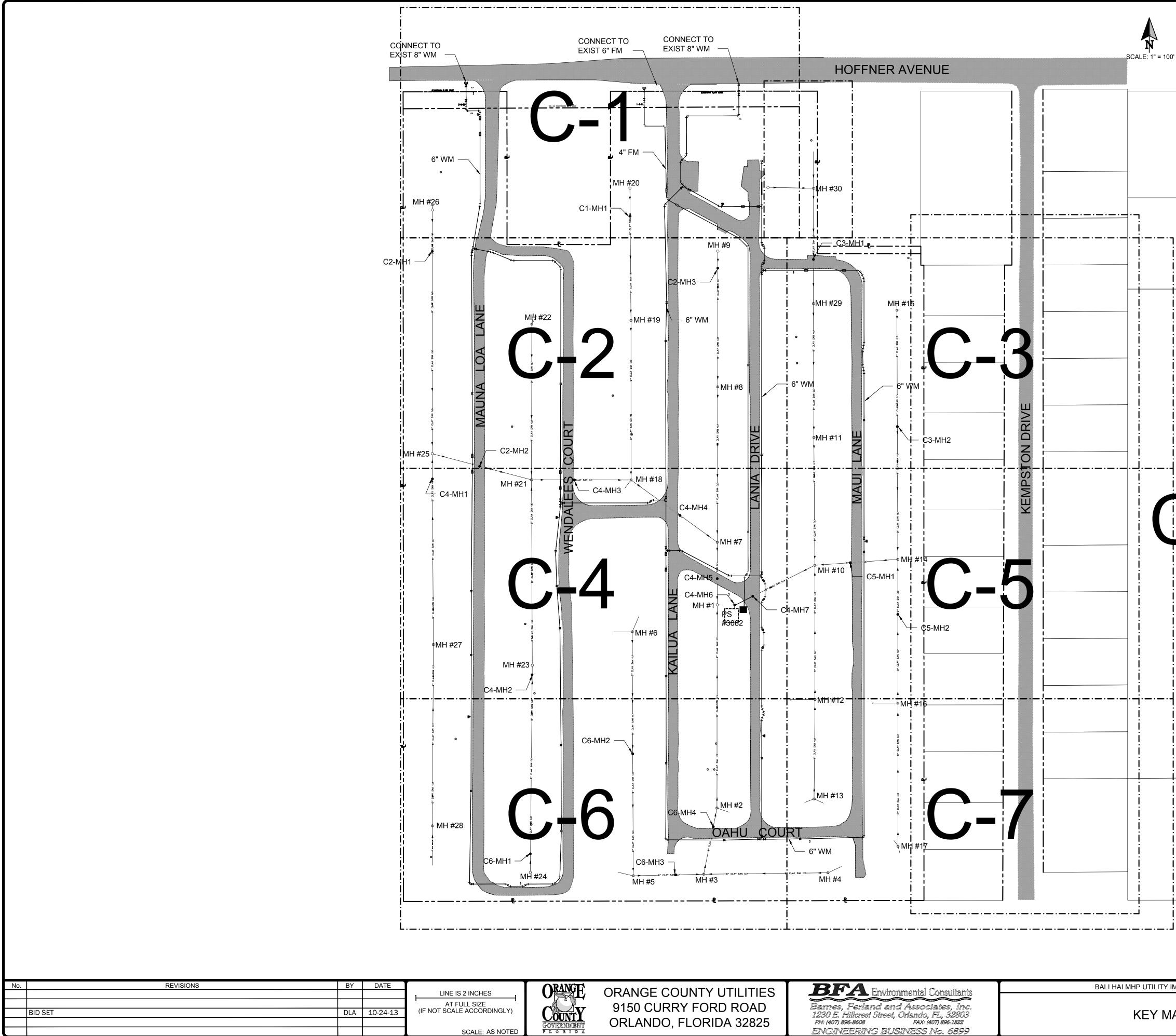
4. A BLANKET UTILITY EASEMENT FOR ORANGE COUNTY EXISTS OVER THE APPROXIMATE EAST ONE HALF OF THE WEST 332 FEET PER OFFICIAL RECORDS BOOK 2679, PAGES 1264 THROUGH 1266 OF THE PUBLIC RECORDS OF ORANGE COUNTY, FLORIDA.

5. A BLANKET UTILITY EASEMENT FOR ORANGE COUNTY EXISTS OVER THE EAST 1/4 OF THE WEST 1/2 OF THE NORTHWEST 1/4 OF THE NORTHEAST 1/4, LESS THE NORTH 294 FEET THEREOF AND THE EAST 2/3 OF THE WEST 3/8 OF THE NORTHWEST 1/4 OF THE NORTHEAST 1/4 OF SECTION 21, TOWNSHIP 23 SOUTH, RANGE 30 EAST, ORANGE COUNTY, FLORIDA PER OFFICIAL RECORDS BOOK 2679, PAGES 1264 THROUGH 1266 OF THE PUBLIC RECORDS OF ORANGE COUNTY, FLORIDA.

6. PROPERTY LINES SHOWN HEREON ARE BASED ON OFFICIAL RECORDS BOOK 6242, PAGES 706 THROUGH 713 AND OFFICIAL RECORDS BOOK 9428, PAGES 2228 THROUGH 2230 OF THE PUBLIC RECORDS OF ORANGE COUNTY, FLORIDA. THE RIGHT OF WAY OF HOFFNER AVENUE IS BASED ON FLORIDA DEPARTMENT OF TRANSPORTATION RIGHT OF WAY MAP, FINANCIAL PROJECT NO. 239266-4, SECTION 75080, STATE ROAD NO. 15. A BOUNDARY SURVEY WAS NOT COMPLETED AS PART OF THIS SURVEY.

7. SOME OF THE EXISTING SANITARY MANHOLES WERE NOT FOUND OR FALL UNDER EXISTING TRAILERS. SANITARY SEWER LINES CONNECTED TO NEAREST FOUND SANITARY MANHOLES WHEN POSSIBLE.

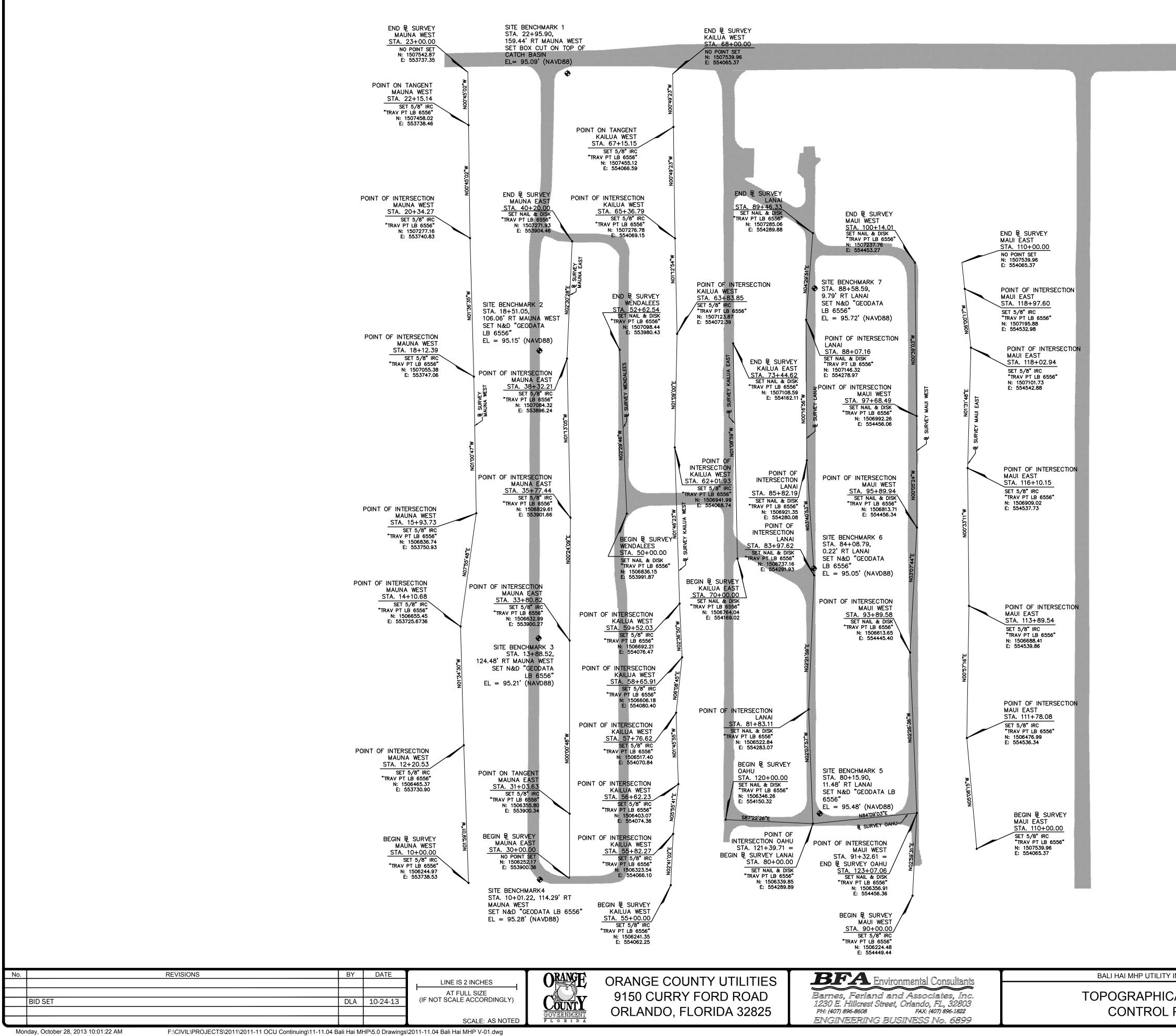
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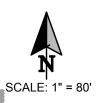


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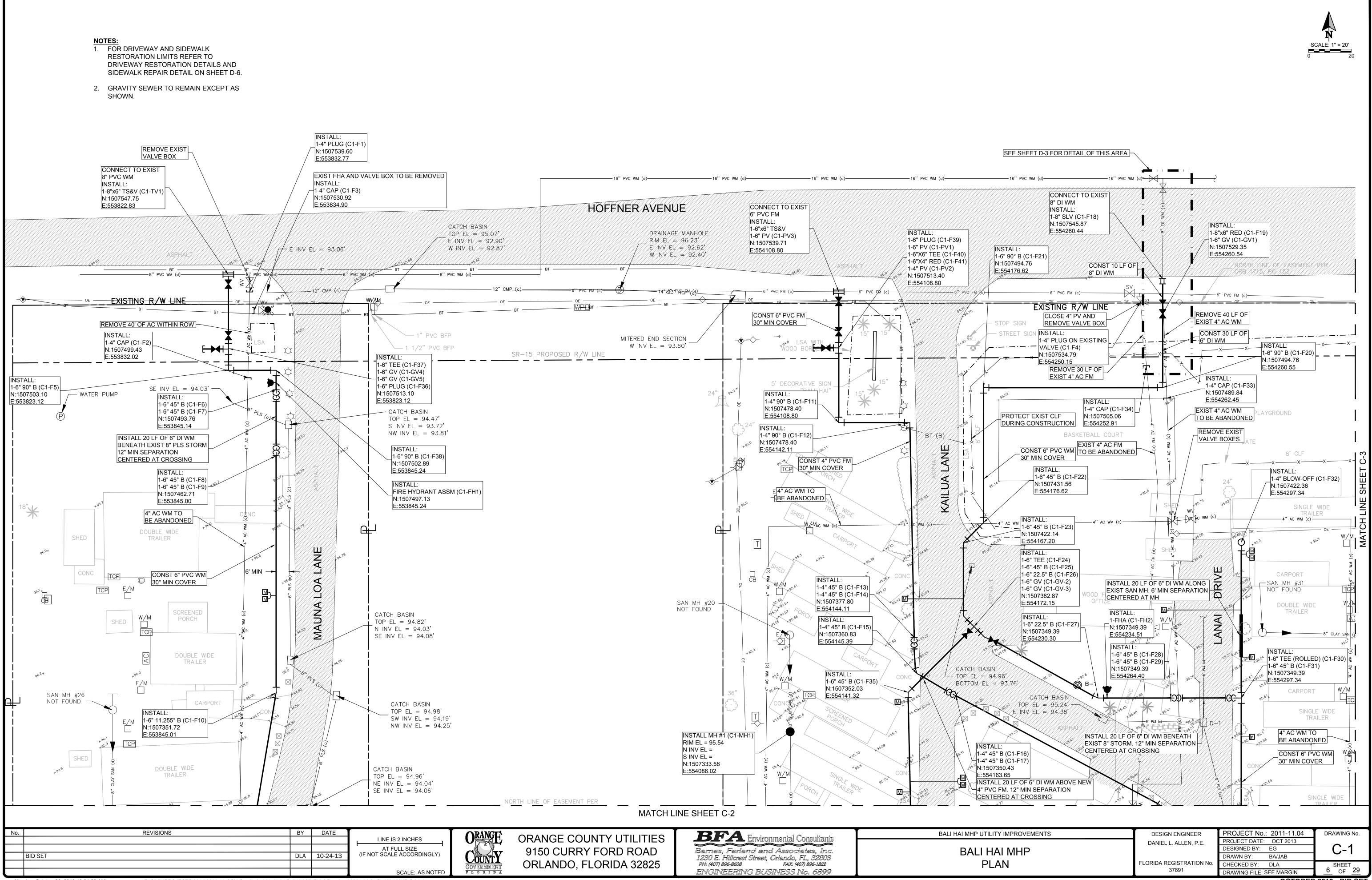
ENGINEERING BUSINESS No. 6899

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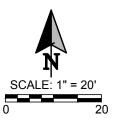




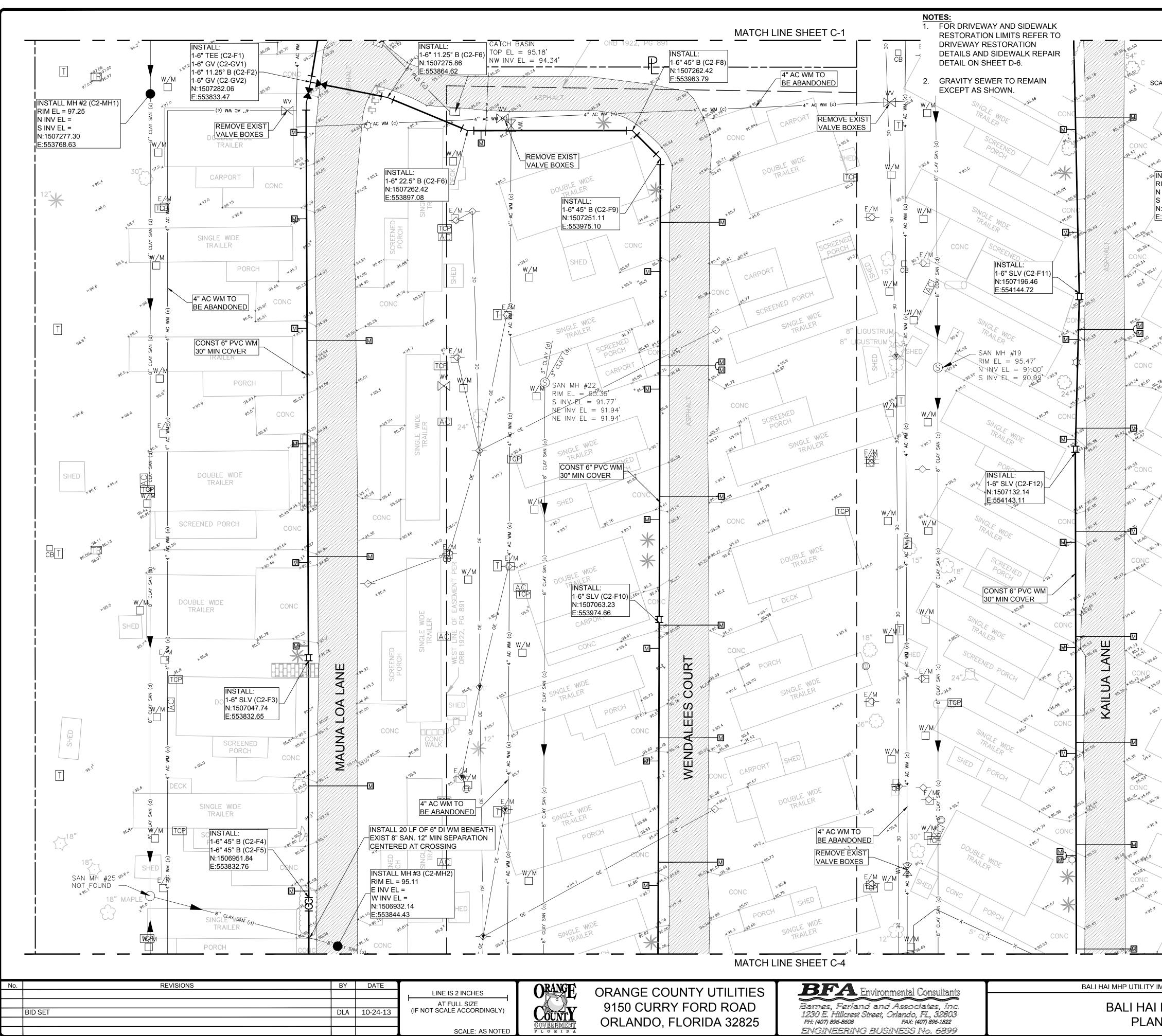
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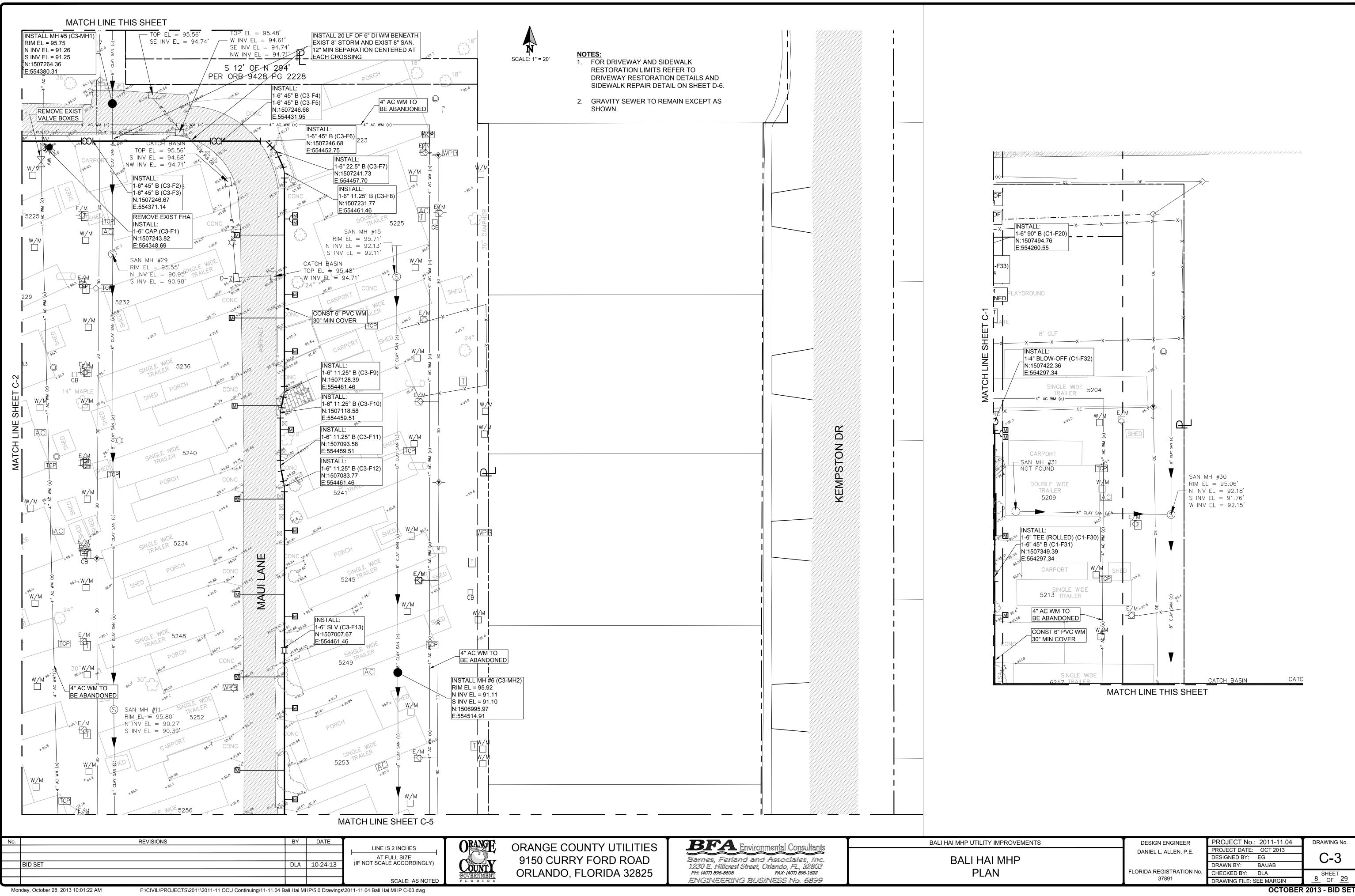


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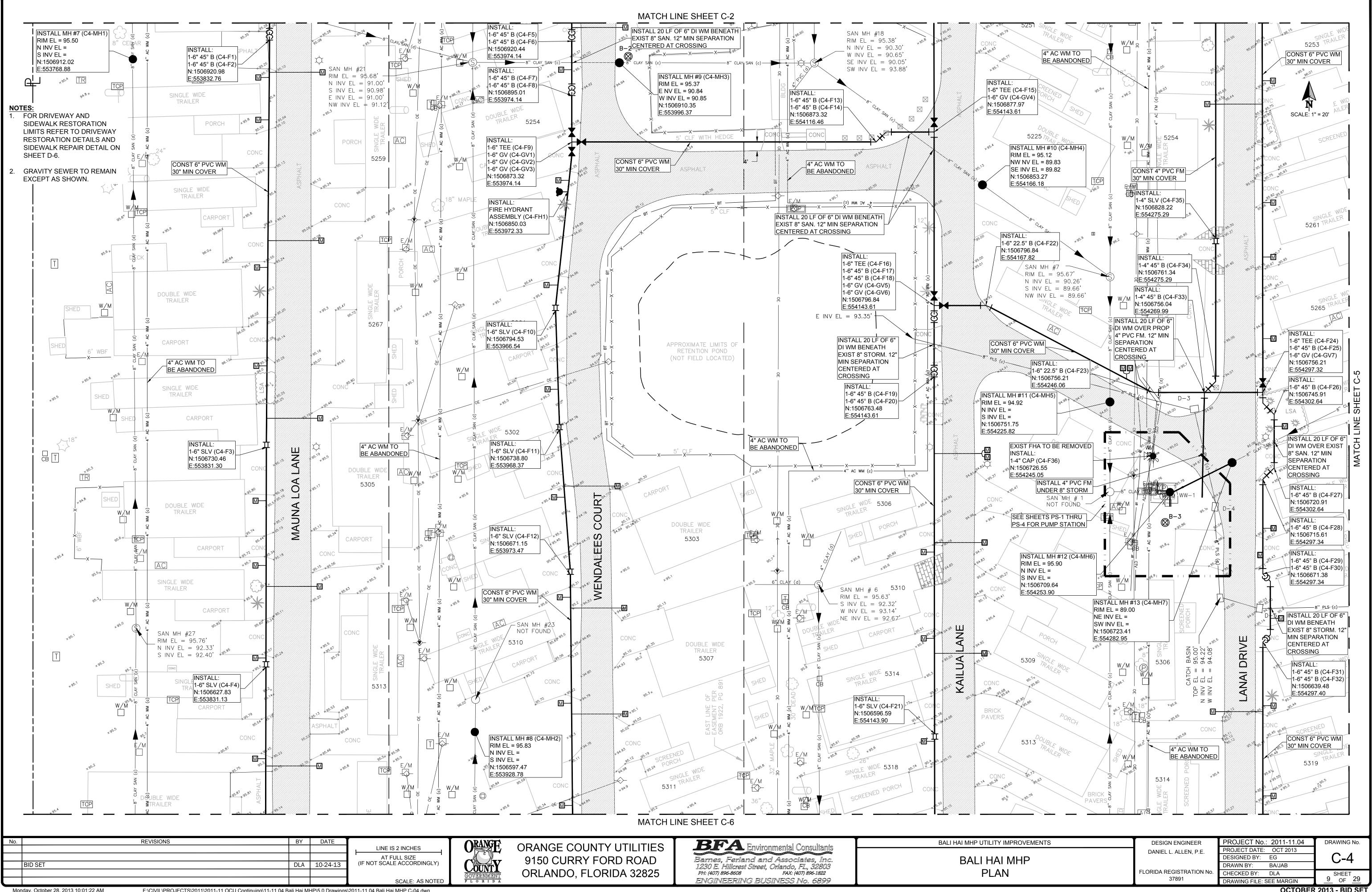


