CITY OF ROUND ROCK, TEXAS

ROUND ROCK TEXAS

SOUTHEAST GROUND STORAGE TANK &
SOUTH 81 ELEVATED STORAGE TANK
PUMP STATION IMPROVEMENTS

JUNE 2017
BID SET

STATE OF TEXAS
JESSE W. PENN
88340
LICENSED
PROFESSIONAL ENGINEER

SUBMITTED FOR APPROVAL BY:

Jesse W. Penn — 6/5/2017

JESSE W. PENN, P.E. — DATE
ENGINEER OF RECORD

ACCEPTED FOR CONSTRUCTION BY:

DAVID FREIREICH, P.E. — DATE
UTILITIES AND ENVIRONMENTAL SERVICES

CP&Y

TBPE REGISTRATION #F-1741
www.cpyi.com
13809 RESEARCH BLVD, #300
AUSTIN, TX 78750
TEL: (512) 349-0700
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PROJECT INFORMATION

SOUTHEAST GST
PROJECT LOCATION
2333 SYCAMORE TRAIL
ROUND ROCK, TX 78664

SOUTH 81 EST
PROJECT LOCATION
2303 SOUTH MAYS ST.
ROUND ROCK, TX 78664

OWNER
CITY OF ROUND ROCK
UTILITIES & ENVIRONMENTAL SERVICES
2008 ENTERPRISE DRIVE
ROUND ROCK, TX 78664

CONTACT
JEFF BELL
CITY OF ROUND ROCK
UTILITIES & ENVIRONMENTAL SERVICES
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ROUND ROCK, TX 78664
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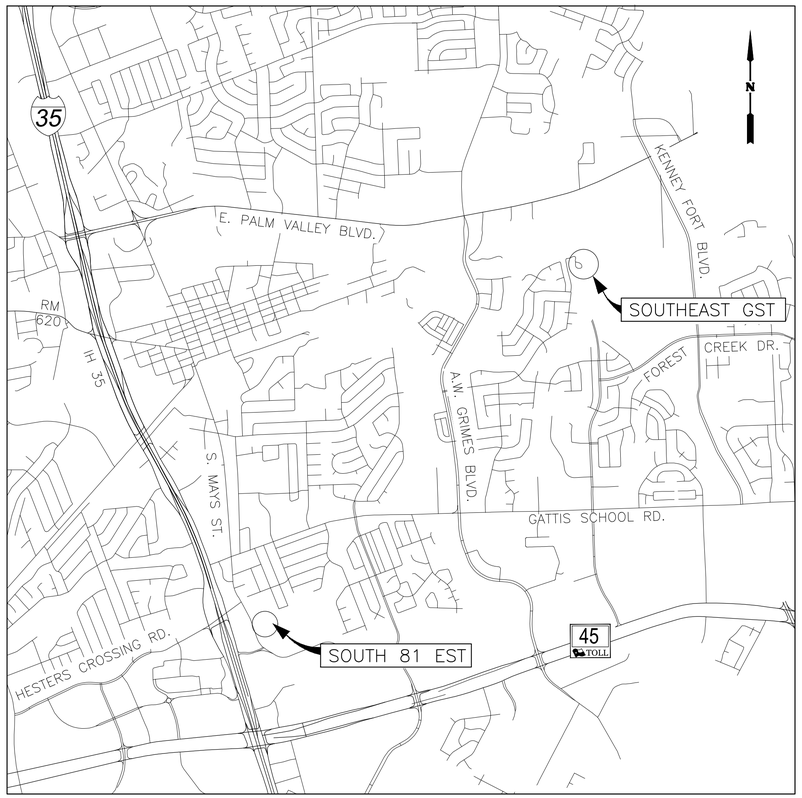


VICINITY MAP
(NOT TO SCALE)

CP&Y, INC.
TBPE FIRM REGISTRATION NO. #F-1741

ROUND ROCK TEXAS

6/9/2017
STATE OF TEXAS
JESSE W. PENN
88346
LICENSED PROFESSIONAL ENGINEER

NO.	REVISION	BY	DATE

VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE
0 1"

CITY OF ROUND ROCK
SOUTHEAST GST & SOUTH 81 EST
PUMP STATION IMPROVEMENTS

VICINITY MAP AND SHEET INDEX

Date: JUNE 2017
Designed: K.KNIPPA
Drawn: S.MEDINA
Reviewed: L.WEBB
CP&Y Proj. No.RNDR14486

SHEET
G-2
SHEET 2 OF 57

REFERENCES: RNDR14486_Border_Base.dwg _Std ENVIRO SEALS
Jun 02, 2017 - 9:01am C:\pworking\cpy\pw_cpy\knippa\d0459006\RNDR14486 CPY G-2.dwg LAYOUT: VICINITY & INDEX USER:

CITY OF ROUND ROCK
CONSTRUCTION PLAN NOTES

GENERAL NOTES:

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF ROUND ROCK STANDARD SPECIFICATIONS MANUAL AND CONTRACT DOCUMENTS.