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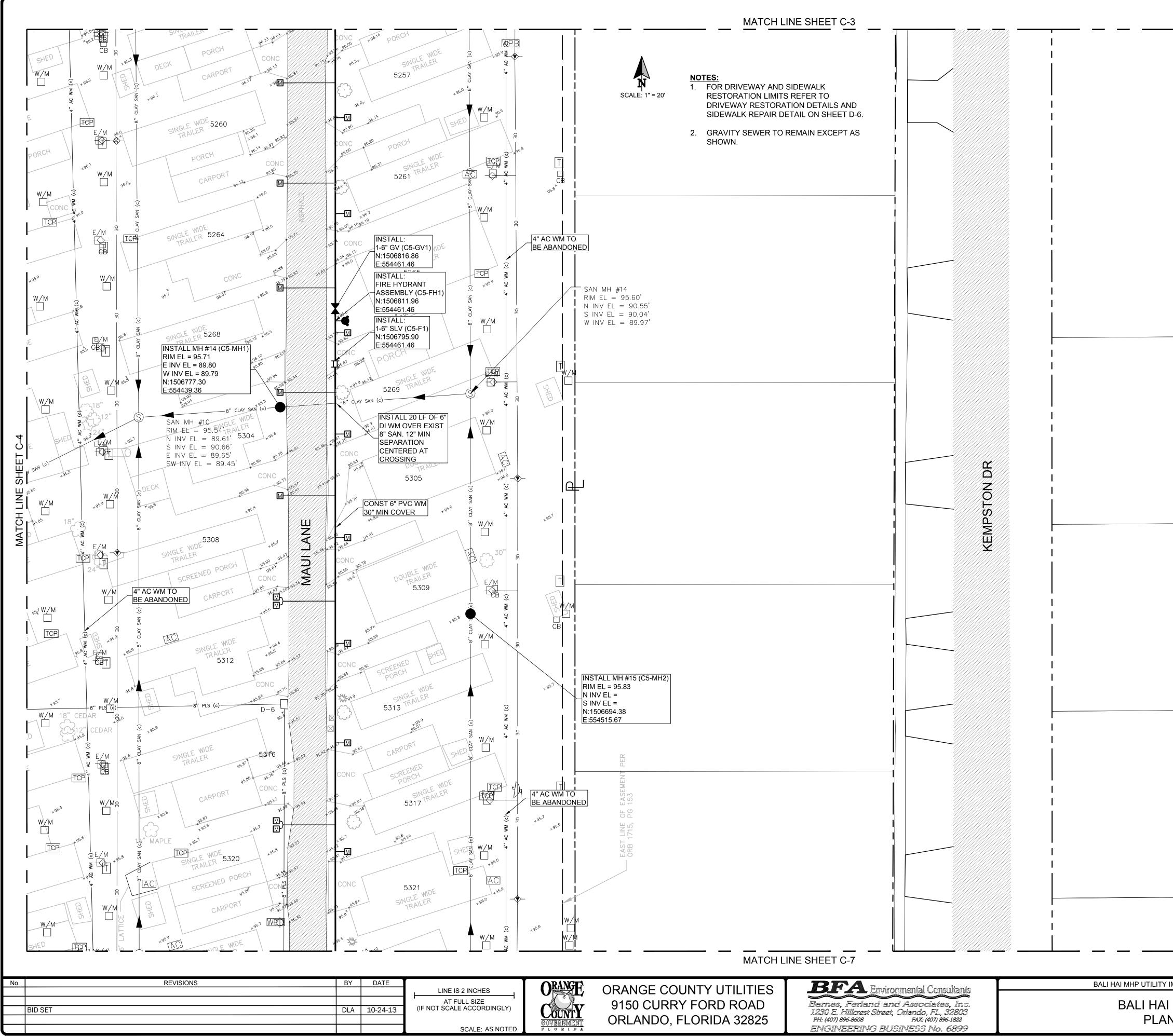


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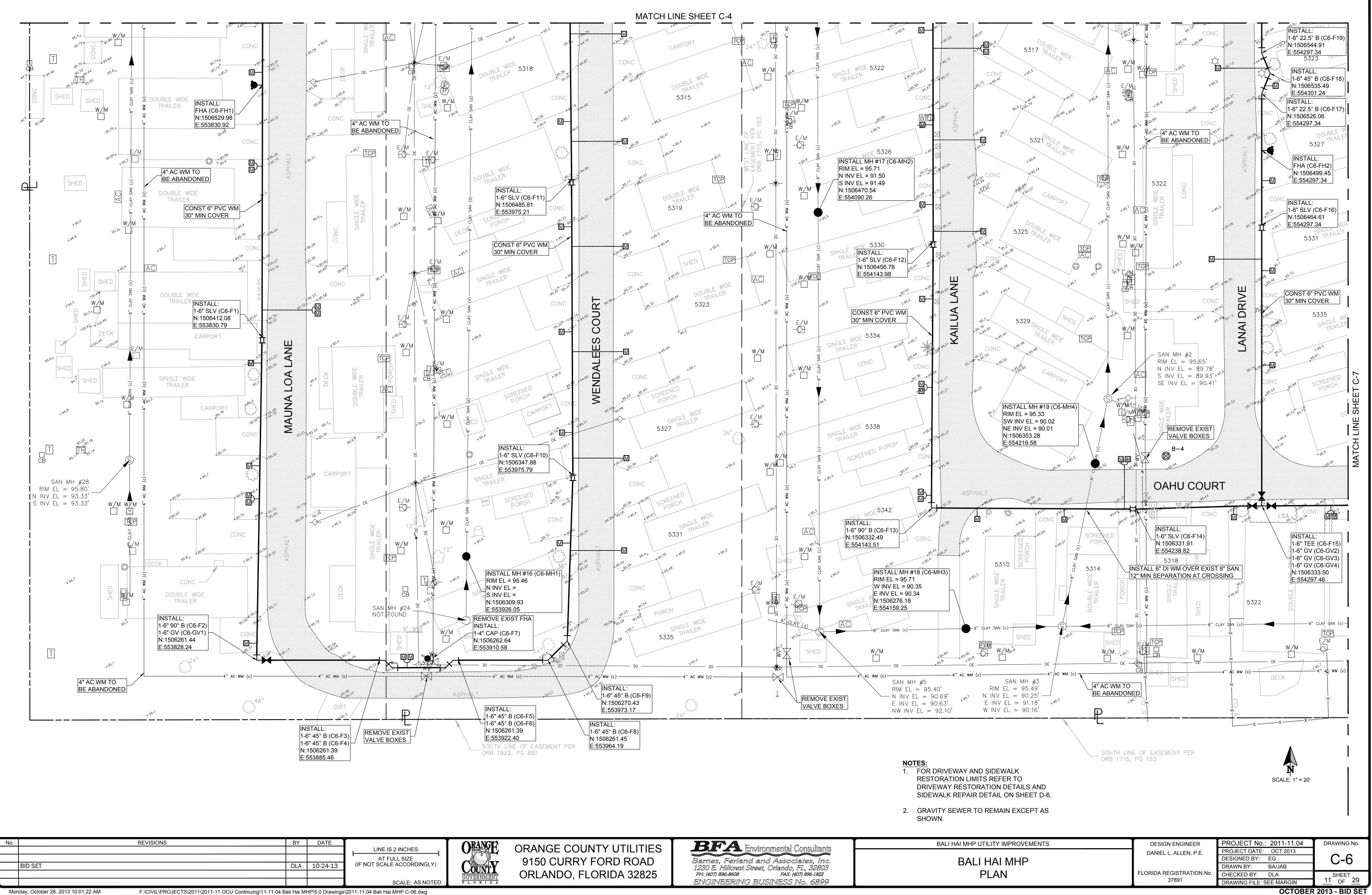


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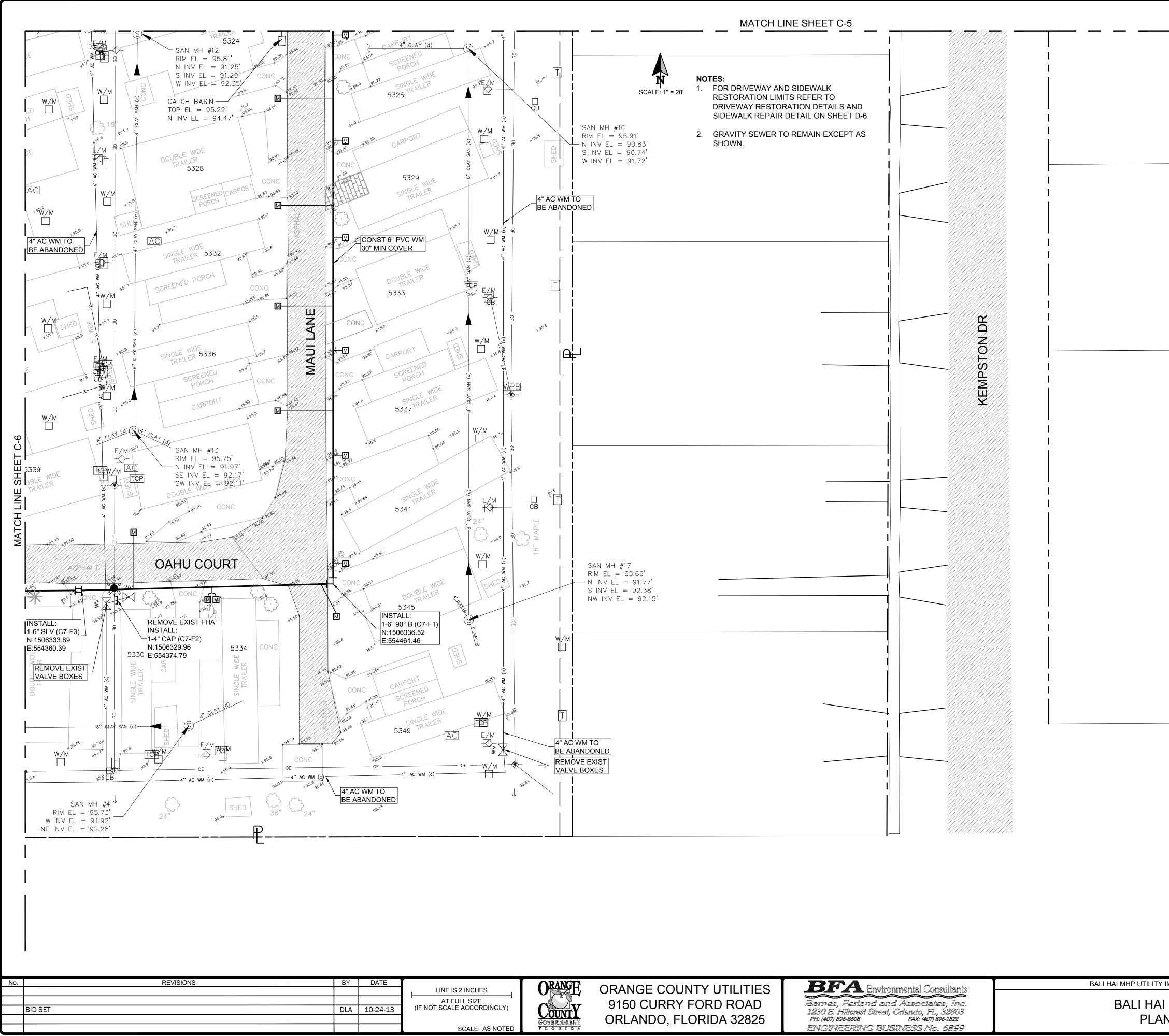
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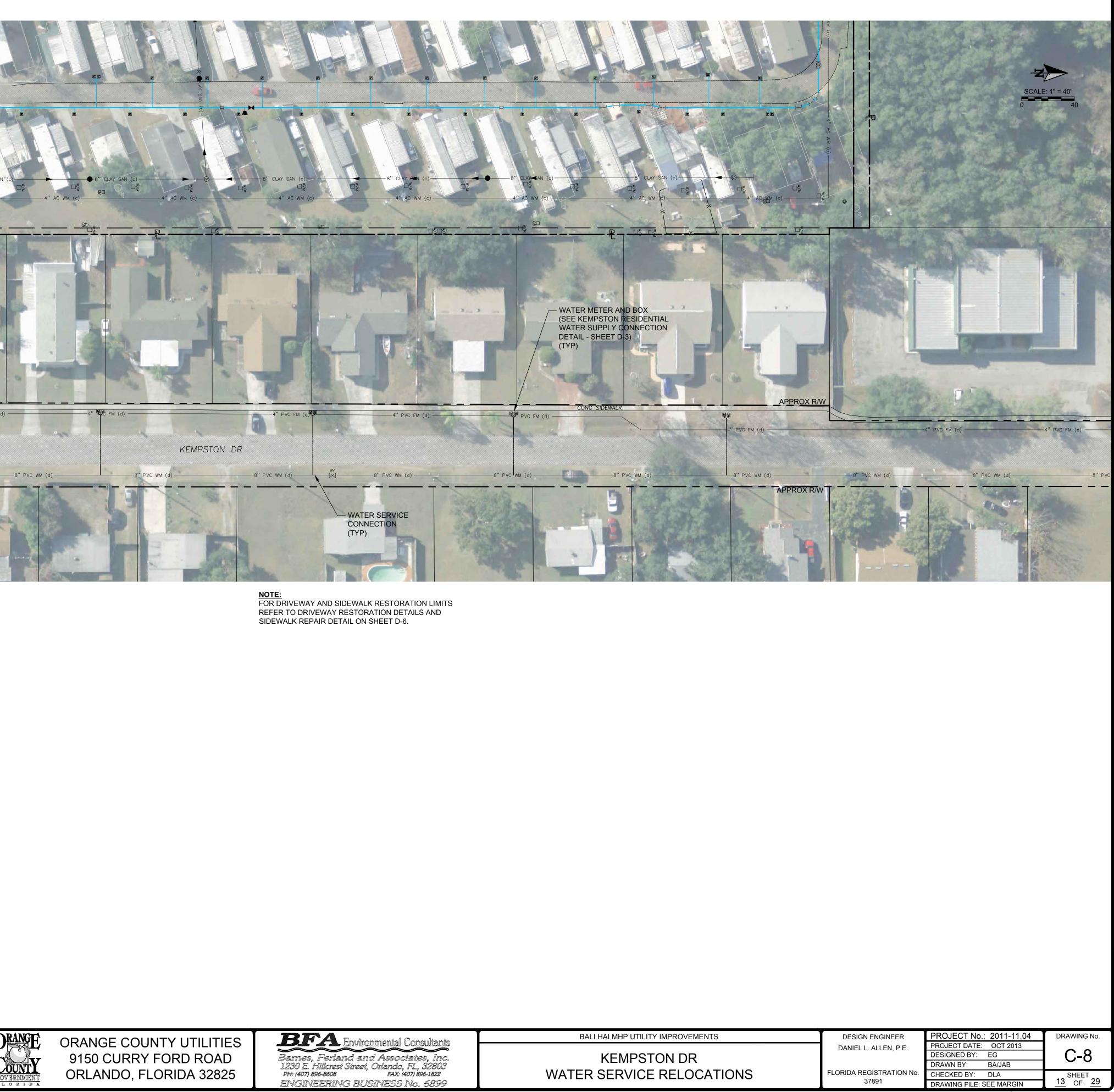
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PLAN

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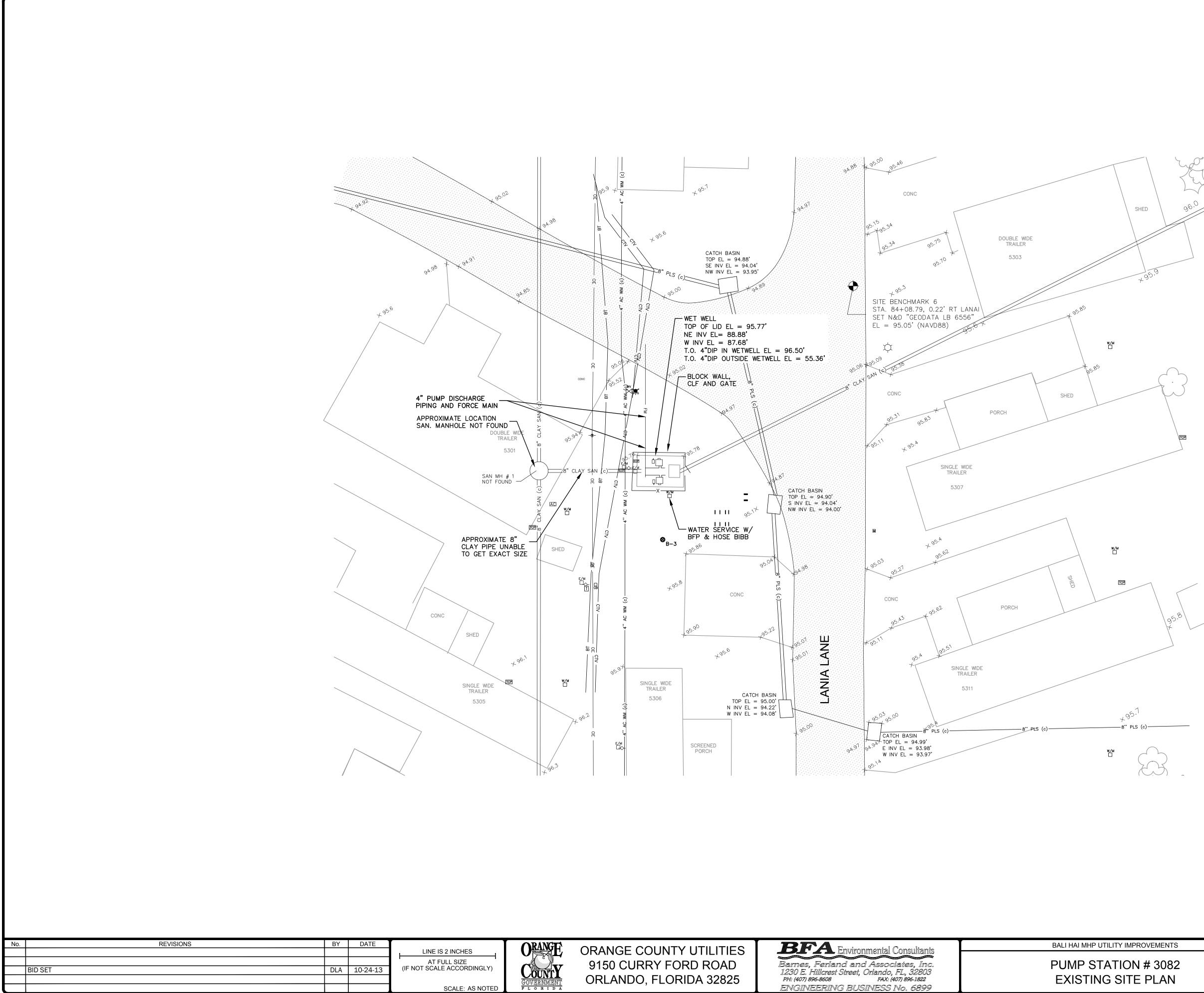
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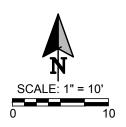






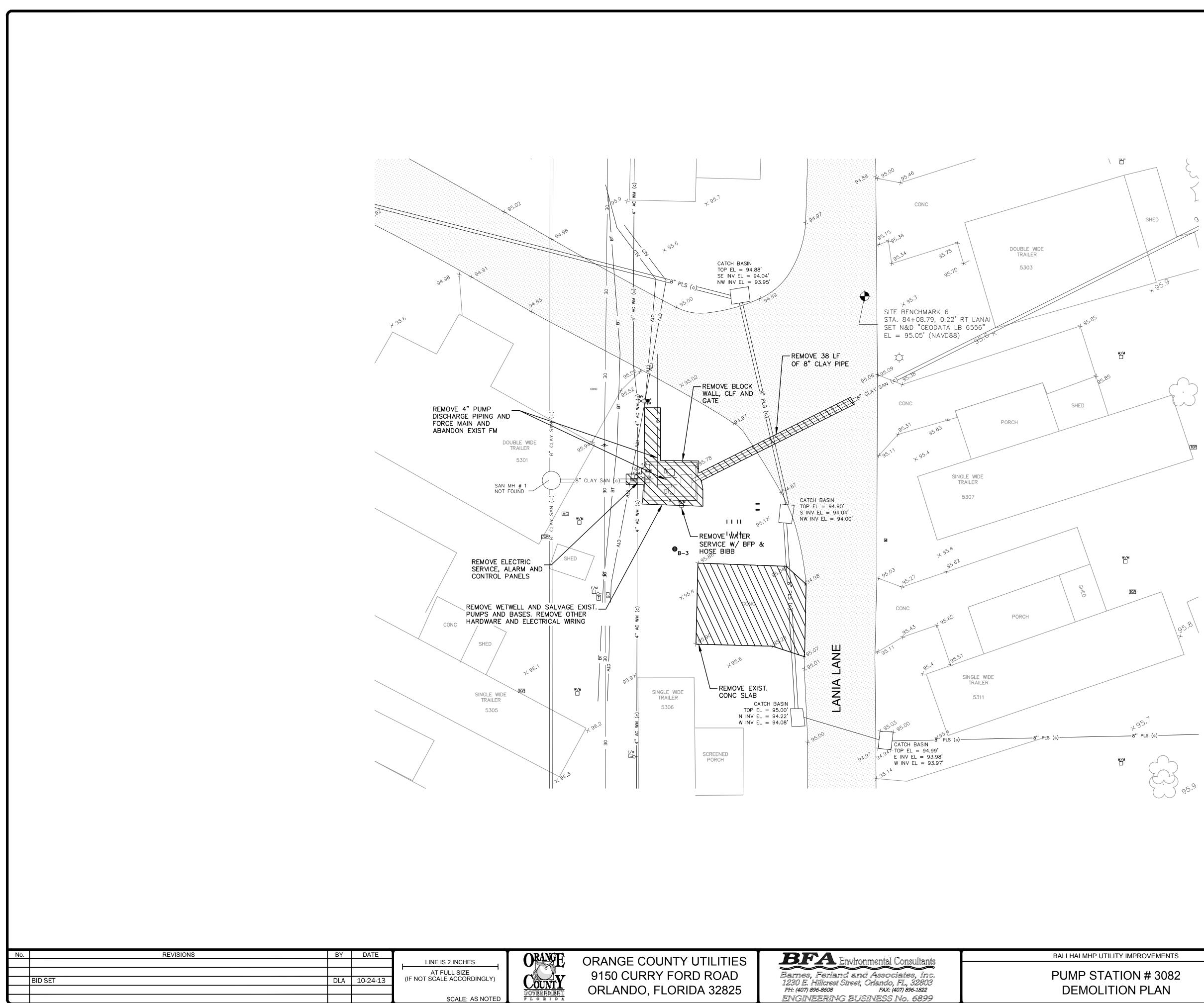


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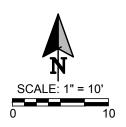


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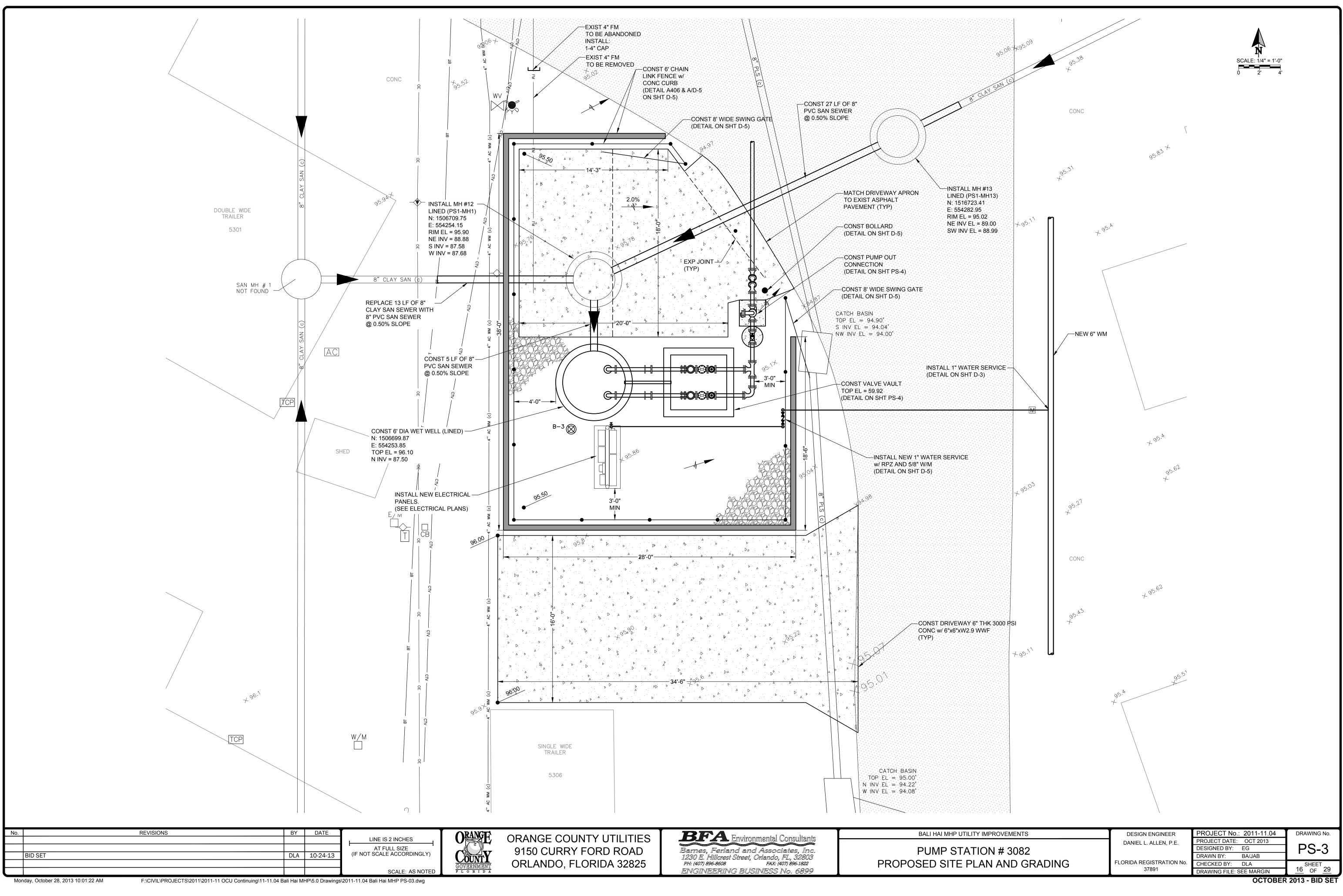
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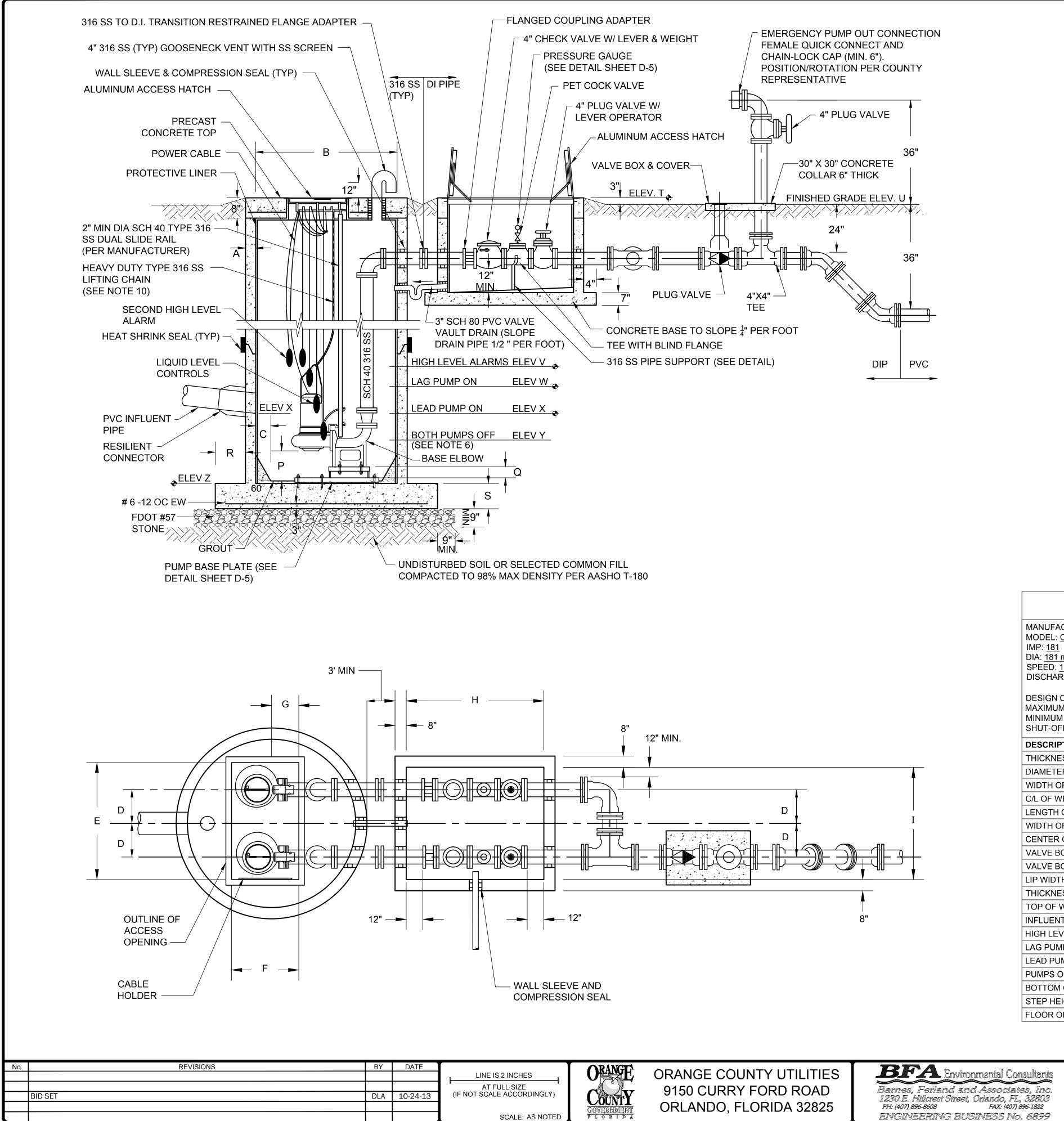


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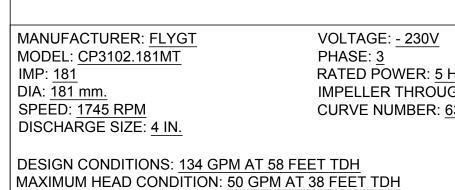
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DANIEL L. ALLEN, P.E.	PROJECT DATE: OCT 2013	
,,	DESIGNED BY: EG	PS-2 I
	DRAWN BY: BA/JAB	
FLORIDA REGISTRATION No.	CHECKED BY: DLA	SHEET
37891	DRAWING FILE: SEE MARGIN	<u>15</u> OF <u>29</u>
	DANIEL L. ALLEN, P.E.	DANIEL L. ALLEN, P.E. PROJECT DATE: OCT 2013 DESIGNED BY: EG DRAWN BY: BA/JAB FLORIDA REGISTRATION No. CHECKED BY: DLA





#### **GENERAL NOTES:**

- MECHANICAL JOINTS.
- THE LEFT SIDE OF VALVE).



MINIMUM HEAD CONDITION: 550 GPM AT 12 FEET TDH SHUT-OFF HEAD: 42 FEET TDH

DESCRIPTION	SYMBOL	DIME
THICKNESS OF WALL	А	8" (I
DIAMETER OF WET WELL	В	6' (1
WIDTH OF BOTTOM FILLET	С	SEE N
C/L OF WET WELL TO C/L OF PIPES	D	SEE N
LENGTH OF PUMP ACCESS OPENING	E	SEE N
WIDTH OF PUMP ACCESS OPENING	F	SEE N
CENTER OF WET WELL TO EDGE OF HATCH	G	SEE N
VALVE BOX HATCH OPENING	Н	5'
VALVE BOX HATCH OPENING	I	4'
LIP WIDTH OF WET WELL BASE	R	1
THICKNESS OF WET WELL BASE	S	1
TOP OF WET WELL	Т	
INFLUENT PIPE INVERT	U	
HIGH LEVEL ALARMS	V	
LAG PUMP ON	W	
LEAD PUMP ON	Х	
PUMPS OFF (TOP OF PUMP VOLUTE)	Y	
BOTTOM OF PUMP TO FLOOR OF WET WELL	Р	3.3
STEP HEIGHT (IF REQUIRED)	Q	1.
FLOOR OF WET WELL	Z	

BALI HAI MHP UTILITY IN PUMP STATIC PLAN, SECTIONS

1. GRAVITY PIPES ENTERING WET WELL SHALL BE MADE WATERTIGHT WITH AN APPROVED RESILIENT CONNECTOR LISTED IN APPENDIX D.

2. ALL LOCATIONS WHERE PRESSURE PIPES PENETRATE THE WET WELL SHALL BE MADE WATERTIGHT WITH A WALL SLEEVE AND COMPRESSION SEAL. WALL SLEEVE AND COMPRESSION SEALS SHALL BE COMPATIBLE WITH THE LINER.

3. THERE SHALL BE NO VALVES OR ELECTRICAL JUNCTION BOXES IN THE WET WELL.

4. WET WELL AND VALVE VAULT COVERS SHALL BE ALUMINUM WITH 316 STAINLESS STEEL HARDWARE WITH RECESSED LOCK BRACKET. WET WELL COVER SHALL HAVE "CONFINED SPACE" ETCHED OR WELDED INTO COVER.

5. ALL HARDWARE IN WET WELL SHALL BE 316 STAINLESS STEEL. ALL FLANGED PIPE, VALVES AND APPURTENANCES SHALL HAVE 316 S.S. HARDWARE.

6. PUMP OFF ELEVATION TO BE PER MANUFACTURER'S MINIMUM SUBMERGENCE.

7. PIPE JOINTS IN THE WET WELL AND THE VALVE VAULT SHALL BE FLANGED. PIPE JOINTS FROM THE VALVE VAULT TO THE EXISTING FORCE MAIN SHALL BE RESTRAINED

8. CHECK VALVE ARMS SHALL BE LOCATED WITH THE SAME ORIENTATION (i.e. ALL ARMS ON

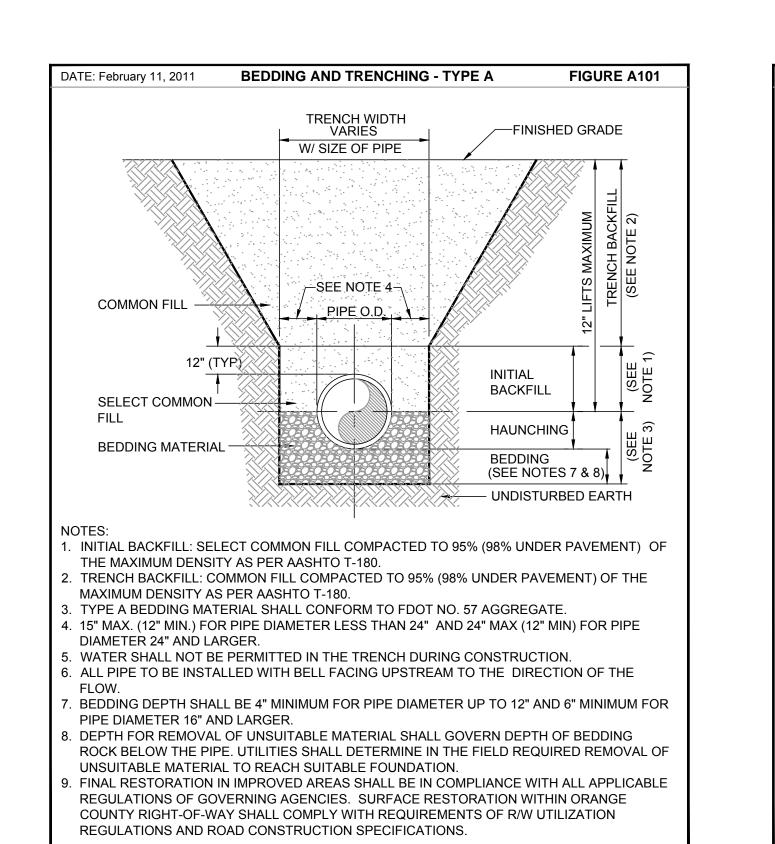
9. REFER TO APPENDIX D FOR ADMIX. COATINGS AND LININGS.

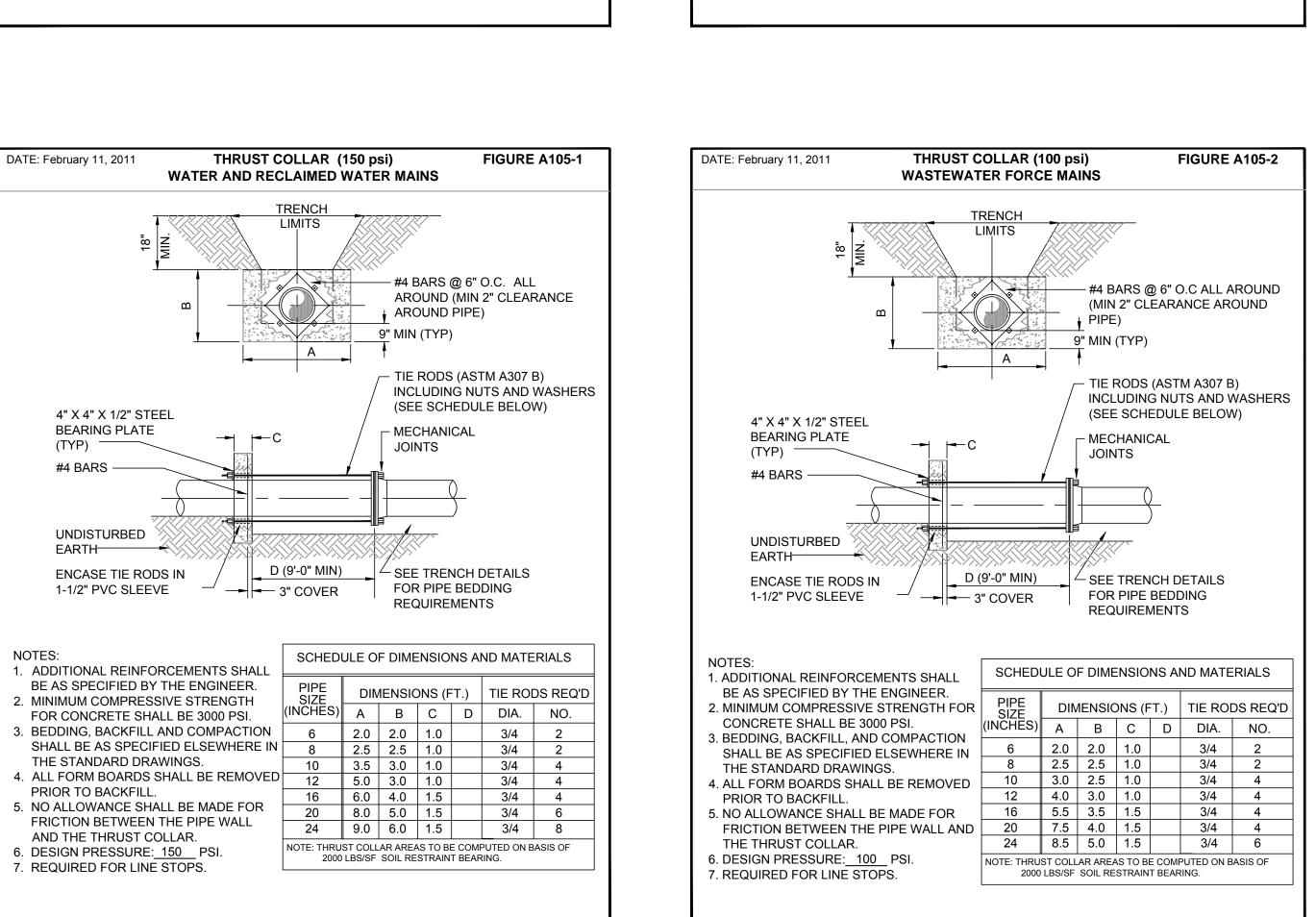
10. EACH PUMP SHALL BE FITTED WITH 6 FEET (6'-0") OF TYPE 316 SS, 3/4" CHAIN ATTACHED TO THE LIFTING MECHANISM AND AIRCRAFT RATED 1/4" SS CABLE PROVIDED BETWEEN THE CABLE HOLDER AND THE CHAIN.

11. ALL ABOVE GROUND PIPING SHALL BE COATED

В	BALI HAI MHP	P. S. # 3082				
IP SHLET: <u>2.9 IN</u> <u>3-3102.181</u> DIA: <u>8.46"</u> SPEED: <u>117</u> DISCHARGI DESIGN CO MAXIMUM H			<u>100E CB1.4PE</u> <u>RPM</u> SIZE: <u>4 IN.</u> DITIONS: <u>146 (</u> AD CONDITIOI	<u>3516</u> F R IN C <u>GPM AT 27.6 FEE</u> N: <u>80 GPM AT 30</u> I: <u>560 GPM AT 11</u>	FEET TDH	1
NSION	ELEVATION	DIMENSION	ELEVATION	DESIGN	A & B SPECIFICATIONS NOTE	S:
(MIN)		8" (MIN)				
(MIN)		6' (MIN)		1. PER PUMP	MANUFACTURER'S REQUIREN	/IENTS.
NOTE 1		SEE NOTE 1		2. DIMENSION	N P AND ELEVATIONS Y AND 2	z must
NOTE 1		SEE NOTE 1		MEET BOTH	H FLYGT AND ABS REQUIREME	ENTS.
NOTE 1		SEE NOTE 1				
NOTE 1		SEE NOTE 1				
NOTE 1		SEE NOTE 1				
5'-9"		5'-9"				
-7"		4'-7"				
18"		18"				
12"		12"				
-	96.02	-	96.02			
-	95.77	-	95.77			
-	89.07	-	89.07			
-	88.57	-	88.57			
-	85.67	-	85.67			
-	82.52	-	82.95			
.35"	-	4.6"	-			
.3"	-	N/A				
-	81.67	-	81.67			
/IPROVEN	/IENTS		DESIG	ON ENGINEER	PROJECT No.: 2011-11.04	DRAWING No.
)N # 3				. L. ALLEN, P.E.	PROJECT DATE:OCT 2013DESIGNED BY:EGDRAWN BY:BA/JAB	PS-4
AND DETAILS			FLORIDA R	REGISTRATION No. 37891	CHECKED BY: DLA DRAWING FILE: SEE MARGIN	SHEET <u>17</u> OF <u>29</u>
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DATE: February 11, 2011

COMMON FILL -

SELECT COMMON -

FILL

NOTES:

UTILITIES.

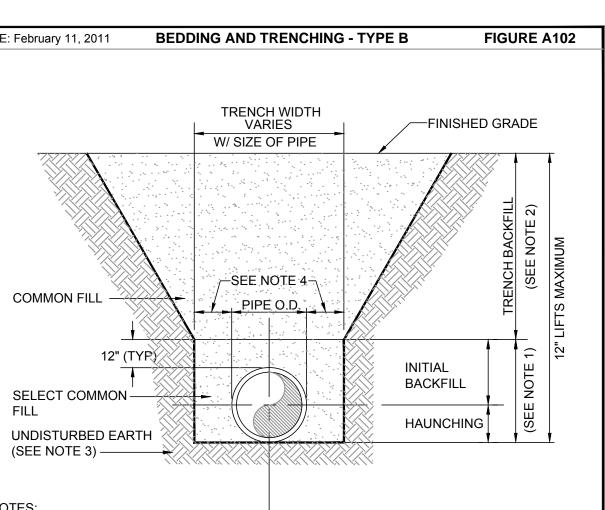
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SPECIFICATIONS.

REVISIONS BY DATE LINE IS 2 INCHES AT FULL SIZE (IF NOT SCALE ACCORDINGLY) DLA 10-24-13 BID SET SCALE: AS NOTI

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- 1. INITIAL BACKFILL AND HAUNCHING: SELECT COMMON FILL COMPACTED TO 95% (98% UNDER PAVEMENT) OF THE MAXIMUM DENSITY AS PER AASHTO T-180. 2. TRENCH BACKFILL: COMMON FILL COMPACTED TO 95% (98% UNDER PAVEMENT) OF THE
- MAXIMUM DENSITY AS PER AASHTO T-180. 3. PIPE BEDDING UTILIZING SELECT COMMON FILL OR BEDDING ROCK IN ACCORDANCE WITH TYPE A BEDDING AND TRENCHING DETAIL MAY BE REQUIRED AS DIRECTED BY
- 4. 15" MAX. (12" MIN.) FOR PIPE DIAMETER LESS THAN 24" AND 24" MAX (12" MIN) FOR PIPE DIAMETER 24" AND LARGER.
- 5. WATER SHALL NOT BE PERMITTED IN THE TRENCH DURING CONSTRUCTION. 6. ALL PIPE TO BE INSTALLED WITH BELL FACING UPSTREAM TO THE DIRECTION OF THE

7. FINAL RESTORATION IN IMPROVED AREAS SHALL BE IN COMPLIANCE WITH ALL APPLICABLE REGULATIONS OF GOVERNING AGENCIES. SURFACE RESTORATION WITHIN ORANGE COUNTY RIGHT-OF-WAY SHALL COMPLY WITH REQUIREMENTS OF RIGHT-OF-WAY UTILIZATION REGULATIONS AND ROAD CONSTRUCTION

MINIMUM LENGTH (FT	) то в 	SE RES	STRAIN				E OF F	ITTIN	G(S)	
TYPE	PIPE SIZE PVC DIP									
	4"	6"	8"	10"	12"	16"	20"	24"	30"	36"
90° BEND	25	36	46	55	64	65	77	89	105	120
45° BEND	10	15	19	23	26	27	32	37	44	50
22-1/2° BEND	5	8	9	11	13	13	15	18	21	24
11-1/4° BEND	3	4	5	6	8	7	8	9	10	12
PLUG OR BRANCH OF TEE	53	74	97	117	135	138	166	194	231	265
VALVE	27	38	49	59	68	69	83	97	116	133
REDUCER	11	RIES E BIGN E		' 'E; T( NEER.	) BE [	DETER	RMINE	ED BY	THE	1

- TIELDS THE LONGEST RESTRAINT DISTANCE. 4. ALL INLINE VALVES SHALL BE RESTRAINED. 5. WHERE INTERNAL RESTRAINED JOINTS ARE USED, THE ENTIRE BELL SHALL BE
- PAINTED RED. 6. LENGTHS SHOWN IN THE TABLE WERE CALCULATED IN ACCORDANCE WITH PROCEDURES OUTLINED IN "THRUST RESTRAINT DESIGN FOR DUCTILE IRON PIPE" GUIDELINES PUBLISHED BY DIPRA, USING THE ASSUMPTIONS SHOWN BELOW:

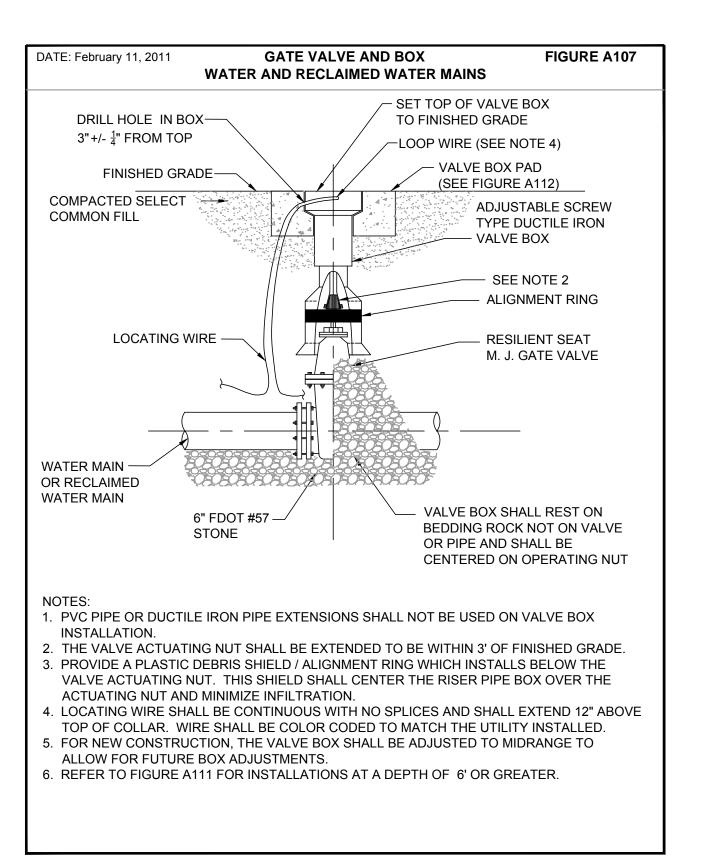
WORKING PRESSURE: 150 PSI SOIL DESIGNATION: SM (SAND SILT)

LAYING CONDITIONS:

DEPTH OF COVER: 3 FT SAFETY FACTOR: 1.5

CONVERSION FACTOR FOR PVC PIPE: 1.25

THE DESIGN ENGINEER SHALL INCREASE THE VALUES IN THE TABLE AS WARRANTED BY SITE-SPECIFIC SOIL DESIGNATIONS, LAYING CONDITIONS, PIPE MATERIAL, ETC. FOR DIP ENCASED IN POLYETHYLENE, INCREASE THE GIVEN VALUE BY A FACTOR OF 1.25.