2. ANY EXISTING UTILITIES, PAVEMENT, CURBS, SIDEWALKS, STRUCTURES, TREES, ETC., DAMAGED DURING CONSTRUCTION AND/OR NOT PLANNED FOR DEMOLITION OR REMOVAL SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE.

3. THE CONTRACTOR SHALL VERIFY DEPTHS AND LOCATIONS OF ALL EXISTING UTILITIES PRIOR TO ANY FABRICATION OR CONSTRUCTION. ANY DISCREPANCIES WITH THE CONSTRUCTION PLANS FOUND IN THE FIELD SHALL BE BROUGHT IMMEDIATELY TO THE ATTENTION OF THE ENGINEER WHO SHALL BE RESPONSIBLE FOR REVISING THE PLANS AS APPROPRIATE.

4. MANHOLE FRAMES, COVERS, VALVES, CLEANOUTS, ETC. SHALL BE RAISED TO FINISHED GRADE PRIOR TO FINAL PAVING CONSTRUCTION.

5. THE CONTRACTOR SHALL GIVE THE CITY OF ROUND ROCK (ENGINEERING AND DEVELOPMENT SERVICES DEPARTMENT) 48 HOURS NOTICE BEFORE BEGINNING EACH PHASE OF CONSTRUCTION.

6. ALL AREAS OTHER THAN PAVED AREAS DISTURBED OR EXPOSED DURING CONSTRUCTION SHALL BE REVEGETATED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. REVEGETATION OF ALL DISTURBED OR EXPOSED AREAS SHALL CONSIST OF SEEDING. THE TYPE OF REVEGETATION MUST EQUAL OR EXCEED THE TYPE OF VEGETATION PRESENT BEFORE CONSTRUCTION.

7. PRIOR TO ANY CONSTRUCTION, THE ENGINEER SHALL CONVENE A PRECONSTRUCTION CONFERENCE BETWEEN THE CITY OF ROUND ROCK, HIMSELF, THE CONTRACTOR, OTHER UTILITY COMPANIES, ANY AFFECTED PARTIES AND ANY OTHER ENTITY THE CITY OR ENGINEER MAY REQUIRE.

8. THE CONTRACTOR SHALL KEEP ACCURATE RECORDS OF ALL CONSTRUCTION THAT DEVIATES FROM THE PLANS. THE ENGINEER WILL FURNISH THE CITY OF ROUND ROCK "RECORD" DRAWINGS BASED ON CONTRACTOR'S RECORD INFORMATION FOLLOWING COMPLETION OF ALL CONSTRUCTION. THESE "RECORD" DRAWINGS SHALL MEET THE SATISFACTION OF THE ENGINEERING AND DEVELOPMENT SERVICES DEPARTMENT PRIOR TO FINAL ACCEPTANCE.

9. THE ROUND ROCK CITY COUNCIL SHALL NOT BE PETITIONED FOR ACCEPTANCE UNTIL ALL NECESSARY EASEMENT DOCUMENTS HAVE BEEN SIGNED AND RECORDED.

10. WHEN CONSTRUCTION IS BEING CARRIED OUT WITHIN EASEMENTS, THE CONTRACTOR SHALL CONFINE HIS WORK TO WITHIN THE PERMANENT AND ANY TEMPORARY EASEMENTS. PRIOR TO FINAL ACCEPTANCE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL TRASH AND DEBRIS WITHIN THE PERMANENT AND TEMPORARY EASEMENTS. CLEAN-UP SHALL BE TO THE SATISFACTION OF THE CITY ENGINEER.

11. PRIOR TO ANY CONSTRUCTION, THE CONTRACTOR SHALL APPLY FOR AND SECURE ALL PROPER PERMITS FROM THE APPROPRIATE AUTHORITIES.

12. AVAILABLE BENCHMARKS (CITY OF ROUND ROCK DATUM) THAT MAY BE UTILIZED FOR THE CONSTRUCTION OF THIS PROJECT ARE DESCRIBED AS FOLLOWS:

    SOUTHEAST GST SITE BENCHMARK: (SET) CUT "X" ON NORTHWEST CORNER OF ELECTRIC TRANSFORMER CONCRETE PAD; ELEVATION: 677.19' (NAVD 88 GEOID 09).