## ORANGE COUNT.

**ORANGE COUNTY UTILITIES** 9150 CURRY FORD ROAD ORLANDO, FLORIDA 32825



BALI HAI MHP UTILITY IMPROVEMENTS

DETAILS

DATE: February	11,	2011
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#### **RESTRAINED PIPE TABLE** WASTEWATER FORCE MAINS

#### FIGURE A104-2

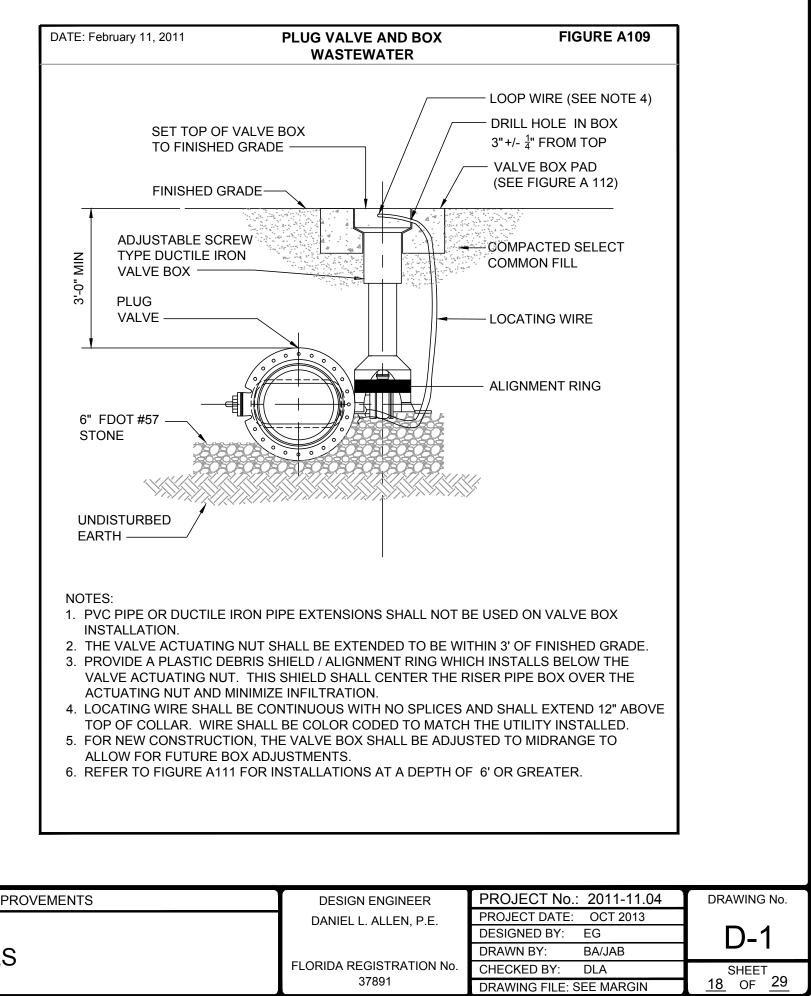
MINIMUM LENGTH (FT) TO BE RESTRAINED ON EACH SIDE OF FITTING(S)										
TYPE		PVC PIPE SIZE								
	4"	6"	8"	10"	12"	16"	20"	24"	30"	36"
90° BEND	18	24	31	38	43	55	65	75	88	100
45° BEND	8	10	13	15	18	23	26	31	38	43
22-1/2° BEND	4	5	6	8	9	11	13	15	18	20
11-1/4° BEND	2	3	4	5	6	8	9	10	11	13
PLUG OR BRANCH OF TEE	38	50	65	79	90	117	139	163	194	223
VALVE	19	25	32	40	45	59	70	82	98	112
REDUCER		RIES E BIGN E			) BE [	DETER	RMINE	ED BY	THE	

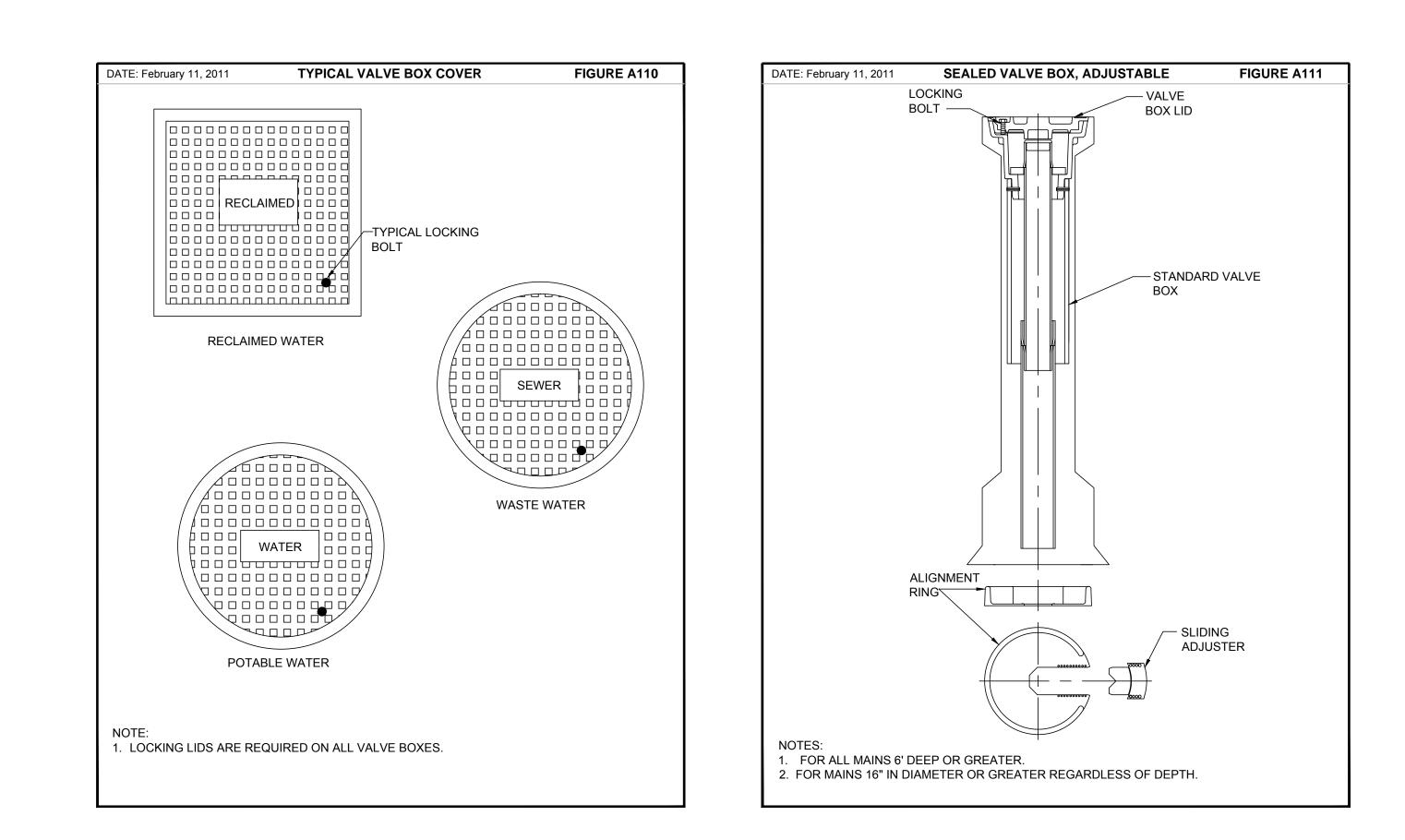
NOTES:

- 1. FITTINGS SHALL HAVE RESTRAINED JOINTS UNLESS OTHERWISE INDICATED. 2. INSTALL FULL LENGTH JOINTS WITH TOTAL LENGTH EQUAL TO OR GREATER THAN LENGTH SHOWN IN THE TABLE.
- 3. WHERE TWO OR MORE FITTINGS ARE IN SERIES, SELECT FITTING RESTRAINT LENGTH THAT YIELDS THE LONGEST RESTRAINT DISTANCE.
- 4. ALL INLINE VALVES SHALL BE RESTRAINED. 5. WHERE INTERNAL RESTRAINED JOINTS ARE USED, THE ENTIRE BELL SHALL BE PAINTED RED.
- 6. LENGTHS SHOWN IN THE TABLE WERE CALCULATED IN ACCORDANCE WITH PROCEDURES OUTLINED IN "THRUST RESTRAINT DESIGN FOR DUCTILE IRON PIPE" GUIDELINES PUBLISHED BY DIPRA, USING THE ASSUMPTIONS SHOWN BELOW:

WORKING PRESSURE: 100 PSI SOIL DESIGNATION: SM (SAND SILT) LAYING CONDITIONS: DEPTH OF COVER: 3 FT SAFETY FACTOR: 1.5 CONVERSION FACTOR FOR PVC PIPE: <u>1.25</u>

THE DESIGN ENGINEER SHALL INCREASE THE VALUES IN THE TABLE AS WARRANTED BY SITE-SPECIFIC PARAMETERS, SUCH AS SOIL DESIGNATIONS AND LAYING CONDITIONS.





	1	HORIZON	VTAL & V	ERTICAL S	EPARAT	ION REQU	IREMENT	S		1	
	PROPOSED	POTA WAT	ABLE	RECL	AIMED TER	WASTE	WATER TY & FM)		SEWER		
	UTILITY	HORIZ	VERT	HORIZ	VERT	HORIZ	VERT	HORIZ	VERT		
	POTABLE WATER	3' NOTE 1	12"	<b>3'</b> NOTE 1 & 3	12" NOTE 3	<b>6'</b> NOTE 3	12" NOTE 3	3' NOTE 1 & 3	12"/18" NOTE 2 & 3		
	RECLAIMED WATER	<b>3'</b> NOTE 1 & 3	12" NOTE 3	3' NOTE 1	12"	3' NOTE 1	12"	3' NOTE 1	12"/18" NOTE 2		
	WASTEWATER (GRAVITY AND FM)	6' NOTE 3	12" NOTE 3	3' NOTE 1	12"	3' NOTE 1	12"	3' NOTE 1	12"/18" NOTE 2		
	RIGHT OF WAY	<b>3'</b> NOTE 1	N/A	3' NOTE 1	N/A	<b>3'</b> NOTE 1	N/A	N/A	N/A		
1. 2. 3.	THIS SEPARATION MAINTENANCE. TH WITH THREE FEET ADDITIONAL FOOT THE 18-INCH SEPA ABOVE THE OCU I GREATER THAN 2 THIS SEPARATION	HREE FEE T OF COV T OF SEPA ARATION I MAIN, ANE MAIN, ANE 4 INCHES. N REQUIRE	t of h( 'er. fo Aration Requir When When . othei Ement	DRIZONTA R PIPES II N FOR EAG EMENT AI THE STO RWISE, TH COMPLIES	NL SEPA NSTALL CH ADD PPLIES ' RM PIPE HE REQU S WITH I	RATION I ED AT GF ITIONAL F WHEN TH E HAS A D JIRED SE MINIMUM	S THE MI REATER I FOOT OF IE STORI DIAMETE PARATIC FDEP SE	nimum FC Depths, F Depth. M Pipe Cr R Equal <sup>-</sup> Dn Is 12 in Eparatio	DR PIPES PROVIDE COSSES TO OR ICHES.		REST
2. 3. 4. 5.	THIS SEPARATION MAINTENANCE. TH WITH THREE FEET ADDITIONAL FOOT THE 18-INCH SEPA ABOVE THE OCU I GREATER THAN 2	HREE FEE T OF COV T OF SEPA ARATION F MAIN, ANE 4 INCHES N REQUIRE OUTLINED MUST COF BOTH FDE N ARE FRO SHALL PAS	T OF HC (ER. FO ARATION REQUIR O WHEN O WHEN EMENT IN 62-58 MPLY W EP AND OM OUT SS THRC	DRIZONTA R PIPES II N FOR EAG EMENT AI THE STO RWISE, TH COMPLIES 55.314, FA 'ITH 62-55 OCU. SIDE OF F DUGH OR	AL SEPA NSTALL CH ADD PPLIES RM PIPE HE REQU S WITH I AC. VAR 5.314(5) PIPE TO COME II	RATION I ED AT GF ITIONAL F WHEN TH E HAS A E JIRED SE MINIMUM IANCES F , FAC ANI OUTSIDE N CONTA	S THE MI REATER I FOOT OF IE STORI DIAMETEI PARATIC FDEP SE FROM TH D MUST E	NIMUM F( DEPTHS, F DEPTH. M PIPE CR R EQUAL ON IS 12 IN EPARATIO E FDEP BE APPRO	DR PIPES PROVIDE COSSES TO OR ICHES. N VED		RESTF MECH.

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AT FULL SIZE (IF NOT SCALE ACCORDINGLY)	

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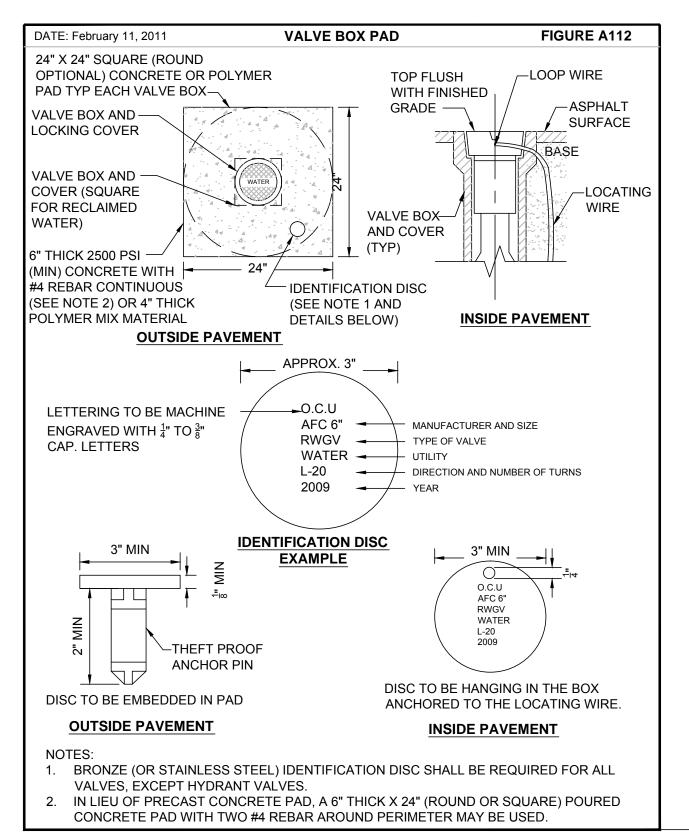
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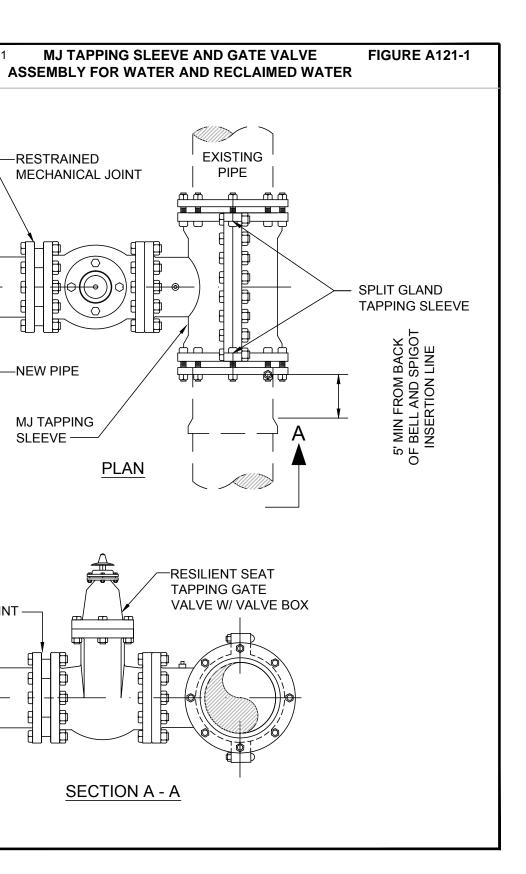
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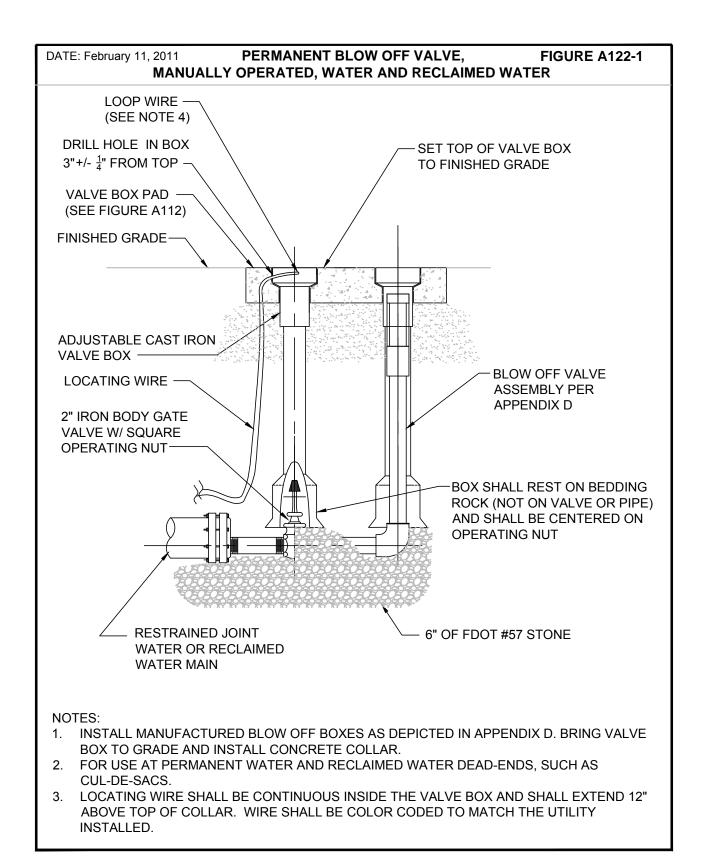
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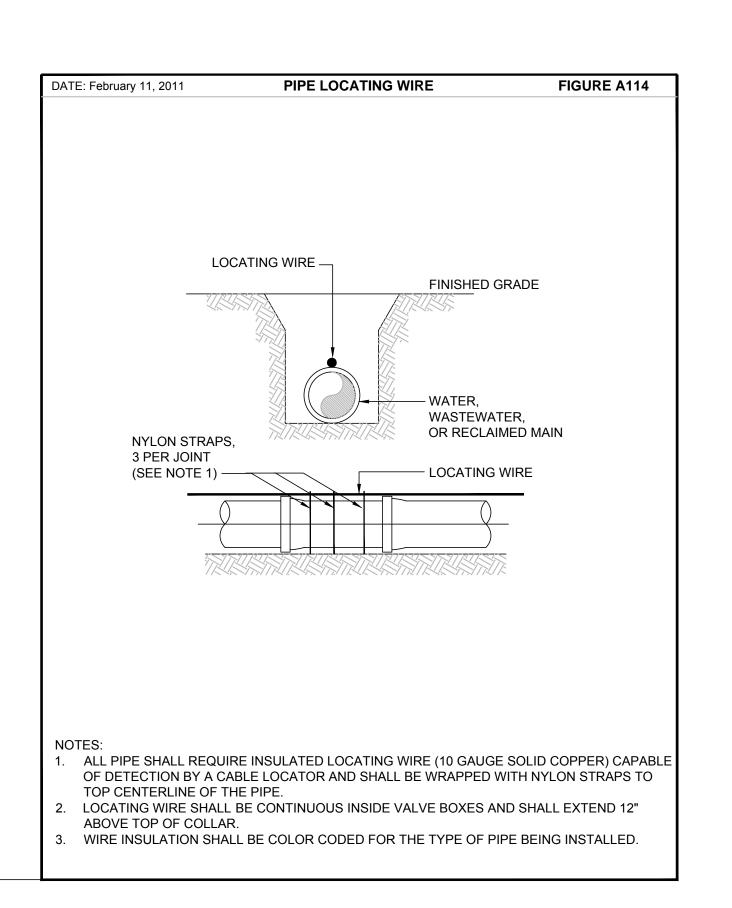
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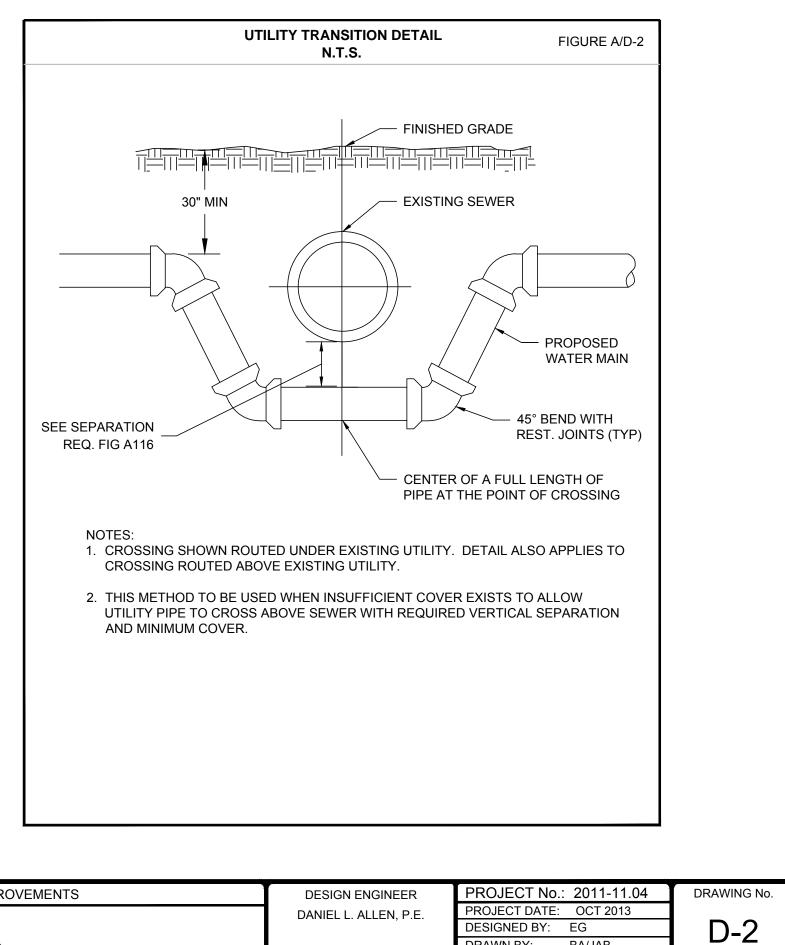