    SOUTH 81 EST SITE BENCHMARK: BRASS DISK IN CONCRETE; CITY OF ROUND ROCK MONUMENT 01-017; PUBLISHED ELEVATION: 823.58' (NAVD88)

TRENCH SAFETY NOTES:

1. IN ACCORDANCE WITH THE LAWS OF THE STATE OF TEXAS AND THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, ALL TRENCHES OVER 5 FEET IN DEPTH IN EITHER HARD AND COMPACT OR SOFT AND UNSTABLE SOIL SHALL BE SLOPED, SHORED, SHEETED, BRACED OR OTHERWISE SUPPORTED. FURTHERMORE, ALL TRENCHES LESS THAN 5 FEET IN DEPTH SHALL ALSO BE EFFECTIVELY PROTECTED WHEN HAZARDOUS GROUND MOVEMENT MAY BE EXPECTED. TRENCH SAFETY SYSTEMS TO BE UTILIZED FOR THIS PROJECT WILL BE DESIGNED/PROVIDED BY THE CONTRACTOR.

2. IN ACCORDANCE WITH THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, WHEN PERSONS ARE IN TRENCHES 4-FEET DEEP OR MORE, ADEQUATE MEANS OF EXIT, SUCH AS A LADDER OR STEPS, MUST BE PROVIDED AND LOCATED SO AS TO REQUIRE NO MORE THAN 25 FEET OF LATERAL TRAVEL.

3. IF TRENCH SAFETY SYSTEM DETAILS WERE NOT PROVIDED IN THE PLANS BECAUSE TRENCHES WERE ANTICIPATED TO BE LESS THAN 5 FEET IN DEPTH AND DURING CONSTRUCTION IT IS FOUND THAT TRENCHES ARE IN FACT 5 FEET OR MORE IN DEPTH OR TRENCHES LESS THAN 5 FEET IN DEPTH ARE IN AN AREA WHERE HAZARDOUS GROUND MOVEMENT IS EXPECTED, ALL CONSTRUCTION SHALL CEASE, THE TRENCHED AREA SHALL BE BARRICADED AND THE ENGINEER NOTIFIED IMMEDIATELY. CONSTRUCTION SHALL NOT RESUME UNTIL APPROPRIATE TRENCH SAFETY SYSTEM DETAILS, AS DESIGNED BY A PROFESSIONAL ENGINEER UNDER THE CONTRACTOR, ARE RETAINED AND COPIES SUBMITTED TO THE CITY OF ROUND ROCK, ALL AT NO ADDITIONAL COST TO THE CITY.

WATER AND WASTEWATER NOTES:

1. PIPE MATERIAL FOR WATER MAINS SHALL BE DUCTILE IRON (AWWA C-110, C-104, C-153 MIN. CLASS 150), UNLESS OTHERWISE NOTED.

2. UNLESS OTHERWISE DIRECTED BY THE CITY ENGINEER, DEPTH OF COVER FOR ALL LINES OUT OF THE PAVEMENT SHALL BE 60" MIN., AND DEPTH OF COVER FOR ALL LINES UNDER PAVEMENT SHALL BE A MIN. OF 30" BELOW SUBGRADE.

3. ALL FIRE HYDRANT LEADS SHALL BE DUCTILE IRON PIPE (AWWA C-110, MIN. CLASS 200).

4. ALL DUCTILE IRON PIPE AND FITTINGS SHALL BE WRAPPED WITH MINIMUM 8-MIL POLYETHYLENE AND SEALED WITH DUCT TAPE OR EQUAL ACCEPTED BY THE CITY ENGINEER.

5. THE CONTRACTOR SHALL CONTACT THE CITY INSPECTOR TO COORDINATE UTILITY TIE-INS AND NOTIFY HIM AT LEAST 48 HOURS PRIOR TO CONNECTING TO EXISTING LINES.

6. ALL MANHOLES SHALL BE CONCRETE WITH CAST IRON RING AND COVER. ALL MANHOLES LOCATED OUTSIDE OF THE PAVEMENT SHALL HAVE BOLTED COVERS. TAPPING OF FIBERGLASS MANHOLES SHALL NOT BE ALLOWED.

7. THE CONTRACTOR MUST OBTAIN A BULK WATER PERMIT OR PURCHASE AND INSTALL A WATER METER FOR ALL WATER USED DURING CONSTRUCTION. A COPY OF THIS PERMIT MUST BE CARRIED AT ALL TIMES BY ALL WHO USE WATER.

8. LINE FLUSHING OR ANY ACTIVITY USING A LARGE QUANTITY OF WATER MUST BE SCHEDULED WITH THE CITY OF ROUND ROCK INSPECTOR.