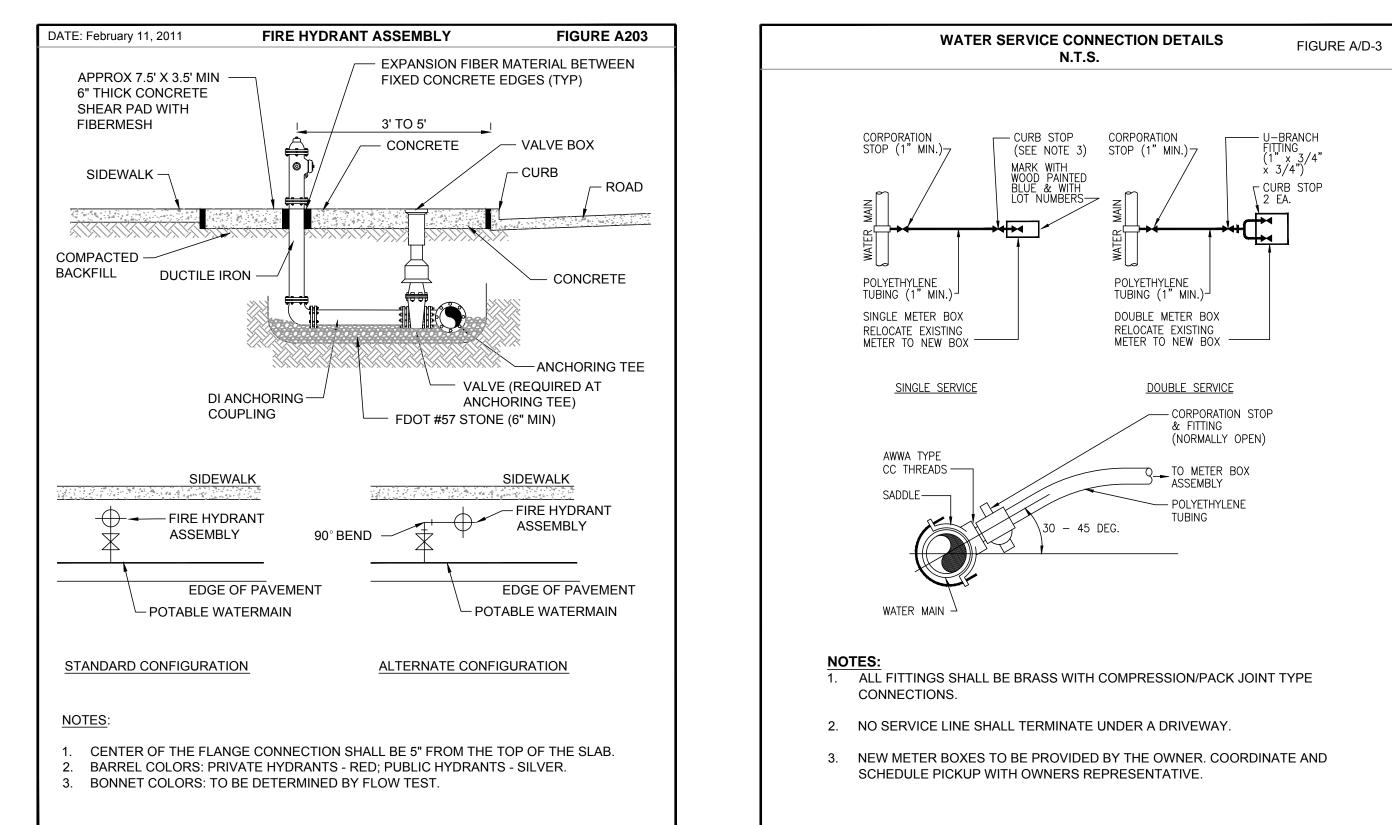


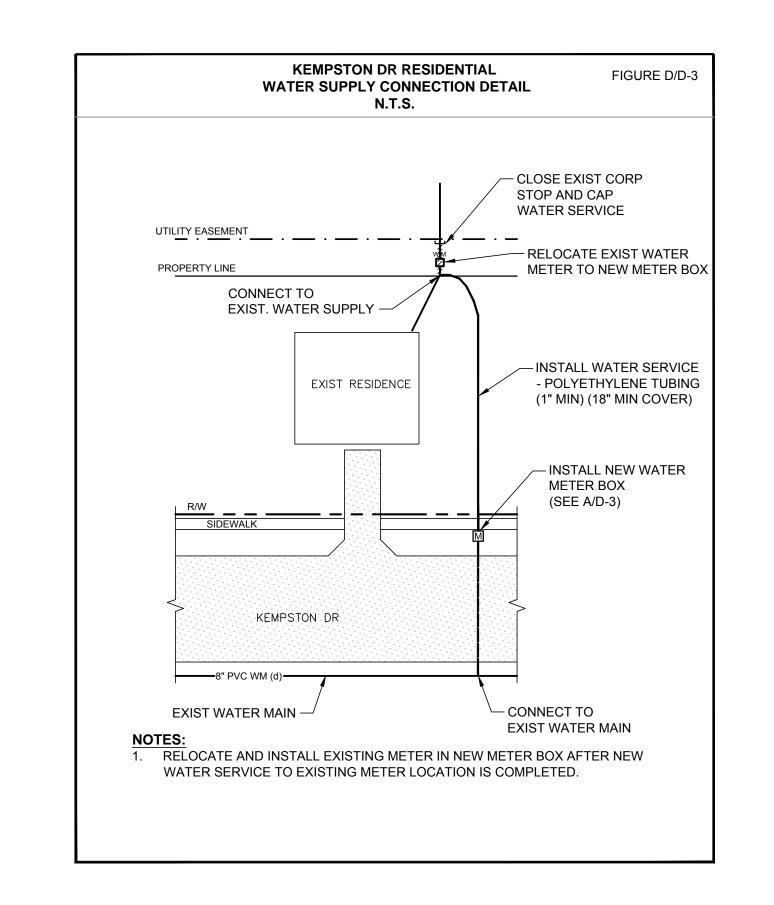
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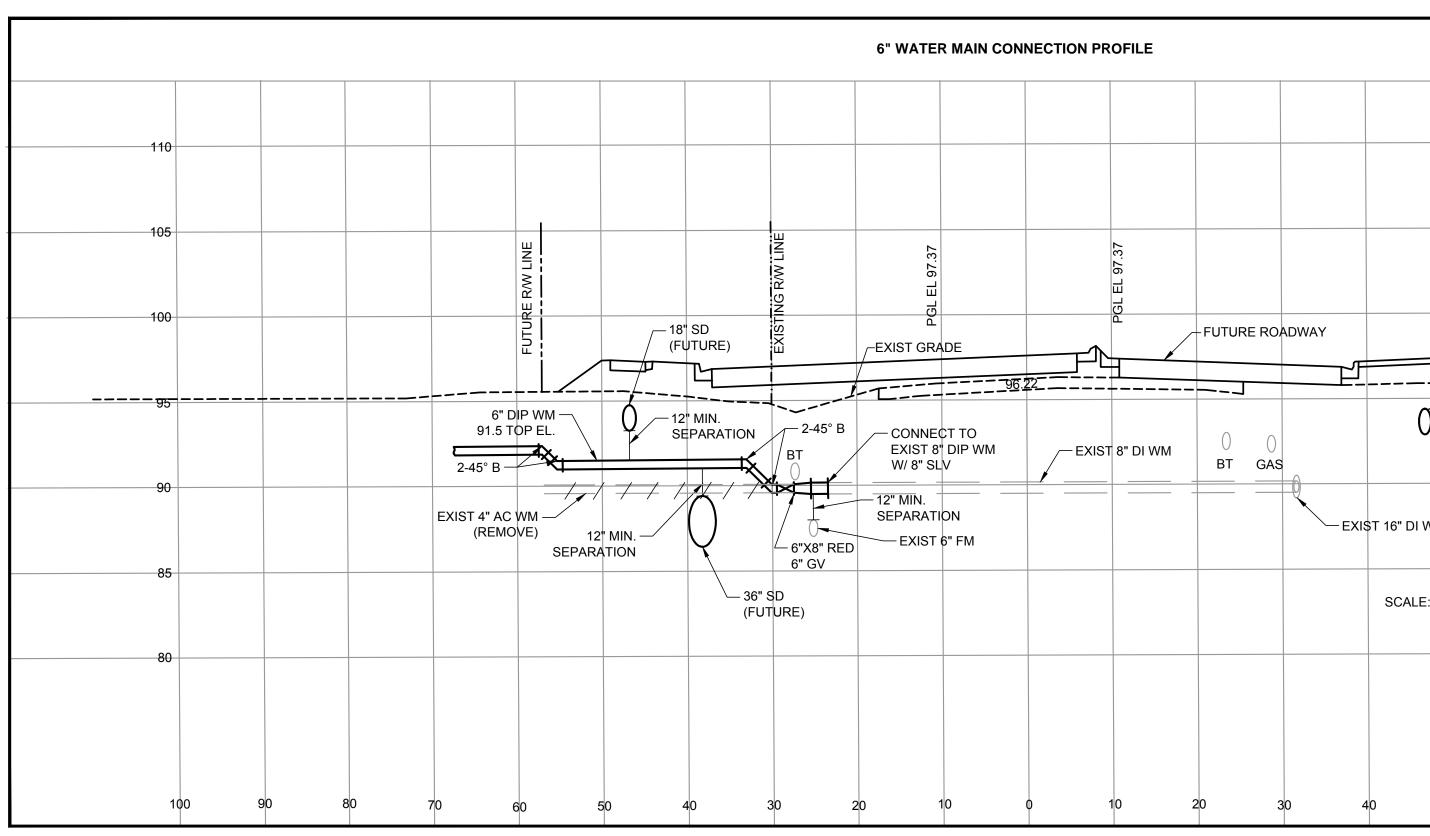
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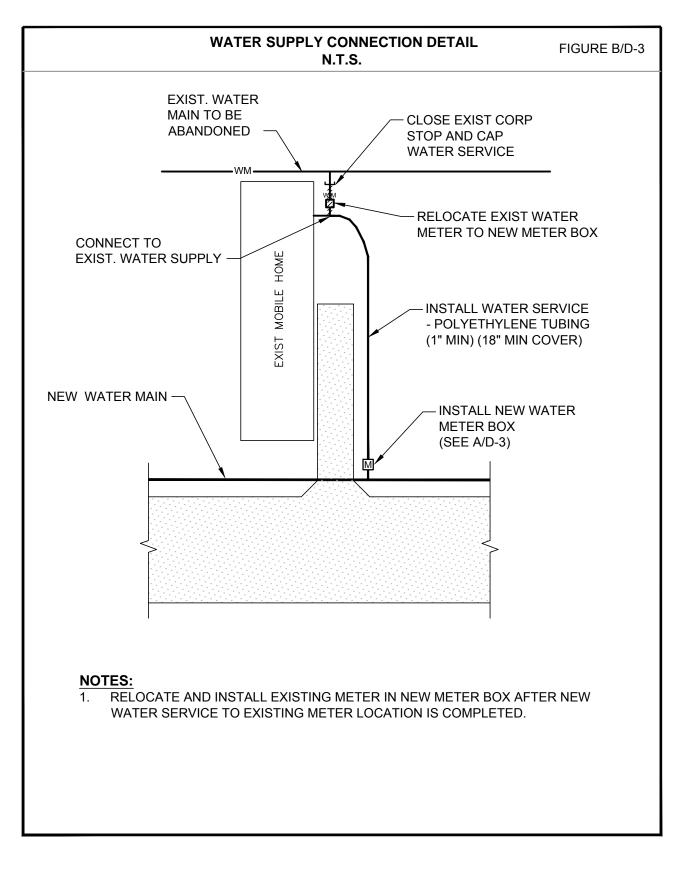
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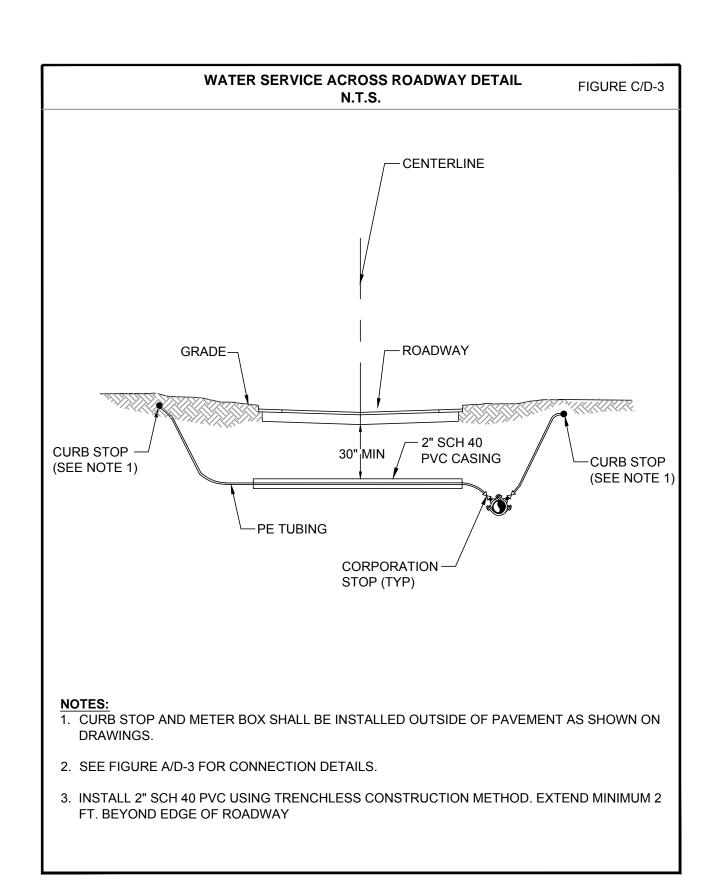
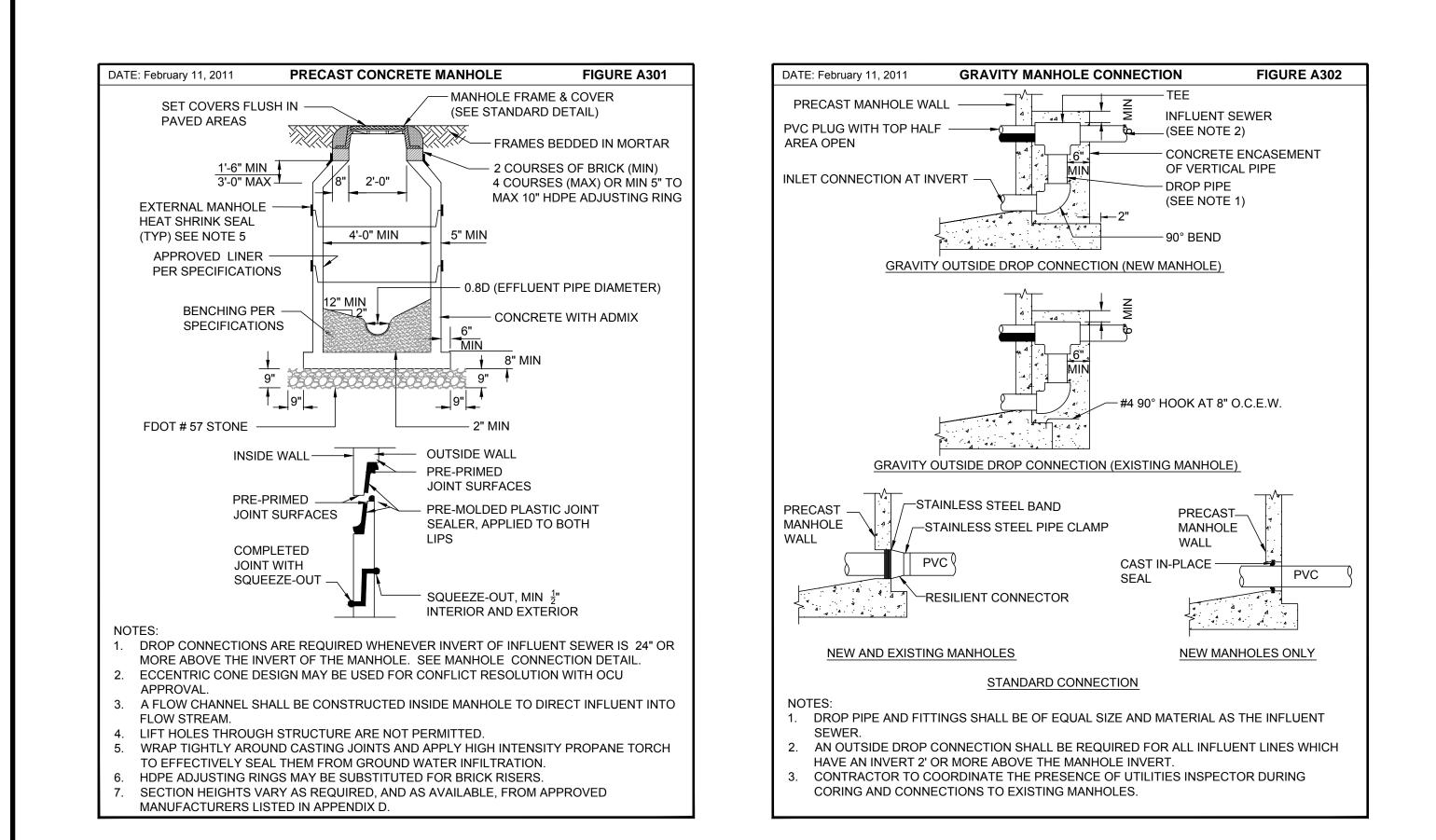
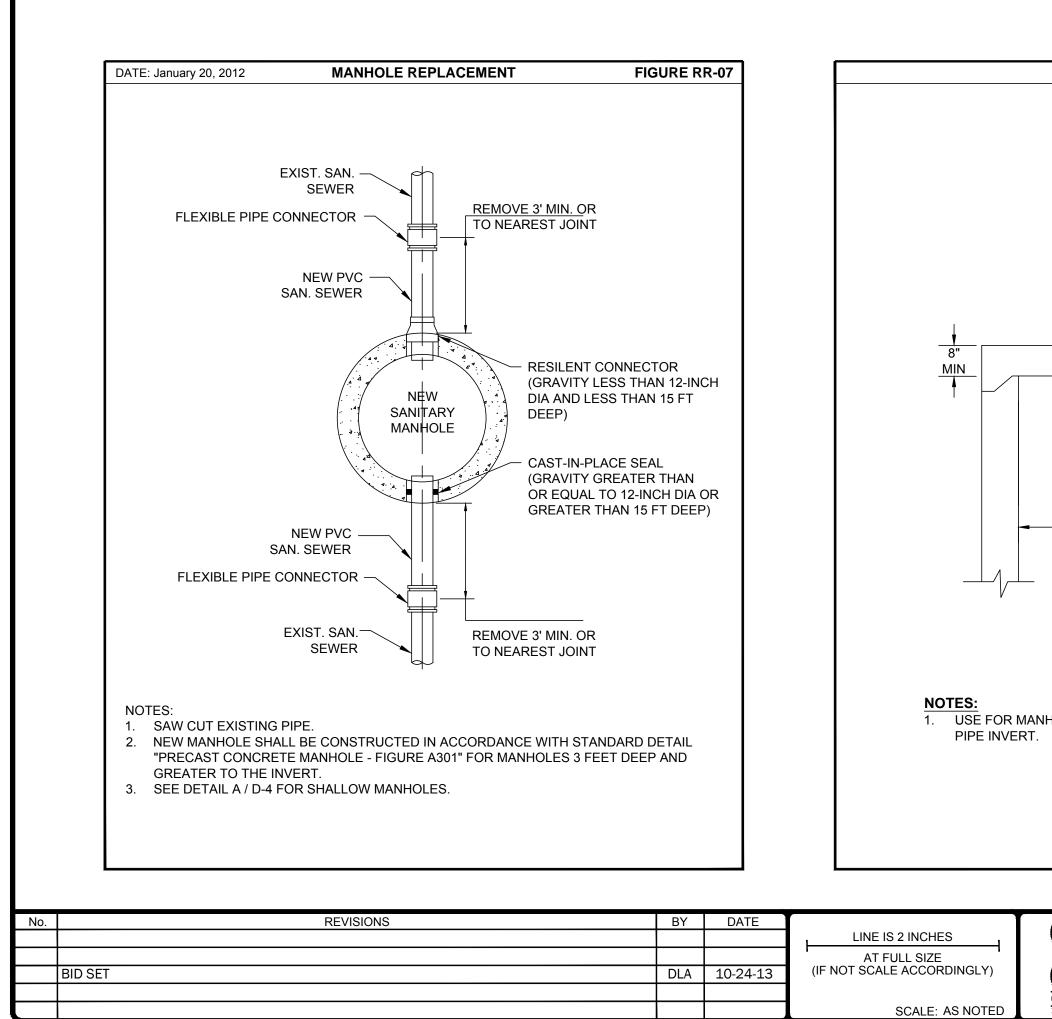
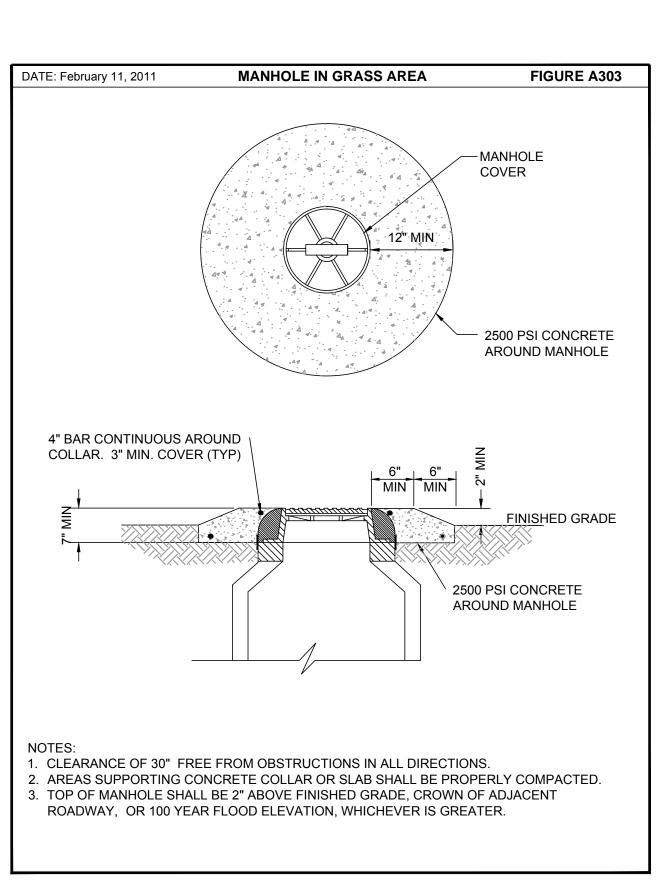


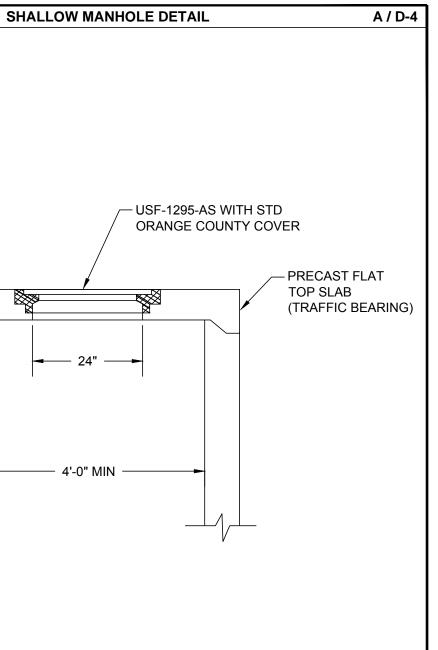
						FIGURE E/	′D-3	
	FUTURE R/W LINE							
J 18" S	SD (FUTURE	Ξ)						
WM								
E: 1" = 10' H 1" = 5' VI								
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1. USE FOR MANHOLES WITH LESS THAN 36" BETWEEN RIM AND