9. THE CONTRACTOR, AT HIS EXPENSE, SHALL PERFORM STERILIZATION OF ALL POTABLE WATER LINES CONSTRUCTED AND SHALL PROVIDE ALL EQUIPMENT (INCLUDING TEST GAUGES), SUPPLIES (INCLUDING CONCENTRATED CHLORINE DISINFECTING MATERIAL), AND NECESSARY LABOR REQUIRED FOR THE STERILIZATION PROCEDURE. THE STERILIZATION PROCEDURE WILL BE MONITORED BY CITY OF ROUND ROCK PERSONNEL. WATER SAMPLES WILL BE COLLECTED BY THE CITY OF ROUND ROCK TO VERIFY EACH TREATED LINE HAS ATTAINED AN INITIAL CHLORINE CONCENTRATION OF 50 PPM. WHERE MEANS OF FLUSHING IS NECESSARY, THE CONTRACTOR, AT HIS EXPENSE, SHALL PROVIDE FLUSHING DEVICES AND REMOVE SAID DEVICES PRIOR TO FINAL ACCEPTANCE BY THE CITY OF ROUND ROCK. DISPOSAL OF HIGHLY CHLORINATED WATER SHALL MEET THE LOCAL, STATE AND FEDERAL REGULATIONS. DECHLORINATION MAY BE REQUIRED AT NO COST TO THE OWNER IF SANITARY SEWER SERVICE IS NOT AVAILABLE.

10. SAMPLING TAPS SHALL BE BROUGHT UP TO 3 FEET ABOVE GRADE AND SHALL BE EASILY ACCESSIBLE FOR CITY PERSONNEL. AT THE CONTRACTOR'S REQUEST, AND IN HIS PRESENCE, SAMPLES FOR BACTERIOLOGICAL TESTING WILL BE COLLECTED BY THE CITY OF ROUND ROCK NOT LESS THAN 24 HOURS AFTER THE TREATED LINE HAS BEEN FLUSHED OF THE CONCENTRATED CHLORINE SOLUTION AND CHARGED WITH WATER APPROVED BY THE CITY. THE CONTRACTOR SHALL SUPPLY A CHECK OR MONEY ORDER, PAYABLE TO THE CITY OF ROUND ROCK, TO COVER THE FEE CHARGED FOR TESTING EACH WATER SAMPLE. CITY OF ROUND ROCK FEE AMOUNTS MAY BE OBTAINED BY CALLING THE ENGINEERING AND DEVELOPMENT SERVICES DEPARTMENT.

11. THE CONTRACTOR, AT HIS EXPENSE, SHALL PERFORM QUALITY TESTING FOR ALL WATER PIPE INSTALLED AND PERFORM HYDROSTATIC TESTING OF ALL WATER LINES CONSTRUCTED. ALL EQUIPMENT (INCLUDING PUMPS AND GAUGES), SUPPLIES AND LABOR NECESSARY TO PERFORM THE TESTS SHALL BE PROVIDED BY THE CONTRACTOR. QUALITY CONTROL AND HYDROSTATIC TESTING WILL BE MONITORED BY CITY OF ROUND ROCK PERSONNEL.

12. THE CONTRACTOR SHALL COORDINATE TESTING WITH THE CITY OF ROUND ROCK INSPECTOR AND PROVIDE NO LESS THAN 24 HOURS NOTICE PRIOR TO PERFORMING STERILIZATION, QUALITY CONTROL TESTING.

13. THE CONTRACTOR SHALL NOT OPEN OR CLOSE ANY VALVES UNLESS AUTHORIZED BY THE CITY OF ROUND ROCK.

14. ALL VALVE BOXES AND COVERS SHALL BE CAST IRON.

15. ALL WATER SERVICE, WASTEWATER SERVICE AND VALVE LOCATIONS SHALL BE APPROPRIATELY MARKED AS FOLLOWS:

WATER SERVICE	"W" ON TOP OF CURB
WASTEWATER SERVICE	"S" ON TOP OF CURB
VALVE	"V" ON FACE OF CURB

TOOLS FOR MARKING THE CURB SHALL BE PROVIDED BY THE CONTRACTOR. OTHER APPROPRIATE MEANS OF MARKING SERVICE AND VALVE LOCATIONS SHALL BE PROVIDED IN AREAS WITHOUT CURBS. SUCH MEANS OF MARKING SHALL BE AS SPECIFIED BY THE ENGINEER AND ACCEPTED BY THE CITY OF ROUND ROCK.

16. CONTACT CITY OF ROUND ROCK ENGINEERING AND DEVELOPMENT SERVICES DEPARTMENT FOR ASSISTANCE IN OBTAINING EXISTING WATER AND WASTEWATER LOCATIONS.

17. THE CITY OF ROUND ROCK FIRE DEPARTMENT SHALL BE NOTIFIED 48 HOURS PRIOR TO TESTING OF ANY BUILDING SPRINKLER PIPING IN ORDER THAT THE FIRE DEPARTMENT MAY MONITOR SUCH TESTING.

18. SAND, AS DESCRIBED IN SPECIFICATION ITEM 510 PIPE, SHALL NOT BE USED AS BEDDING FOR WATER AND WASTEWATER LINES. ACCEPTABLE BEDDING MATERIALS ARE PIPE BEDDING STONE, PEA GRAVEL AND IN LIEU OF SAND, A NATURALLY OCCURRING STONE MATERIAL CONFORMING TO ASTM C33 FOR STONE QUALITY AND MEETING THE FOLLOWING GRADATION SPECIFICATION:

SIEVE SIZE	PERCENT RETAINED BY WEIGHT
1/2"	0
3/8"	0-2
#4	40-85
#10	95-100

20. THE CONTRACTOR IS HEREBY NOTIFIED THAT CONNECTING TO, SHUTTING DOWN, OR TERMINATING EXISTING UTILITY LINES MAY HAVE TO OCCUR AT OFF-PEAK HOURS. SUCH HOURS ARE USUALLY OUTSIDE NORMAL WORKING HOURS AND POSSIBLY BETWEEN 12 A.M. AND 6 A.M.

21. ALL WASTEWATER CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) REGULATIONS, 30 TAC CHAPTER 213 AND 217, AS APPLICABLE. WHENEVER TCEQ AND CITY OF ROUND ROCK SPECIFICATIONS CONFLICT, THE MORE STRINGENT SHALL APPLY.

EROSION AND SEDIMENTATION CONTROL NOTES:

1. EROSION CONTROL MEASURES, SITE WORK AND RESTORATION WORK SHALL BE IN ACCORDANCE WITH THE CITY OF ROUND ROCK EROSION AND SEDIMENTATION CONTROL ORDINANCE.

2. ALL SLOPES SHALL BE SEEDED WITH APPROVED GRASS, GRASS MIXTURES OR GROUND COVER SUITABLE TO THE AREA AND SEASON IN WHICH THEY ARE APPLIED.

3. SILT FENCES, ROCK BERMS, SEDIMENTATION BASINS AND SIMILARLY RECOGNIZED TECHNIQUES AND MATERIALS SHALL BE EMPLOYED DURING CONSTRUCTION TO PREVENT POINT SOURCE SEDIMENTATION LOADING OF DOWNSTREAM FACILITIES. SUCH INSTALLATION WILL BE REGULARLY INSPECTED BY THE CITY OF ROUND ROCK FOR EFFECTIVENESS. ADDITIONAL MEASURES MAY BE REQUIRED IF, IN THE OPINION OF THE CITY ENGINEER, THEY ARE WARRANTED AT NO ADDITIONAL COST.

4. ALL TEMPORARY EROSION CONTROL MEASURES SHALL NOT BE REMOVED UNTIL FINAL INSPECTION AND APPROVAL OF THE PROJECT BY THE ENGINEER. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN ALL TEMPORARY EROSION CONTROL MEASURES AND TO REMOVE AFTER CONSTRUCTION AS APPROVED BY THE ENGINEER.

5. ALL MUD, DIRT, ROCKS, DEBRIS, ETC., SPILLED, TRACKED OR OTHERWISE DEPOSITED ON EXISTING PAVED STREETS, DRIVES AND AREAS USED BY THE PUBLIC SHALL BE CLEANED UP IMMEDIATELY.

PROJECT SIGNS:

1. CONTRACTOR SHALL PROVIDE TWO CONSTRUCTION SIGNS (ONE SIGN PER SITE) POSTED ON PORTABLE WOOD FRAMES OR STANCHIONS. SIGNS WILL BE LOCATED AT THE ENTRANCE OF EACH SITE. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN AND RELOCATE SIGNS (IF NECESSARY) DURING THE PROGRESSION OF THE PROJECT. CARE SHALL BE EXERCISED TO ASSURE THAT PLACEMENT OF THE SIGNS DOES NOT INTERFERE WITH OR CAUSE SIGHT OBSTRUCTION TO VEHICULAR AND PEDESTRIAN TRAFFIC.

2. SIGN FACES SHALL BE MANUFACTURED ON STANDARD 3/4" THICK EXTERIOR WATERPROOF PLYWOOD SHEETS. LUMBER POSTS SHALL BE TREATED WITH PENTACHLOROPHENOL. SIGN SHALL BE PAINTED WITH EXTERIOR OIL-BASED PAINT. CITY LOGO, PROJECT NAME, ESTIMATED START AND COMPLETION DATE, OWNER CONTACT NUMBER, PROJECT FUNDING AMOUNT AND DEPARTMENT NAME SHALL BE INCLUDED ON SIGN. SUBMIT FOR OWNER APPROVAL.