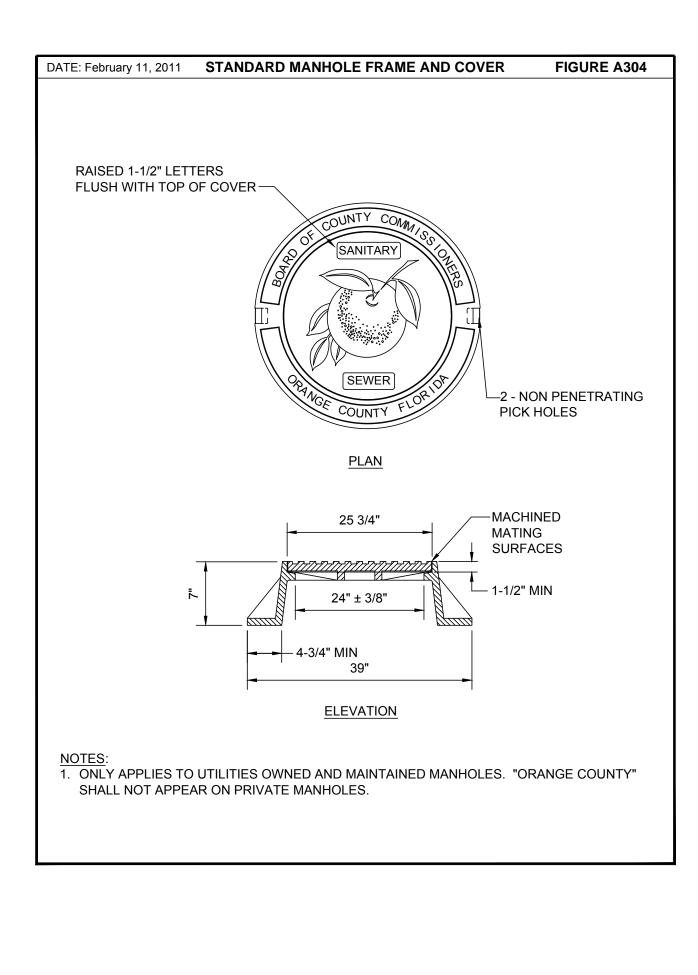


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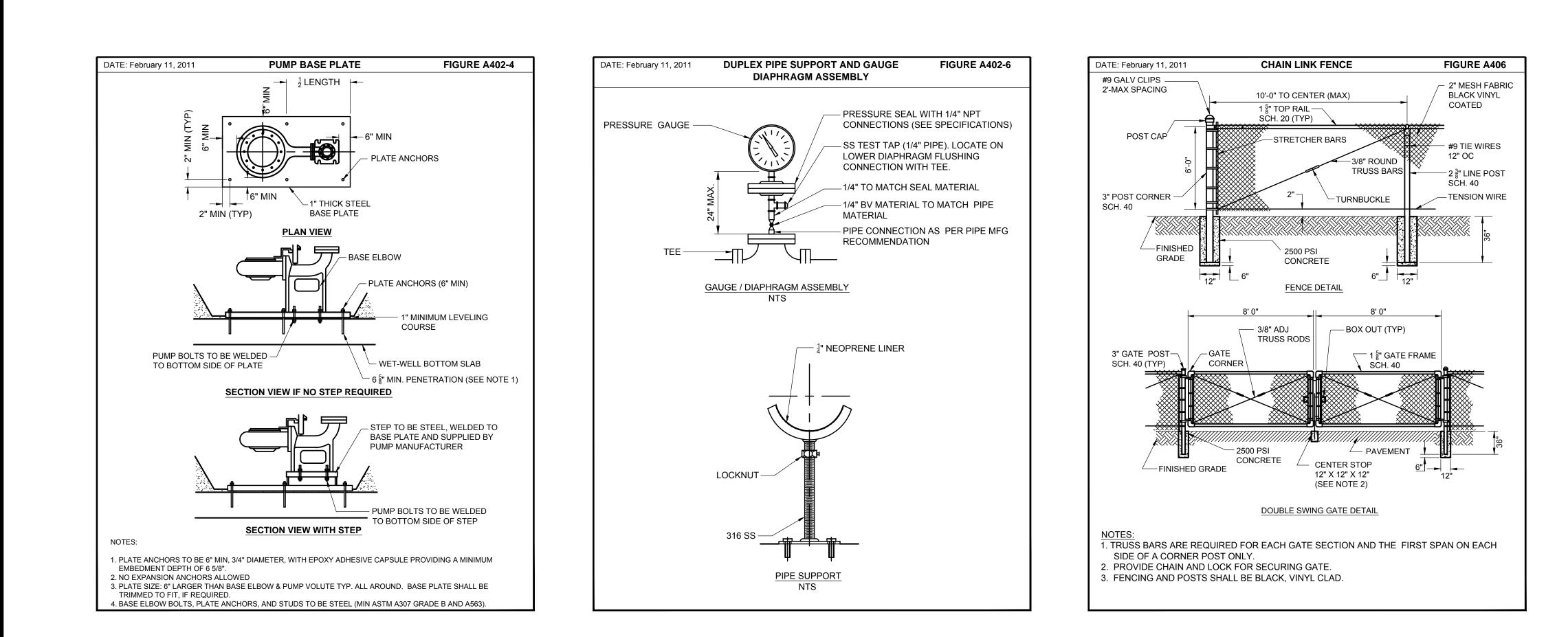


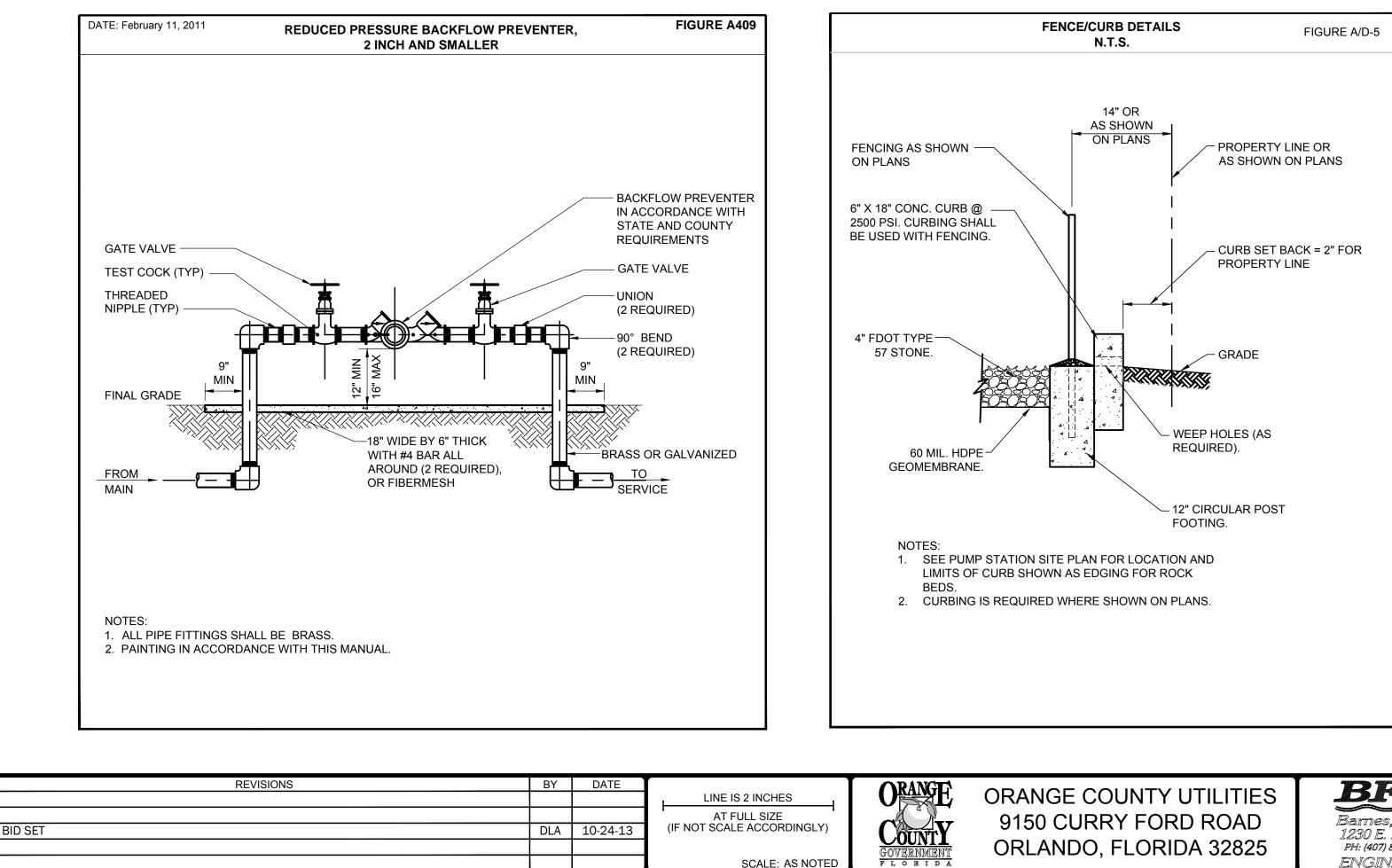
BALI HAI MHP UTILITY IN

DETAIL



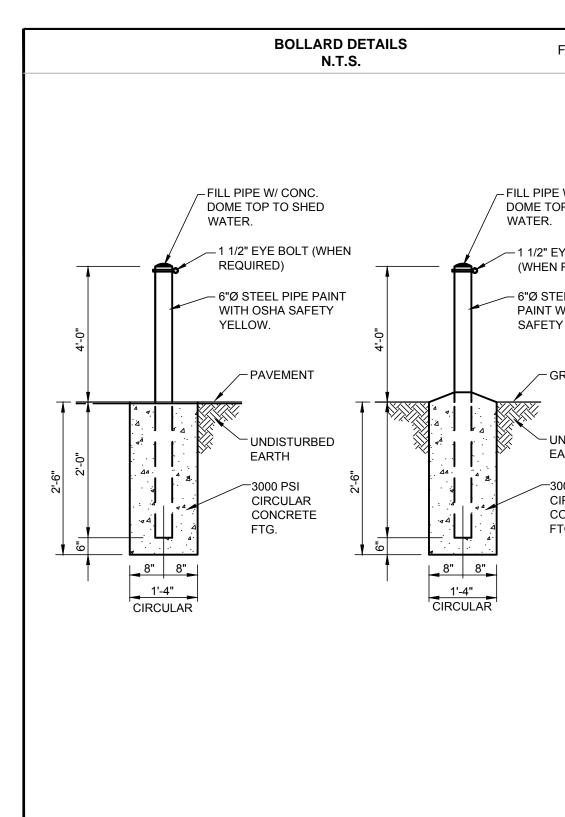
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	DANIEL L. ALLEN, P.E.	PROJECT DATE: OCT 2013	
		DESIGNED BY: EG	D_4
S		DRAWN BY: BA/JAB	υт
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**BFA** Environmental Consultants Barnes, Ferland and Associates, Inc. 1230 E. Hillcrest Street, Orlando, FL, 32803 PH: (407) 896-8608 FAX: (407) 896-1822 ENGINEERING BUSINESS No. 6899

BALI HAI MHP UTILITY IN

DETAIL

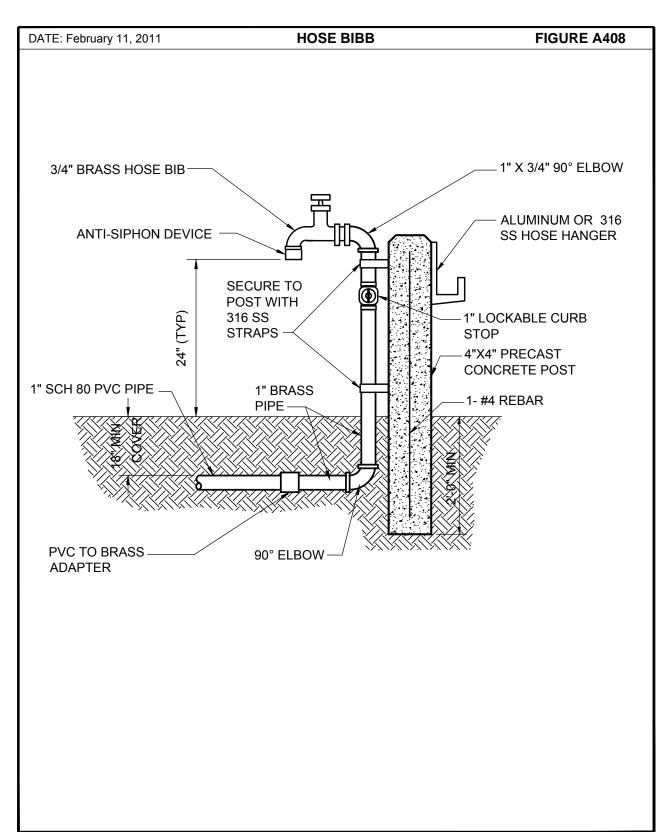
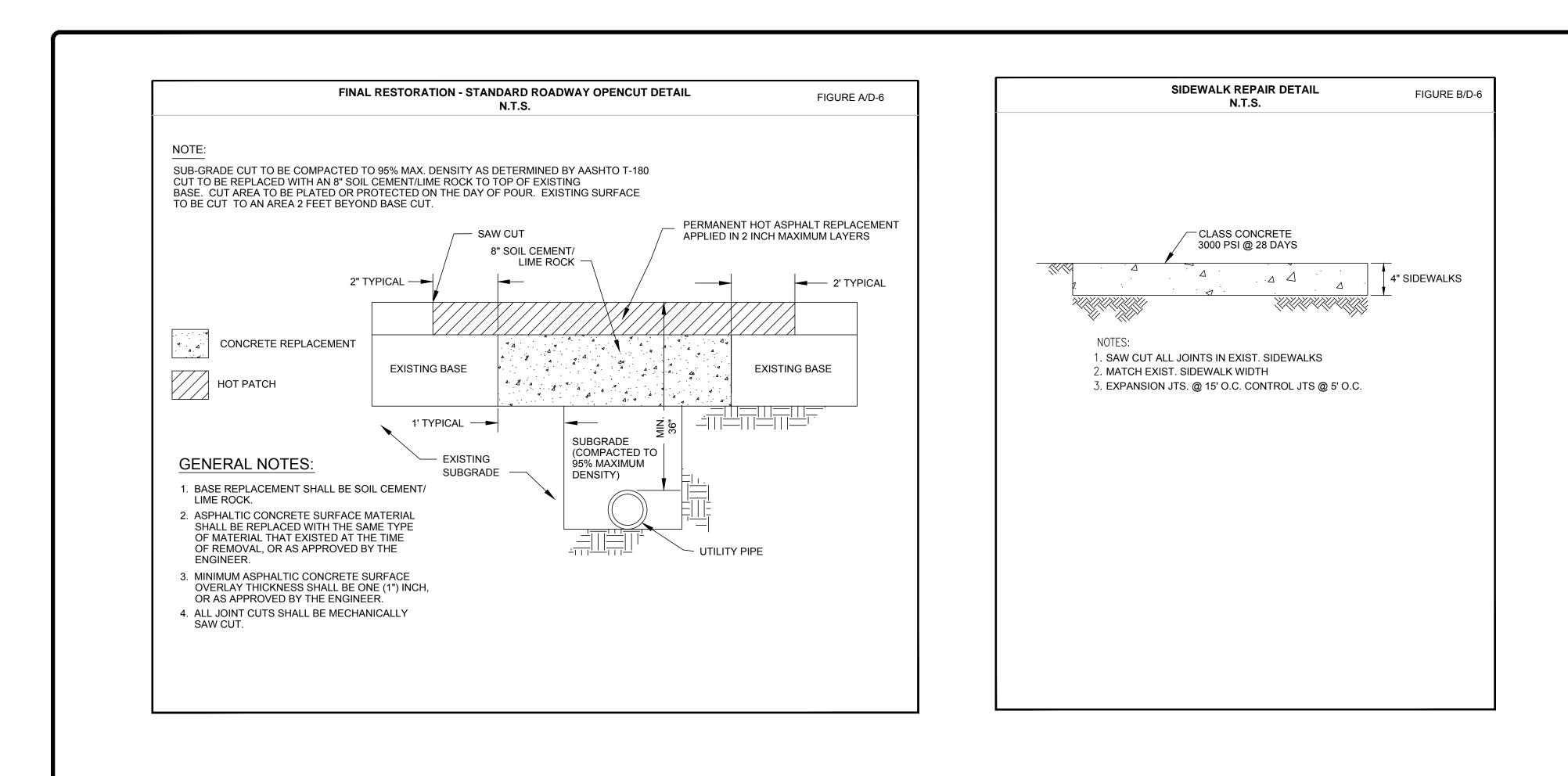
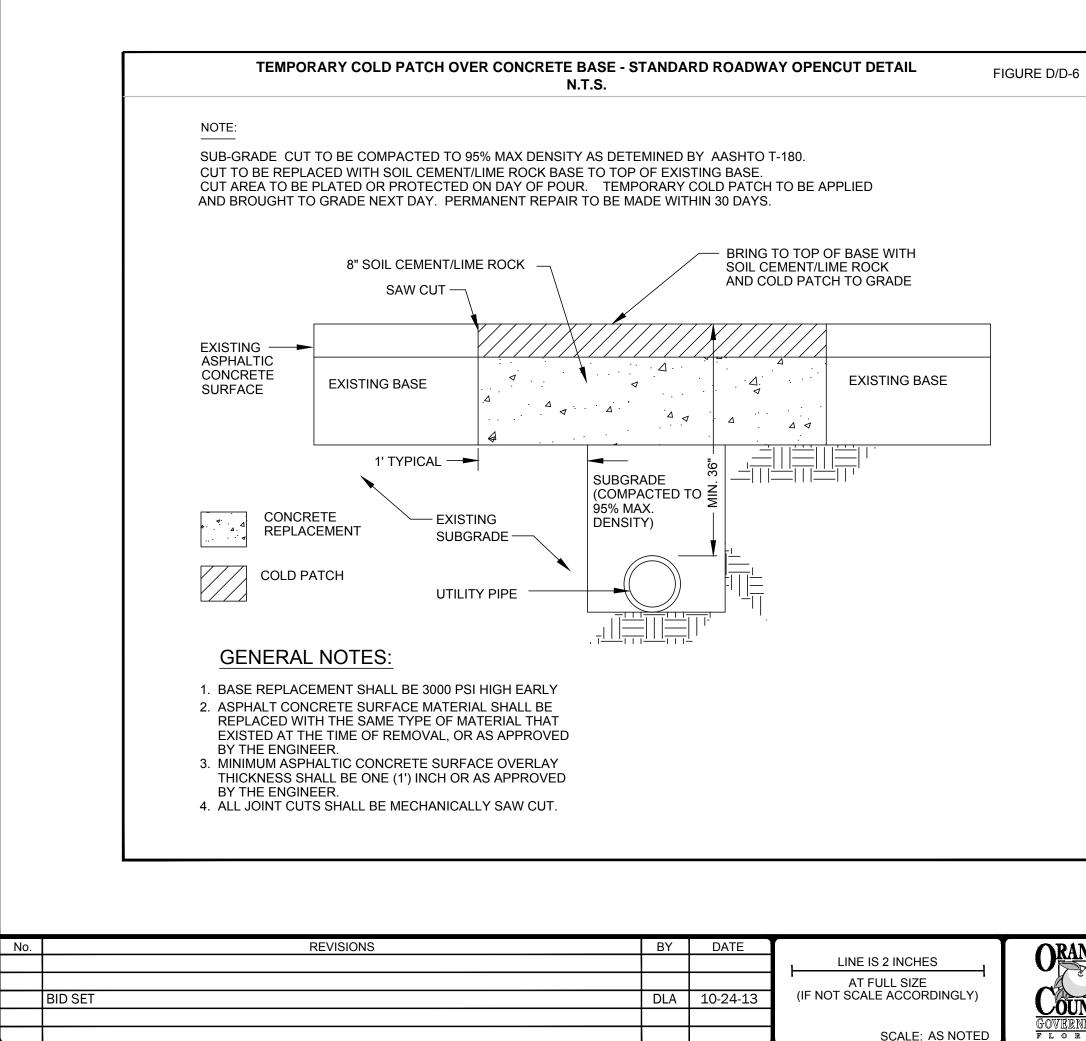
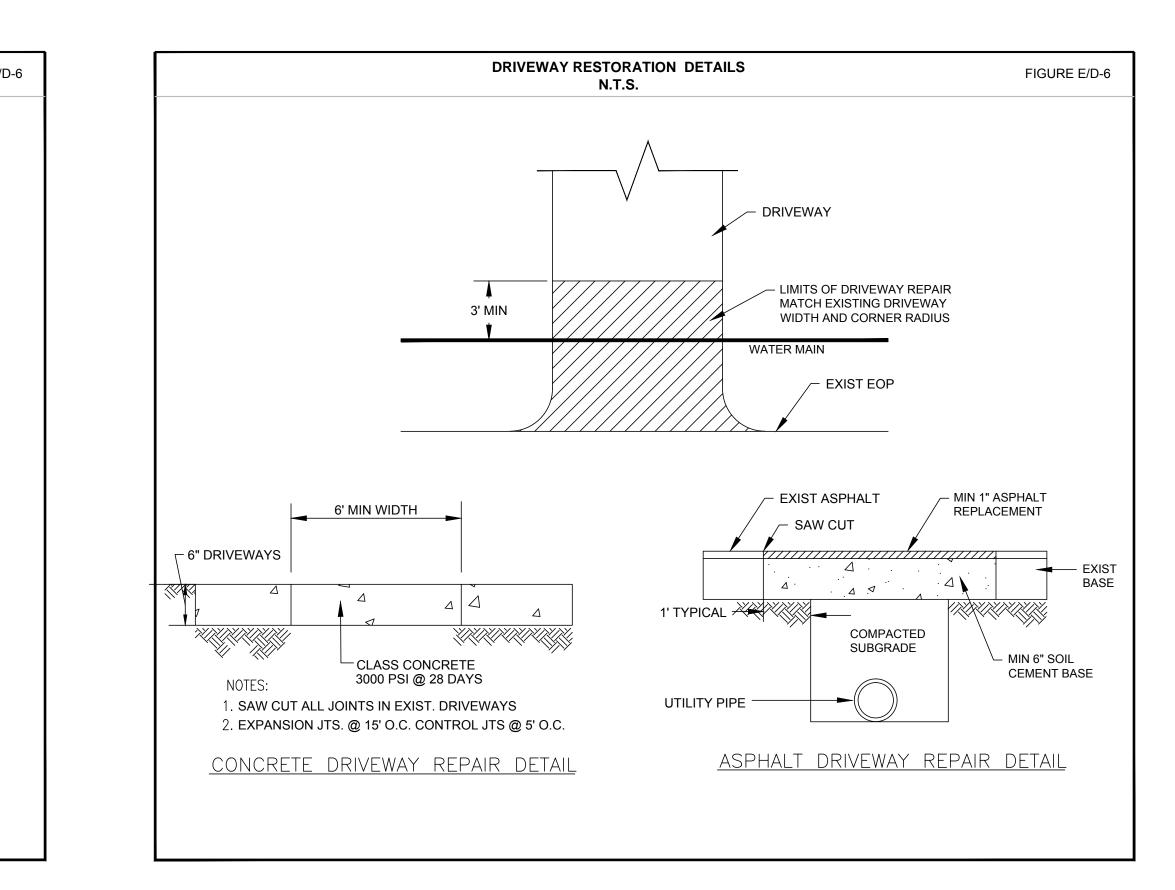


FIGURE B/D-5			
W/ CONC. P TO SHED			
YE BOLT REQUIRED)			
EEL PIPE WITH OSHA Y YELLOW.			
RADE			
NDISTURBED ARTH			
000 PSI IRCULAR ONCRETE			
TG.			
//PROVEMENTS	DESIGN ENGINEER	PROJECT No.: 2011-11.04	DRAWING No.
-	DANIEL L. ALLEN, P.E.	PROJECT DATE: OCT 2013 DESIGNED BY: EG	D-5
S	FLORIDA REGISTRATION No.	DRAWN BY: BA/JAB CHECKED BY: DLA	SHEET
	37891	DRAWING FILE: SEE MARGIN	<u>22</u> OF <u>29</u>





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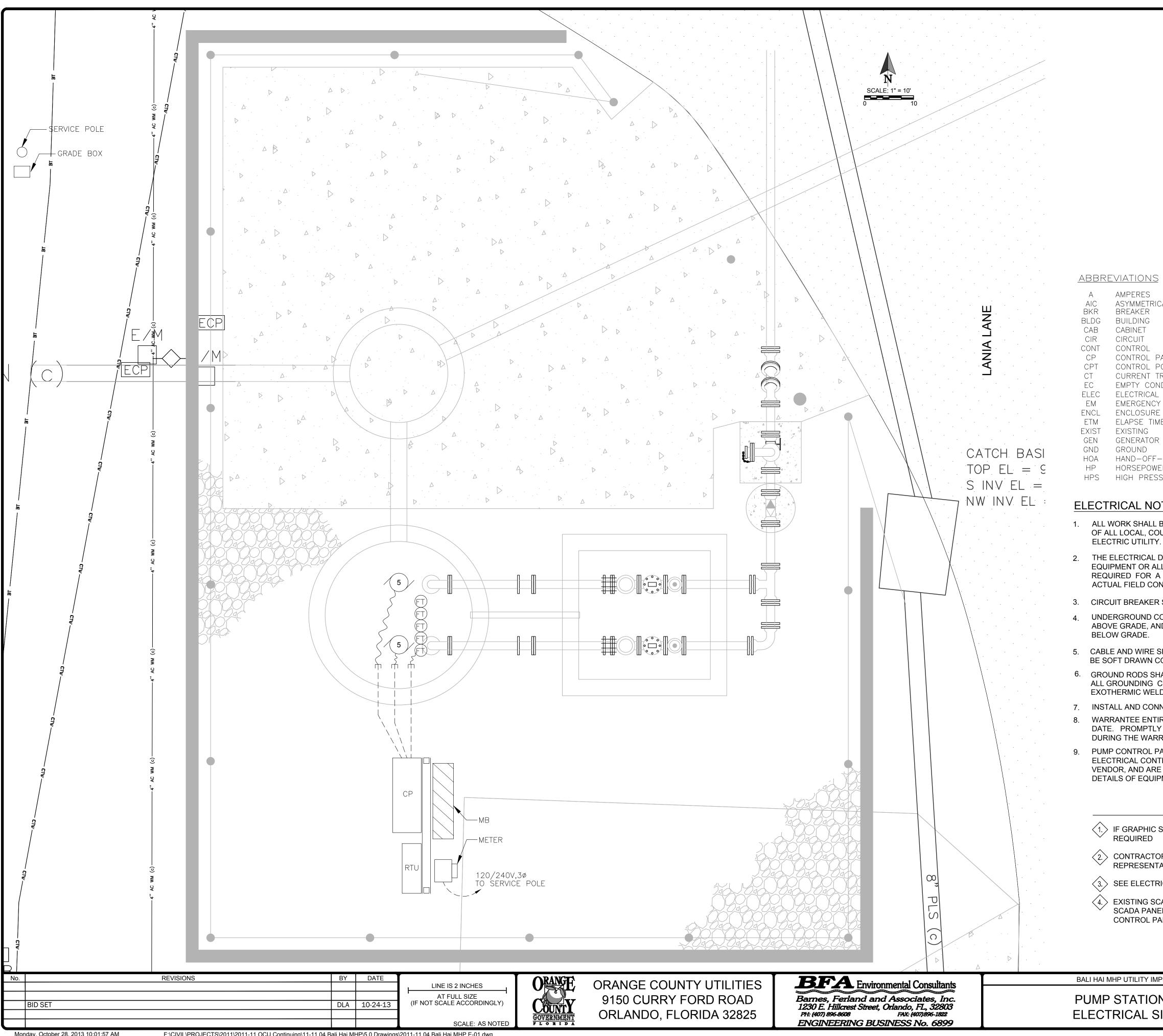
ORANGE COUNTY UTILITIES 9150 CURRY FORD ROAD ORLANDO, FLORIDA 32825

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BALI HAI MHP UTILITY IN

DETAIL

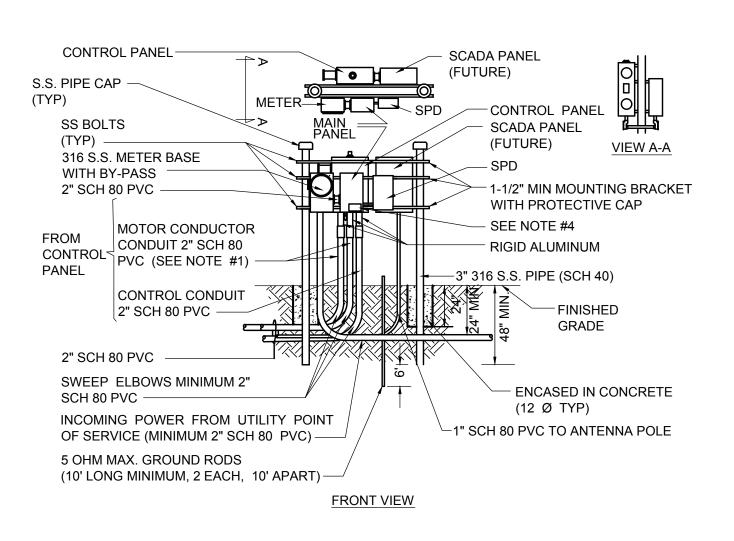
IMPROVEMENTS	DESIGN ENGINEER	PROJECT No.: 2011-11.04	DRAWING No.
	DANIEL L. ALLEN, P.E.	PROJECT DATE: OCT 2013	
		DESIGNED BY: EG	D-6
LS		DRAWN BY: BA/JAB	
	FLORIDA REGISTRATION No.	CHECKED BY: DLA	SHEET
	37891	DRAWING FILE: SEE MARGIN	<u>23</u> of <u>29</u>



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SYMBOL	<u>_S</u>	
	NO. OF CIRCUI	PANELBOARD. NO. OF ARROWS INDICATE Its, hash marks indicate no. of #12 Tors. no hash marks indicate 2 #12
		EALED IN WALL OR ABOVE CEILING. EALED IN OR BELOW FLOOR OR UNDERGROUND.
	CONDUIT RUN TO STRUCTURE	EXPOSED. RUN PARALLEL OR PERPENDICULAR OR WALL.
		DUIT WITH EQUIPMENT CONNECTION.
	FUSE MOLDED CASE	CIRCUIT BREAKER
ÂR	ALARM RELAY	
(AT) (CR)	ALARM TIMER Control rela	Y
	LEVEL PROBE	
(M)	MOTOR STARTE	R
FT	FLOAT SWITCH	
	KCMIL KVA	THOUSAND CIRCULAR MILS KILOVOLT–AMPERES
CAL INTERRUPTING CURRENT	LS LSCP	LIMIT SWITCH LIFT STATION CONTROL PANEL
	LTG MAX	LIGHTING MAXIMUM
		MAIN BREAKER Motor control center
PANEL Power transformer		MOTOR CIRCUIT PROTECTOR MANUFACTURER MINIMUM
FRANSFORMER NDUIT	MTD	MOUNTED NATIONAL ELECTRIC CODE
- Y -	NEMA P	NATIONAL ELECTRICAL MANUFACTURES ASSOCIATION POLE
_ 1e meter	PNL RGS	PANEL RIGID GALVANIZED STEEL
	SW S TVD	SWITCH STAINLESS STEEL
– AUTOMATIC ER		TYPICAL UNDERGROUND VOLT
SURE SODIUM		VOLTS ALTERNATING CURRENT WIRE
DTES	WP	WEATHER PROOF TRANSFORMER
		F NFPA-70, ALL APPLICABLE REQUIREMENTS ID ALL REQUIREMENTS OF THE SERVICING
LL REQUIRED FITTINGS AND HARE	WARE. PROVID M. COORDINATE	ESSARILY INDICATE EXACT LOCATIONS OF E ALL EQUIPMENT, MATERIALS, AND LABOR E EQUIPMENT LOCATIONS AND WIRING WITH
R SHALL BE SQ-D, OR EQUAL (AS L		
CONDUITS SHALL BE SCHEDULE 80	) PVC BELOW GF	RADE. MINIMUM CONDUIT SIZE SHALL BE 0.75" TSHALL BE RUN A MINIMUM OF 24" BELOW
SHALL BE COPPER, DUAL RATED, COPPER.	TYPE THNN/TH	WN, EXCEPT GROUND CONDUCTORS SHALL
,	GRADE. ALL CO	RIVEN SO TOP OF ROD IS 12" BELOW GRADE NNECTIONS TO GROUND RODS SHALL BE RWISE NOTED.
	OR A PERIOD OF Y EQUIPMENT C	ONE YEAR FROM THE FINAL ACCEPTANCE OR WIRING PROVIDED UNDER DIVISION 16
TRACTOR. CIRCUIT DIAGRAM AND	DETAILS ARE PI	RACTOR AND INSTALLED AND WIRED BY ROVIDED FROM DATA RECEIVED FROM THE IENCE. ACTUAL CIRCUITRY AND SPECIFIC
$\langle \rangle$	SPECIFIC N	otes 🚫
SCALE DOES NOT MATCH INDICA	TED SCALE, DRA	WING IS REDUCED AND ADJUSTMENT SHALL BE MADE AS
OR TO REMOVE EXISTING ELECTR ATIVE.	ICAL EQUIPMEN	T AND DISPOSE OF AS DIRECTED BY OWNER'S
RICAL DETAILS 240 VAC FOR ELEV	ATIONS OF EQUI	PMENT RACK.
	NDUIT AND PULI	BE INSTALLED BETWEEN PUMP CONTROL PANEL AND L STRING ONLY - FINAL CONNECTIONS BETWEEN PUMP
	<b>EB:</b> 6160	

MPROVEMENTS	DESIGN ENGINEER	PROJECT No.: 2011-11.04	DRAWING No.
	WILLARD HOANSHELT P.E.	PROJECT DATE: OCT 2013	
DN # 3082		DESIGNED BY: WCH	I F-1
		DRAWN BY: DJK	
SITE PLAN	FLORIDA REGISTRATION No.	CHECKED BY: WCH	SHEET
_	42593	DRAWING FILE: SEE MARGIN	<u>24</u> OF <u>29</u>



#### PANEL INSTALLATION NOTES

- 1. PUMP MOTOR CONDUIT SHALL BE SIZE TO ACCOMODATE 40% CONDUIT FILL. MINIMUM CONDUIT SIZE TO BE 2" SCH 80 PVC.
- 2. POWER SUPPLY SHALL BE UNDERGROUND ON THE LIFT STATION SITE AND SHALL BE 3-PHASE, FROM A 3-PHASE SOURCE ONLY. 100 AMP SERVICE MINIMUM. 3. AN ELECTRICAL GROUNDING SYSTEM SHALL BE INSTALLED AS PER THE NATIONAL ELECTRICAL CODE,
- LOCAL CODES AND ORDINANCES. AN UNDERGROUND PERIMETER CABLE GROUNDING SYSTEM SHALL BE INSTALLED WITH CONNECTIONS TO AT LEAST WET WELL COVER, VALVE VAULT COVER, CONTROL PANELS, GENERATOR, UTILITY COMPANY TRANSFORMER, MANUAL DISCONNECT SWITCH AND METAL FENCE. REFER TO GROUNDING DETAILS.
- 4. THE STATION NAME, UTILITIES I.D. NUMBER AND ADDRESS SHALL BE AFFIXED TO THE FRONT OF THE METER CABINET. 5. ALL MOUNTING HARDWARE & BRACKETS AND ELECTRICAL ENCLOSURES SHALL BE 316 STAINLESS
- STEEL. 6. ON A 4-WIRE, DELTA SYSTEM, THE HIGH-LEG SHALL BE IDENTIFIED WITH ORANGE COLOR TAPE AT ALL
- CONNECTION POINTS AND SHALL BE LOCATED ON THE "B" PHASE AT THE LINE SIDE OF THE MAIN DISCONNECT.
- 7. THE SCADA PANEL IS TO SHOWN FOR INFORMATION ONLY AND WILL BE INSTALLED IN THE FUTURE (BY OTHERS).

#### PUMP STATION CONTROL PANEL (240V) FRONT & PLAN VIEW

No.		REVISIONS	BY	DATE		-
					LINE IS 2 INCHES	l
					AT FULL SIZE	
	BID SET		DLA	10-24-13	(IF NOT SCALE ACCORDINGLY)	- (
						G
					SCALE: AS NOTED	T T
Mor	nday, October 28, 2013 10:01:57 AM	F:\CIVIL\PROJECTS\2011\2011-11 OCU Continuing\1	1-11.04 Bali Hai Mł	HP\5.0 Drawings\	2011-11.04 Bali Hai MHP E-02.dwg	

UNDERGROUND SERVICE FROM 240 - 3Ø - \angle

PANEL INSTALLATION NOTES:

PANEL

60"

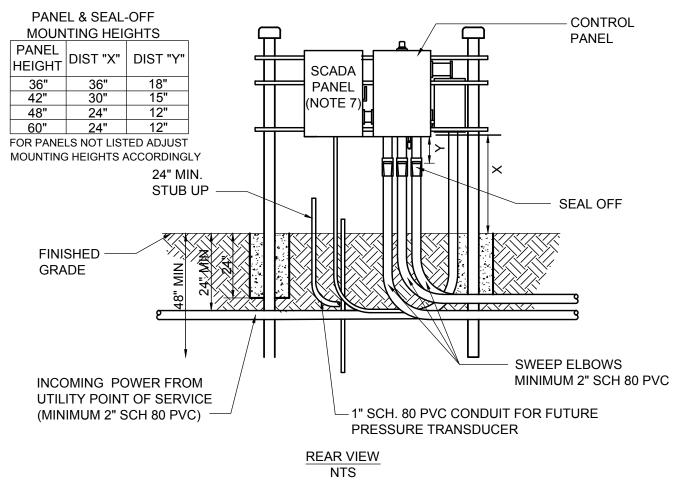
24"

FINISHED

GRADE

- GROUNDING DETAILS.

- 316 STAINLESS STEEL.



1. PUMP MOTOR CONDUIT SHALL BE SIZE TO ACCOMODATE 40% CONDUIT FILL. MINIMUM CONDUIT SIZE TO BE 2" SCH 80 PVC.

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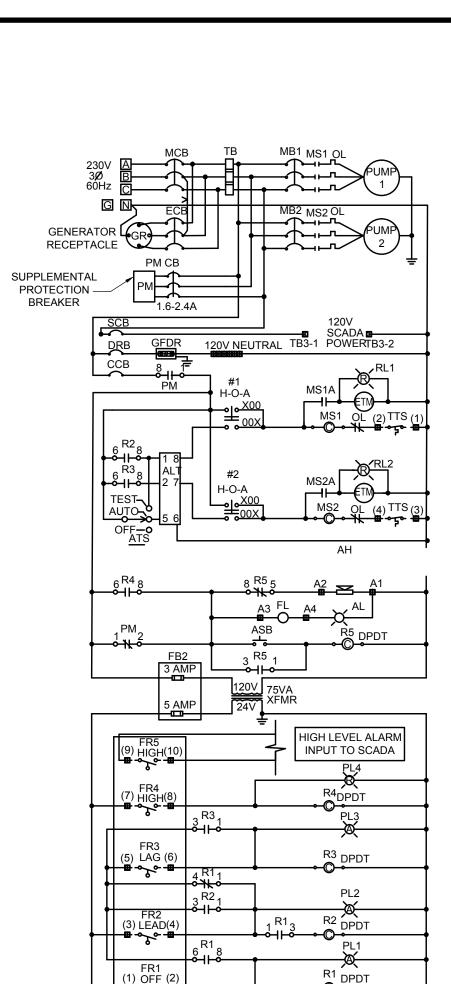
ELECTRICAL CODE, LOCAL CODES AND ORDINANCES. AN UNDERGROUND PERIMETER CABLE GROUNDING SYSTEM SHALL BE INSTALLED WITH CONNECTIONS TO AT LEAST WET WELL COVER, VALVE VAULT COVER, CONTROL PANELS, GENERATOR, UTILITY COMPANY TRANSFORMER, MANUAL DISCONNECT SWITCH, AND METAL FENCE. REFER TO

4. THE STATION NAME, UTILITIES ID NUMBER, AND ADDRESS SHALL BE AFFIXED TO THE FRONT OF THE METER CABINET.

5. ALL MOUNTING HARDWARE AND BRACKETS AND ELECTRICAL ENCLOSURES SHALL BE

6. ON A 4-WIRE, DELTA SYSTEM, THE HIGH-LEG SHALL BE IDENTIFIED WITH ORANGE COLOR TAPE AT ALL CONNECTION POINTS AND SHALL BE LOCATED ON THE "B" PHASE AT THE LINE SIDE OF THE MAIN DISCONNECT.

7. THE SCADA PANEL IS TO SHOWN FOR INFORMATION ONLY AND WILL BE INSTALLED IN THE FUTURE (BY OTHERS).

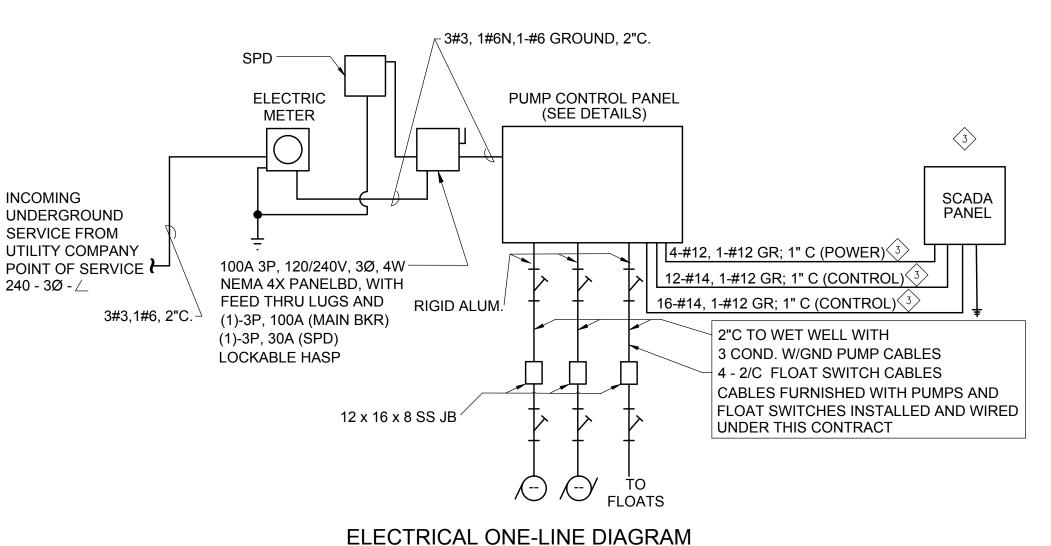


#### **DUPLEX PUMP CONTROL SCHEMATIC (240V)**

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#### **PUMP STATION CONTROL PANEL (240V) REAR VIEW**



Electrical Load Calculations			
Available Voltage 120/240V - 3 Phase, 4W, Solid Grour	ıd		
Maximum Available Fault Current = 4600 Amperes at T	ransformer Secondary		-
Load	Phase A Amps	Phase B Amps	Phase C Amps
Pump #1-5.0 HP	15	15	15
Pump #2-5.0 HP	15	15	15
Misc. Controls (At 240 Volts)	1	1	
25% Largest Motor	4	4	4
		_	-
Total	35	35	34

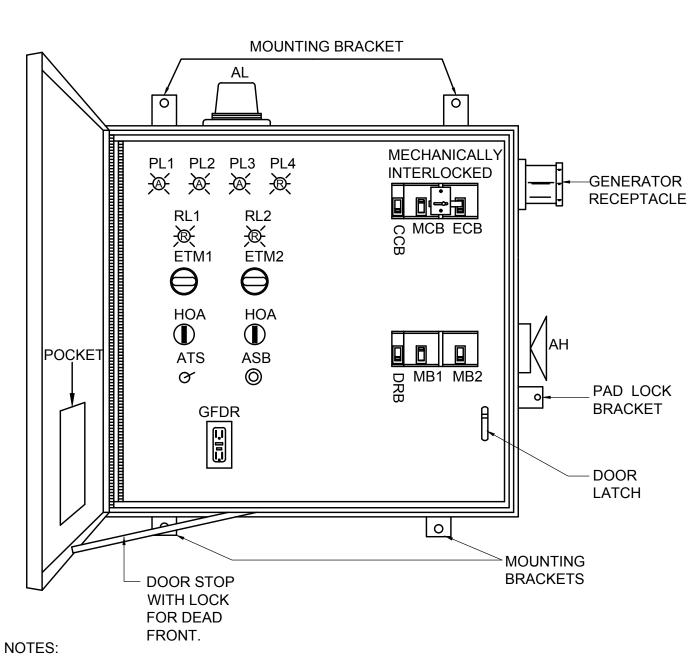
<u>dvernmen1</u> lorida

**ORANGE COUNTY UTILITIES** 9150 CURRY FORD ROAD ORLANDO, FLORIDA 32825

**BFA** Environmental Consultants Barnes, Ferland and Associates, Inc. 1230 E. Hillcrest Street, Orlando, FL, 32803 PH: **(407) 896-8608** FAX: (407)896-1822 ENGINEERING BUSINESS No. 6899

BALI HAI MHP UTILITY II

PUMP STATIC DETAIL

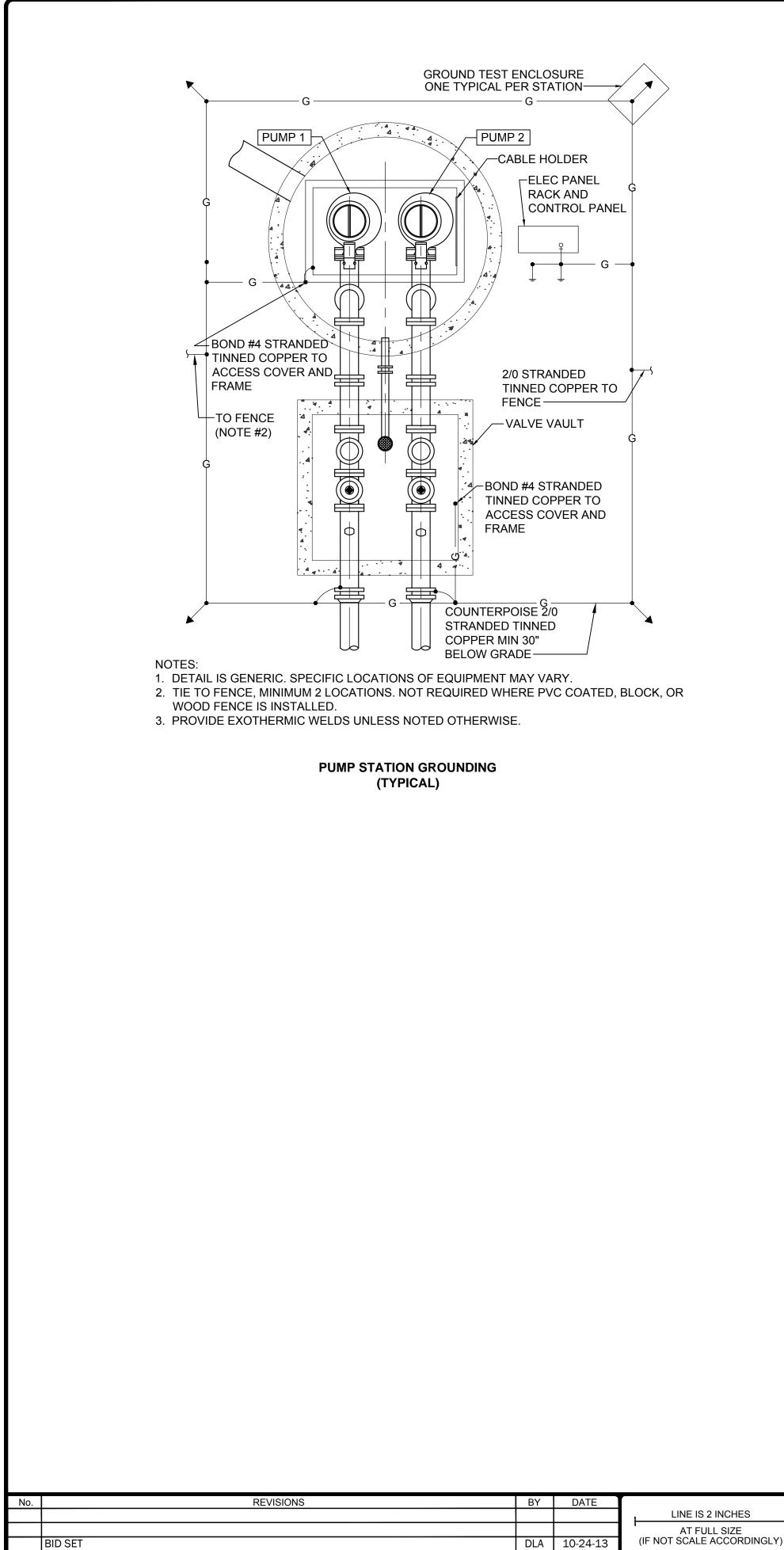


- 1. DEADFRONT LAYOUT NEMA TYPE 3R SS ENCLOSURE W/CONTINUOUS HINGE. ALL
- HARDWARE TYPE 316 SS TYPICAL, ACTUAL LAYOUT MAY VARY WITH HORSEPOWER. 2. THIS CONTROL PANEL, INCLUDING THE GENERATOR RECEPTACLE, COMPLIES WITH THE
- STANDARD LIST OF COMPONENTS REQUIRED BY UTILITIES.
- 3. ALL CONTROL WIRE TO BE #14 AWG MINIMUM.
- 4. CONTROL PANEL SHALL BE UL LISTED AND LABELED. 5. 30 SPARE TERMINALS (TB2).
- 6. PHASE MONITOR CIRCUIT BREAKER TO BE SEIMENS P/N: MSP10G, OR SQ-D P/N: MG24532.