CP&Y, INC.
TBPE FIRM REGISTRATION NO. #F-1741

ROUND ROCK TEXAS

STATE OF TEXAS
JESSE W. PENN
83340
LICENSED PROFESSIONAL ENGINEER
6/5/2017

NO.	REVISION	BY	DATE

BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE
VERIFY SCALE 0 1"

CITY OF ROUND ROCK
SOUTHEAST GST & SOUTH 81 EST
PUMP STATION IMPROVEMENTS

GENERAL NOTES

Date: JUNE 2017
Designed: L.WEBB
Drawn: S.MEDINA
Reviewed: L.WEBB
CP&Y Proj. No. RNDR14486

SHEET
G-3
SHEET 3 OF 57

REFERENCES:: RNDR14486_Border_Base.dwg _-Std ENVIRO SEALS
May 31, 2017 - 1:42pm C:\pwworking\cpy\pw_cpy\smedina\d0459006\RNDR14486 CPY G-3.dwg LAYOUT: General Notes USER:

TCEQ WATER DISTRIBUTION SYSTEM GENERAL CONSTRUCTION NOTES
REVISED MARCH 4, 2015

1. THIS WATER DISTRIBUTION SYSTEM MUST BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS 30 TEXAS ADMINISTRATIVE CODE (TAC) CHAPTER 290 SUBCHAPTER D. WHEN CONFLICTS ARE NOTED WITH LOCAL STANDARDS, THE MORE STRINGENT REQUIREMENT SHALL BE APPLIED. CONSTRUCTION FOR PUBLIC WATER SYSTEMS MUST ALWAYS, AT A MINIMUM, MEET TCEQ'S "RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS.

2. AN APPOINTED ENGINEER SHALL NOTIFY IN WRITING THE LOCAL TCEQ'S REGIONAL OFFICE WHEN CONSTRUCTION WILL START. PLEASE KEEP IN MIND THAT UPON COMPLETION OF THE WATER WORKS PROJECT, THE ENGINEER OR OWNER SHALL NOTIFY THE COMMISSION'S WATER SUPPLY DIVISION, IN WRITING, AS TO ITS COMPLETION AND ATTEST TO THE FACT THAT THE WORK HAS BEEN COMPLETED ESSENTIALLY ACCORDING TO THE PLANS AND CHANGE ORDERS ON FILE WITH THE COMMISSION AS REQUIRED IN 30 TAC §290.39(H)(3).

3. ALL NEWLY INSTALLED PIPES AND RELATED PRODUCTS MUST CONFORM TO AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)/NSF INTERNATIONAL STANDARD 61 AND MUST BE CERTIFIED BY AN ORGANIZATION ACCREDITED BY ANSI, AS REQUIRED BY 30 TAC §290.44(A)(1).

4. PLASTIC PIPE FOR USE IN PUBLIC WATER SYSTEMS MUST BEAR THE NSF INTERNATIONAL SEAL OF APPROVAL (NSF-PW) AND HAVE AN ASTM DESIGN PRESSURE RATING OF AT LEAST 150 PSI OR A STANDARD DIMENSION RATIO OF 26 OR LESS, AS REQUIRED BY 30 TAC §290.44(A)(2).

5. NO PIPE WHICH HAS BEEN USED FOR ANY PURPOSE OTHER THAN THE CONVEYANCE OF DRINKING WATER SHALL BE ACCEPTED OR RELOCATED FOR USE IN ANY PUBLIC DRINKING WATER SUPPLY, AS REQUIRED BY 30 TAC §290.44(A)(3).

6. WATER TRANSMISSION AND DISTRIBUTION LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. HOWEVER, THE TOP OF THE WATER LINE MUST BE LOCATED BELOW THE FROST LINE AND IN NO CASE SHALL THE TOP OF THE WATER LINE BE LESS THAN 24 INCHES BELOW GROUND SURFACE, AS REQUIRED BY 30 TAC §290.44(A)(4).

7. PURSUANT TO 30 TAC §290.44(A)(5), THE HYDROSTATIC LEAKAGE RATE SHALL NOT EXCEED THE AMOUNT ALLOWED OR RECOMMENDED BY THE MOST CURRENT AWWA FORMULAS FOR PVC PIPE, CAST IRON AND DUCTILE IRON PIPE. INCLUDE THE FORMULAS IN THE NOTES ON THE PLANS.

   THE HYDROSTATIC LEAKAGE RATE FOR POLYVINYL CHLORIDE (PVC) PIPE AND APPURTENANCES SHALL NOT EXCEED THE AMOUNT ALLOWED OR RECOMMENDED BY FORMULAS IN AMERICA WATER WORKS ASSOCIATION (AWWA) C-605 AS REQUIRED IN 30 TAC §290.44(A)(5). PLEASE ENSURE THAT THE FORMULA FOR THIS CALCULATION IS CORRECT AND MOST CURRENT FORMULA IS IN USE;

$$Q = \frac{LD\sqrt{P}}{148{,}000}$$

   WHERE:

   Q = THE QUANTITY OF MAKEUP WATER IN GALLONS PER HOUR,
   L = THE LENGTH OF THE PIPE SECTION BEING TESTED, IN FEET,
   D = THE NOMINAL DIAMETER OF THE PIPE IN INCHES, AND
   P = THE AVERAGE TEST PRESSURE DURING THE HYDROSTATIC TEST IN POUNDS PER SQUARE INCH (PSI).

   THE HYDROSTATIC LEAKAGE RATE FOR DUCTILE IRON (DI) PIPE AND APPURTENANCES SHALL NOT EXCEED THE AMOUNT ALLOWED OR RECOMMENDED BY FORMULAS IN AMERICA WATER WORKS ASSOCIATION (AWWA) C-600 AS REQUIRED IN 30 TAC §290.44(A)(5). PLEASE ENSURE THAT THE FORMULA FOR THIS CALCULATION IS CORRECT AND MOST CURRENT FORMULA IS IN USE;

$$L = \frac{SD\sqrt{P}}{148{,}000}$$

   WHERE:

   L = THE QUANTITY OF MAKEUP WATER IN GALLONS PER HOUR,
   S = THE LENGTH OF THE PIPE SECTION BEING TESTED, IN FEET,
   D = THE NOMINAL DIAMETER OF THE PIPE IN INCHES, AND
   P = THE AVERAGE TEST PRESSURE DURING THE HYDROSTATIC TEST IN POUNDS PER SQUARE INCH (PSI).

8. THE MAXIMUM ALLOWABLE LEAD CONTENT OF PIPES, PIPE FITTINGS, PLUMBING FITTINGS, AND FIXTURES TO 0.25 PERCENT.

9. THE SYSTEM MUST BE DESIGNED TO MAINTAIN A MINIMUM PRESSURE OF 35 PSI AT ALL POINTS WITHIN THE DISTRIBUTION NETWORK AT FLOW RATES OF AT LEAST 1.5 GALLONS PER MINUTE PER CONNECTION. WHEN THE SYSTEM IS INTENDED TO PROVIDE FIREFIGHTING CAPABILITY, IT MUST ALSO BE DESIGNED TO MAINTAIN A MINIMUM PRESSURE OF 20 PSI UNDER COMBINED FIRE AND DRINKING WATER FLOW CONDITIONS AS REQUIRED BY 30 TAC §290.44(D).

TCEQ WATER DISTRIBUTION SYSTEM GENERAL CONSTRUCTION NOTES
REVISED MARCH 4, 2015 (CONTINUED)

10. THE CONTRACTOR SHALL INSTALL APPROPRIATE AIR RELEASE DEVICES IN THE DISTRIBUTION SYSTEM AT ALL POINTS WHERE TOPOGRAPHY OR OTHER FACTORS MAY CREATE AIR LOCKS IN THE LINES. ALL VENT OPENINGS TO THE ATMOSPHERE SHALL BE COVERED WITH 16-MESH OR FINER, CORROSION RESISTANT SCREENING MATERIAL OR AN ACCEPTABLE EQUIVALENT AS REQUIRED BY 30 TAC §290.44(D)(1).

11. PURSUANT TO 30 TAC §290.44(D)(4), ACCURATE WATER METERS SHALL BE PROVIDED. SERVICE CONNECTIONS AND METER LOCATIONS SHOULD BE SHOWN ON THE PLANS.

12. PURSUANT TO 30 TAC §290.44(D)(5), SUFFICIENT VALVES AND BLOWOFFS TO MAKE REPAIRS. THE ENGINEERING REPORT SHALL ESTABLISH CRITERIA FOR THIS DESIGN.

13. PURSUANT TO 30 TAC §290.44(D)(6), THE SYSTEM SHALL BE DESIGNED TO AFFORD EFFECTIVE CIRCULATION OF WATER WITH A MINIMUM OF DEAD ENDS. ALL DEAD-END MAINS SHALL BE PROVIDED WITH ACCEPTABLE FLUSH VALVES AND DISCHARGE PIPING. ALL DEAD-END LINES LESS THAN TWO INCHES IN DIAMETER WILL NOT REQUIRE FLUSH VALVES IF THEY END AT A CUSTOMER SERVICE. WHERE DEAD ENDS ARE NECESSARY AS A STAGE IN THE GROWTH OF THE SYSTEM, THEY SHALL BE LOCATED AND ARRANGED TO ULTIMATELY CONNECT THE ENDS TO PROVIDE CIRCULATION.

14. THE CONTRACTOR SHALL MAINTAIN A MINIMUM SEPARATION DISTANCE IN ALL DIRECTIONS OF NINE FEET BETWEEN THE PROPOSED WATERLINE AND WASTEWATER COLLECTION FACILITIES INCLUDING MANHOLES AND SEPTIC TANK DRAINFIELDS. IF THIS DISTANCE CANNOT BE MAINTAINED, THE CONTRACTOR MUST IMMEDIATELY NOTIFY THE PROJECT ENGINEER FOR FURTHER DIRECTION. SEPARATION DISTANCES, INSTALLATION METHODS, AND MATERIALS UTILIZED MUST MEET 30 TAC §290.44(E)(1-4) OF THE CURRENT RULES.