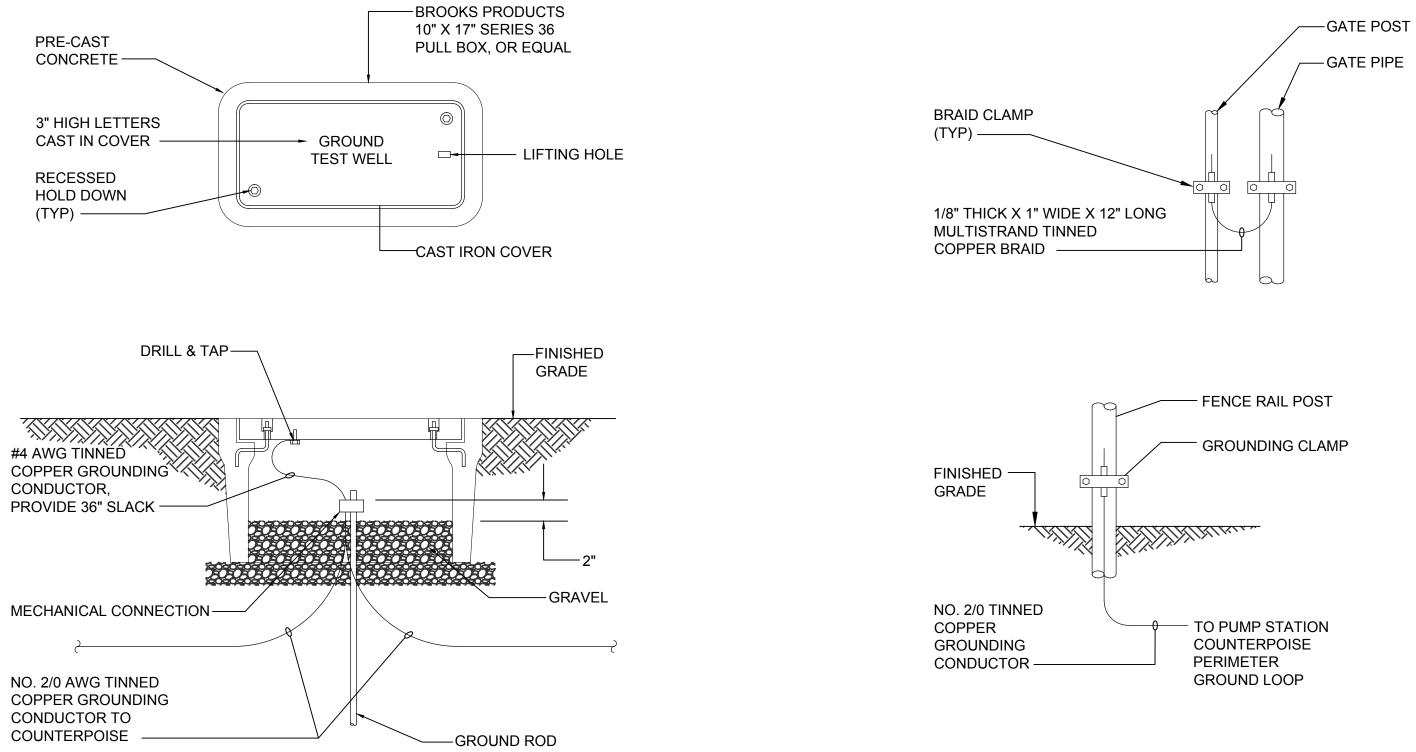
#### DUPLEX CONTROL PANEL ENCLOSURE DEAD FRONT LAYOUT



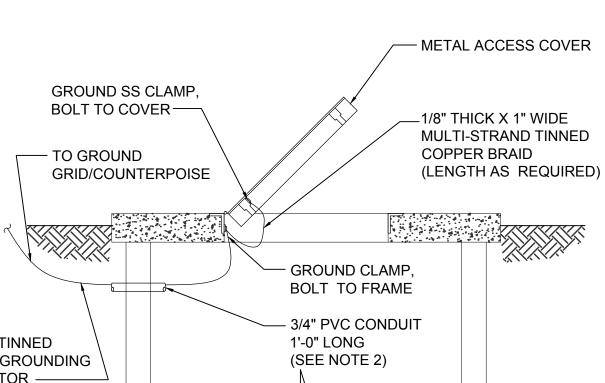
	EB: 6160		
IMPROVEMENTS	DESIGN ENGINEER	PROJECT No.: 2011-11.04	DRAWING No.
	WILLARD HOANSHELT P.E.	PROJECT DATE: OCT 2013	
ON # 3082		DESIGNED BY: WCH	F-2
		DRAWN BY: DJK	
ILS	FLORIDA REGISTRATION No.	CHECKED BY: WCH	SHEET
	42593	DRAWING FILE: SEE MARGIN	<u>14</u> OF <u>29</u>
		OCTOBED	2013 - BID SET



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**GROUND TEST WELL** 



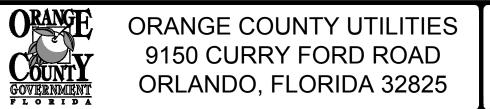
#4 AWG TINNED COPPER GROUNDING CONDUCTOR —

NOTES:

- OR IMPEDE NORMAL METHOD OF REMOVING FLOATS OR PUMPS.

BALI HAI MHP UTILITY IMP

PUMP STATION DETAILS





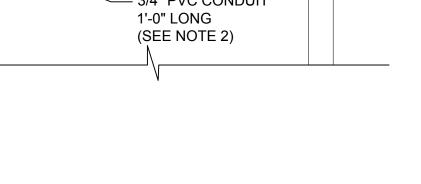
	<b>EAU</b> EB: 6160		
IPROVEMENTS	DESIGN ENGINEER	PROJECT No.: 2011-11.04	DRAWING No.
	WILLARD HOANSHELT P.E.	PROJECT DATE: OCT 2013	
N # 3082		DESIGNED BY: WCH	E-3
		DRAWN BY: DJK	
S	FLORIDA REGISTRATION No.	CHECKED BY: WCH	SHEET
	42593	DRAWING FILE: SEE MARGIN	<u>26</u> <sub>OF</sub> <u>29</u>
		OCTOBER	2013 - BID SET

#### COVER AND DOOR GROUNDING

AND ESCAPE OF VAPORS FROM WETWELL. 2. INSTALL GROUND WIRE SO THAT IT WILL NOT CROSS CLEAR OPENING OR PREVENT

EACH DOOR PROVIDE WATERPROOF CAULKING WHERE GROUND CABLE AND CONDUIT PENETRATES WETWELL TO PREVENT INTRUSION OF GROUNDWATER

1. ON COVERS WITH MULTIPLE DOORS, PROVIDE BRAID FROM FRAME TO DOOR ON



FENCE POST GROUNDING (TYPICAL)

HYDRANT											
ID NUMBER	PLAN SHEET #	EASTING	NORTHING	ELEVATION	MANUFACTURER	MODEL #	COMMENTS				
C1-FH1	C-1										
C1-FH2	C-1										
C4-FH1	C-4										
C5-FH1	C-5										
C6-FH1	C-6										
C6-FH2	C-6										

							VALVE							
ID NUMBER	PLAN SHEET #	EASTING	NORTHING	ELEVATION VALVE TYPE	MAIN TYPE	VALVE SIZE	VALVE MFR	VALVE MODEL #	# OF TURNS TO CLOSE	GEAR ACTUATOR	GEAR RATIO	SIDE ACTUATOR	ACTUATOR MFR	COMMENTS
C1-TV1	C-1			TAPPING VALVE	WATER MAIN	8"x6"								
C1-GV1	C-1			GATE VALVE	WATER MAIN	6"								
C1-GV2	C-1			GATE VALVE	WATER MAIN	6"								
C1-GV3	C-1			GATE VALVE	WATER MAIN	6"								
C1-GV4	C-1			GATE VALVE	WATER MAIN	6"								
C1-GV5	C-1			GATE VALVE	WATER MAIN	6"								
C1-PV1	C-1			PLUG VALVE	FORCE MAIN	6"								
C1-PV2	C-1			PLUG VALVE	FORCE MAIN	4"								
C1-PV3	C-1			PLUG VALVE	FORCE MAIN	6"								
C2-GV1	C-2			GATE VALVE	WATER MAIN	6"								
C2-GV2	C-2			GATE VALVE	WATER MAIN	6"								
C2-GV3	C-2			GATE VALVE	WATER MAIN	6"								
C2-GV4	C-2			GATE VALVE	WATER MAIN	6"								
C4-GV1	C-4			GATE VALVE	WATER MAIN	6"								
C4-GV2	C-4			GATE VALVE	WATER MAIN	6"								
C4-GV3	C-4			GATE VALVE	WATER MAIN	6"								
C4-GV4	C-4			GATE VALVE	WATER MAIN	6"								
C4-GV5	C-4			GATE VALVE	WATER MAIN	6"								
C4-GV6	C-4			GATE VALVE	WATER MAIN	6"								
C4-GV7	C-4			GATE VALVE	WATER MAIN	6"								
05.01/4														
C5-GV1	C-5			GATE VALVE	WATER MAIN	6"								
00.01/4														
C6-GV1	C-6			GATE VALVE		6"								
C6-GV2	C-6			GATE VALVE		6"								
C6-GV3	C-6			GATE VALVE		6"								
C6-GV4	C-6			GATE VALVE	WATER MAIN	6"								

ID NUMBEF	2	F	PLAN SHEET	Γ#	EASTING
C1-MH1			C-1		
C2-MH1			C-2		
C2-MH2			C-2		
C2-MH3			C-2		
C3-MH1			C-3		
C3-MH2			C-3		
C4-MH1			C-4		
C4-MH2			C-4		
C4-MH3			C-4		
C4-MH4			C-4		
C4-MH5			C-4		
C4-MH6			C-4		
C4-MH7			C-4		
C5-MH1			C-5		
C5-MH2			C-5		
C6-MH1			C-6		
C6-MH2			C-6		
C6-MH3			C-6		
C6-MH4			C-6		
	B	Ý	DATE		LINE IS 2 INCHES

SCALE: AS NOTED

Monday, October 28, 2013 10:01:22 AM

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No.

BID SET

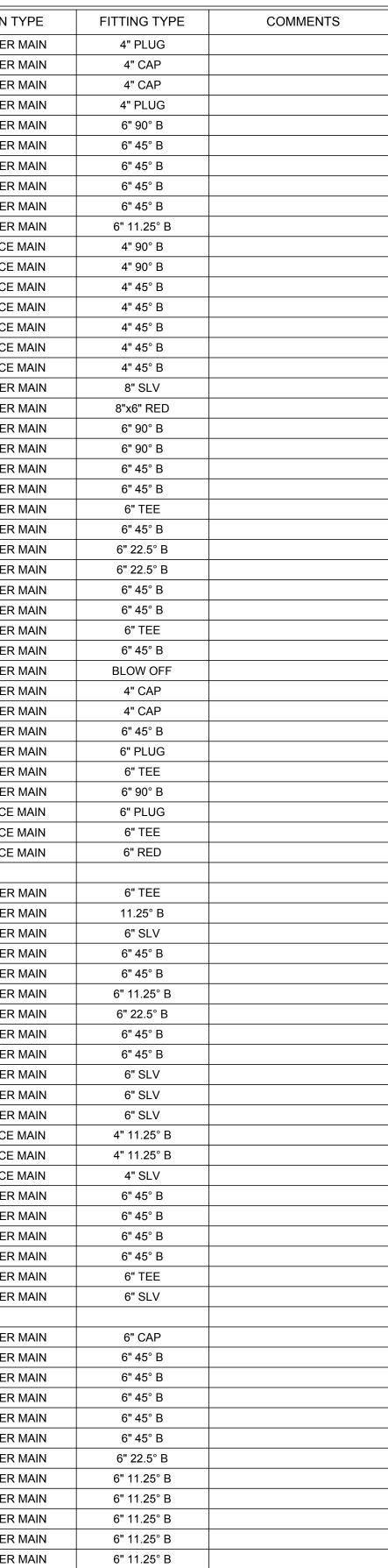
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				MANHOLE								
RTHING	RIM ELEVATION	INVERT ELV N	INVERT ELV NE	INVERT ELV E	INVERT ELV SE	INVERT ELV S	INVERT ELV SW	INVERT ELV W	INVERT ELV NW	IANUFACTURER	COMMENTS	6
PANGE OUNTY VERNMENT O R I D A			UTILITIES			onmental Consul			BALI HAI MHP	UTILITY IMPROVEMEN	TS	
OUNTY				Barne 1230 E	s, Ferland an . Hillcrest Street,	d Associates, Orlando, FL, 32 FAX: (407) 896-18	Inc. 803		COORDINA	TE ASSET TA	ABLE	
VERNMENT orida	OKLANL	O, FLORII	JA 32825	рн: (407 ENGII	1) 896-8608 NEERING BU	FAX: (407) 896-18 SINESS No. 68	822 399					

				FITTING		
ID NUMBER	PLAN SHEET #	EASTING	NORTHING	G ELEVATION	MAIN TYPE	FITTING TYPE
C1-F1	C-1				WATER MAIN	4" PLUG
C1-F2	C-1					4" CAP
C1-F3	C-1					4" CAP
C1-F4 C1-F5	C-1 C-1				WATER MAIN WATER MAIN	4" PLUG 6" 90° B
C1-F6	C-1				WATER MAIN	6" 45° B
C1-F7	C-1				WATER MAIN	6" 45° B
C1-F8	C-1				WATER MAIN	6" 45° B
C1-F9	C-1				WATER MAIN	6" 45° B
C1-F10	C-1				WATER MAIN	6" 11.25° B
C1-F11	C-1				FORCE MAIN	4" 90° B
C1-F12	C-1				FORCE MAIN	4" 90° B
C1-F13	C-1				FORCE MAIN	4" 45° B
C1-F14	C-1				FORCE MAIN	4" 45° B
C1-F15	C-1				FORCE MAIN	4" 45° B
C1-F16	C-1				FORCE MAIN	4" 45° B
C1-F17 C1-F18	C-1 C-1				FORCE MAIN WATER MAIN	4" 45° B 8" SLV
C1-F18	C-1				WATER MAIN	8"x6" RED
C1-F19	C-1				WATER MAIN	6" 90° B
C1-F21	C-1				WATER MAIN	6" 90° B
C1-F22	C-1				WATER MAIN	6" 45° B
C1-F23	C-1				WATER MAIN	6" 45° B
C1-F24	C-1				WATER MAIN	6" TEE
C1-F25	C-1				WATER MAIN	6" 45° B
C1-F26	C-1				WATER MAIN	6" 22.5° B
C1-F27	C-1				WATER MAIN	6" 22.5° B
C1-F28	C-1				WATER MAIN	6" 45° B
C1-F29	C-1				WATER MAIN	6" 45° B
C1-F30	C-1				WATER MAIN	6" TEE
C1-F31	C-1					6" 45° B
C1-F32	C-1					BLOW OFF
C1-F33 C1-F34	C-1 C-1				WATER MAIN WATER MAIN	4" CAP 4" CAP
C1-F35	C-1				WATER MAIN	6" 45° B
C1-F36	C-1				WATER MAIN	6" PLUG
C1-F37	C-1				WATER MAIN	6" TEE
C1-F38	C-1				WATER MAIN	6" 90° B
C1-F39	C-1				FORCE MAIN	6" PLUG
C1-F40	C-1				FORCE MAIN	6" TEE
C1-F41	C-1				FORCE MAIN	6" RED
C2-F1	C-2				WATER MAIN	6" TEE
C2-F2	C-2					11.25° B
C2-F3 C2-F4	C-2 C-2				WATER MAIN WATER MAIN	6" SLV 6" 45° B
C2-F5	C-2				WATER MAIN	6" 45° B
C2-F6	C-2				WATER MAIN	6" 11.25° B
C2-F7	C-2				WATER MAIN	6" 22.5° B
C2-F8	C-2				WATER MAIN	6" 45° B
C2-F9	C-2				WATER MAIN	6" 45° B
C2-F10	C-2				WATER MAIN	6" SLV
C2-F11	C-2				WATER MAIN	6" SLV
C2-F12	C-2				WATER MAIN	6" SLV
C2-F13	C-2				FORCE MAIN	4" 11.25° B
C2-F14	C-2				FORCE MAIN	4" 11.25° B
C2-F15	C-2					4" SLV
C2-F16 C2-F17	C-2 C-2				WATER MAIN WATER MAIN	6" 45° B 6" 45° B
C2-F17	C-2				WATER MAIN	6" 45° B
C2-F19	C-2				WATER MAIN	6" 45° B
C2-F20	C-2				WATER MAIN	6" TEE
C2-F21	C-2				WATER MAIN	6" SLV
C3-F1	C-3				WATER MAIN	6" CAP
C3-F2	C-3				WATER MAIN	6" 45° B
C3-F3	C-3				WATER MAIN	6" 45° B
C3-F4	C-3				WATER MAIN	6" 45° B
C3-F5	C-3				WATER MAIN	6" 45° B
C3-F6	C-3					6" 45° B
C3-F7	C-3					6" 22.5° B
C3-F8	C-3					6" 11.25° B
C3-F9	C-3					6" 11.25° B
C3-F10 C3-F11	C-3 C-3				WATER MAIN WATER MAIN	6" 11.25° B 6" 11.25° B
C3-F11 C3-F12	C-3 C-3				WATER MAIN WATER MAIN	6" 11.25° B 6" 11.25° B
C3-F12	C-3				WATER MAIN	6" SLV
						5 0LV
		BY	DATE		ORANGE	ODANOE
REVISIONS						
REVISIONS				LINE IS 2 INCHES		ORANGE
REVISIONS		DLA		LINE IS 2 INCHES AT FULL SIZE (IF NOT SCALE ACCORDINGLY)		9150 CL ORLAND

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		FACTING					
	PLAN SHEET #	EASTING	NORTHING	ELEVATION		FITTING TYPE	COMMENTS
C4-F1	C-4					6" 45° B	
C4-F2	C-4					6" 45° B	
C4-F3 C4-F4	C-4 C-4				WATER MAIN WATER MAIN	6" SLV 6" SLV	
C4-F4 C4-F5	C-4 C-4						
C4-F5 C4-F6	C-4 C-4				WATER MAIN WATER MAIN	6" 45° B	
						6" 45° B	
C4-F7	C-4					6" 45° B 6" 45° B	
C4-F8 C4-F9	C-4 C-4				WATER MAIN WATER MAIN	6 45 B	
C4-F9 C4-F10	C-4 C-4				WATER MAIN WATER MAIN	6" SLV	
C4-F11	C-4				WATER MAIN	6" SLV	
C4-F12	C-4				WATER MAIN	6" SLV	
C4-F13	C-4				WATER MAIN	6" 45° B	
C4-F14	C-4				WATER MAIN	6" 45° B	
C4-F15	C-4				WATER MAIN	6" TEE	
C4-F16	C-4				WATER MAIN	6" TEE	
C4-F17	C-4				WATER MAIN	6" 45° B	
C4-F18	C-4				WATER MAIN	6" 45° B	
C4-F19	C-4				WATER MAIN	6" 45° B	
C4-F20	C-4				WATER MAIN	6" 45° B	
C4-F21	C-4				WATER MAIN	6" SLV	
C4-F22	C-4				WATER MAIN	6" 22.5° B	
C4-F23	C-4				WATER MAIN	22.5° B	
C4-F24	C-4				WATER MAIN	6" TEE	
C4-F25	C-4				WATER MAIN	6" 45° B	
C4-F26	C-4				WATER MAIN	6" 45° B	
C4-F27	C-4				WATER MAIN	6" 45° B	
C4-F28	C-4				WATER MAIN	6" 45° B	
C4-F29	C-4				WATER MAIN	6" 45° B	
C4-F30	C-4				WATER MAIN	6" 45° B	
C4-F31	C-4				WATER MAIN	6" 45° B	
C4-F32	C-4				WATER MAIN	6" 45° B	
C4-F33	C-4				FORCE MAIN	4" 45° B	
C4-F34	C-4				FORCE MAIN	4" 45° B	
C4-F35	C-4				FORCE MAIN	4" SLV	
C5-F1	C-5				WATER MAIN	6" SLV	
C6-F1	C-6				WATER MAIN	6" SLV	
C6-F2	C-6				WATER MAIN	6" 90° B	
C6-F3	C-6				WATER MAIN	6" 45° B	
C6-F4	C-6				WATER MAIN	6" 45° B	
C6-F5	C-6				WATER MAIN	6" 45° B	
C6-F6	C-6				WATER MAIN	6" 45° B	
C6-F7	C-6				WATER MAIN	4" CAP	
C6-F8	C-6				WATER MAIN	6" 45° B	
C6-F9	C-6				WATER MAIN	6" 45° B	
C6-F10	C-6				WATER MAIN	6" SLV	
C6-F11	C-6				WATER MAIN	6" SLV	
C6-F12	C-6					6" SLV	
C6-F13	C-6				WATER MAIN	6" 90° B	
C6-F14	C-6					6" SLV	
C6-F15	C-6				WATER MAIN	6" TEE	
C6-F16	C-6					6" SLV	
C6-F17	C-6				WATER MAIN	6" 22.5° B	
C6-F18	C-6					6" 45° B	
C6-F19	C-6				WATER MAIN	6" 22.5° B	
C7-F1	C-7				WATER MAIN	6" 90° B	
C7-F2	C-7				WATER MAIN	4" CAP	
C7-F3	C-7				WATER MAIN	6" SLV	



ORANGE COUNTY UTILITIES 9150 CURRY FORD ROAD ORLANDO, FLORIDA 32825



BALI HAI MHP UTILITY IN

COORDINATE AS

MPROVEMENTS	DESIGN ENGINEER	PROJECT No.: 2011-11.04	DRAWING No.
	DANIEL L. ALLEN, P.E.	PROJECT DATE: OCT 2013	
		DESIGNED BY: EG	CA-2
SSET TABLE		DRAWN BY: BA/JAB	ONL
	FLORIDA REGISTRATION No.	CHECKED BY: DLA	SHEET
	37891	DRAWING FILE: SEE MARGIN	<u>28</u> OF <u>29</u>

	PIPE										
ID NUMBER	PLAN SHEET #	EASTING	NORTHING	ELEVATION	MAIN TYPE	TYPE OF SHOT	CONSTRUCTION METHOD	MATERIAL	PRESSURE CLASS	MANUFACTURER	COMMENTS

				· · · · · · · · · · · · · · · · · · ·	
No.	REVISIONS	BY	DATE		
				LINE IS 2 INCHES	
				AT FULL SIZE	
	BID SET	DLA	10-24-13	(IF NOT SCALE ACCORDINGLY)	(
					G
				SCALE: AS NOTED	a le
Mo	ndov. October 29, 2012 10:01:22 AM			2011 11 01 Dali Llai MUD CA 02 dura	

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BALI HAI MHP UTILITY IN

COORDINATE AS

IMPROVEMENTS	DESIGN ENGINEER	PROJECT No.: 2011-11.04	DRAWING No.
	DANIEL L. ALLEN, P.E.	PROJECT DATE: OCT 2013	
		DESIGNED BY: EG	CA-3
SSET TABLE		DRAWN BY: BA/JAB	0/10
	FLORIDA REGISTRATION No.	CHECKED BY: DLA	SHEET
	37891	DRAWING FILE: SEE MARGIN	<u>29</u> OF <u>29</u>