15. PURSUANT TO 30 TAC §290.44(E)(5), THE SEPARATION DISTANCE FROM A POTABLE WATERLINE TO A WASTEWATER MAIN OR LATERAL MANHOLE OR CLEANOUT SHALL BE A MINIMUM OF NINE FEET. WHERE THE NINE-FOOT SEPARATION DISTANCE CANNOT BE ACHIEVED, THE POTABLE WATERLINE SHALL BE ENCASED IN A JOINT OF AT LEAST 150 PSI PRESSURE CLASS PIPE AT LEAST 18 FEET LONG AND TWO NOMINAL SIZES LARGER THAN THE NEW CONVEYANCE. THE SPACE AROUND THE CARRIER PIPE SHALL BE SUPPORTED AT FIVE-FOOT INTERVALS WITH SPACERS OR BE FILLED TO THE SPRINGLINE WITH WASHED SAND. THE ENCASEMENT PIPE SHALL BE CENTERED ON THE CROSSING AND BOTH ENDS SEALED WITH CEMENT GROUT OR MANUFACTURED SEALANT.

16. PURSUANT TO 30 TAC §290.44(E)(6), FIRE HYDRANTS SHALL NOT BE INSTALLED WITHIN NINE FEET VERTICALLY OR HORIZONTALLY OF ANY WASTEWATER LINE, WASTEWATER LATERAL, OR WASTEWATER SERVICE LINE REGARDLESS OF CONSTRUCTION.

17. PURSUANT TO 30 TAC §290.44(E)(7), SUCTION MAINS TO PUMPING EQUIPMENT SHALL NOT CROSS WASTEWATER MAINS, WASTEWATER LATERALS, OR WASTEWATER SERVICE LINES. RAW WATER SUPPLY LINES SHALL NOT BE INSTALLED WITHIN FIVE FEET OF ANY TILE OR CONCRETE WASTEWATER MAIN, WASTEWATER LATERAL, OR WASTEWATER SERVICE LINE.

18. PURSUANT TO 30 TAC §290.44(E)(8), WATERLINES SHALL NOT BE INSTALLED CLOSER THAN TEN FEET TO SEPTIC TANK DRAINFIELDS.

19. PURSUANT TO 30 TAC §290.44(F)(1), THE CONTRACTOR SHALL NOT PLACE THE PIPE IN WATER OR WHERE IT CAN BE FLOODED WITH WATER OR SEWAGE DURING ITS STORAGE OR INSTALLATION.

20. PURSUANT TO 30 TAC §290.44(F)(2), WHEN WATERLINES ARE LAID UNDER ANY FLOWING OR INTERMITTENT STREAM OR SEMI-PERMANENT BODY OF WATER THE WATER MAIN SHALL BE INSTALLED IN A SEPARATE WATERTIGHT PIPE ENCASEMENT. VALVES MUST BE PROVIDED ON EACH SIDE OF THE CROSSING WITH FACILITIES TO ALLOW THE UNDERWATER PORTION OF THE SYSTEM TO BE ISOLATED AND TESTED.

21. THE CONTRACTOR SHALL DISINFECT THE NEW WATER MAINS IN ACCORDANCE WITH AWWA STANDARD C-651 AND THEN FLUSH AND SAMPLE THE LINES BEFORE BEING PLACED INTO SERVICE. SAMPLES SHALL BE COLLECTED FOR MICROBIOLOGICAL ANALYSIS TO CHECK THE EFFECTIVENESS OF THE DISINFECTION PROCEDURE WHICH SHALL BE REPEATED IF CONTAMINATION PERSISTS. A MINIMUM OF ONE SAMPLE FOR EACH 1,000 FEET OF COMPLETED WATER LINE WILL BE REQUIRED OR AT THE NEXT AVAILABLE SAMPLING POINT BEYOND 1,000 FEET AS DESIGNATED BY THE DESIGN ENGINEER, IN ACCORDANCE WITH 30 TAC §290.44(F)(3).

CP&Y, INC.
TBPE FIRM REGISTRATION NO. #F-1741

ROUND ROCK TEXAS

6/5/2017
STATE OF TEXAS
JESSE W. PENN
83340
LICENSED PROFESSIONAL ENGINEER

NO	REVISION	BY	DATE

VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE
0 1"

CITY OF ROUND ROCK
SOUTHEAST GST & SOUTH 81 EST
PUMP STATION IMPROVEMENTS

TCEQ GENERAL NOTES

Date:	JUNE 2017
Designed:	K.KNIPPA
Drawn:	S.MEDINA
Reviewed:	L.WEBB
CP&Y Proj. No.	RNDR14486

SHEET
G-4
SHEET 4 OF 57

REFERENCES:: RNDR14486_Border_Base.dwg _Std ENVIRO SEALS
May 31, 2017 - 1:44pm C:\pwworking\cpy\pw_cpy\smedina\d0459006\RNDR14486 CPY G-4.dwg LAYOUT: TCEQ GEN NOTES USER:

ABBREVIATIONS

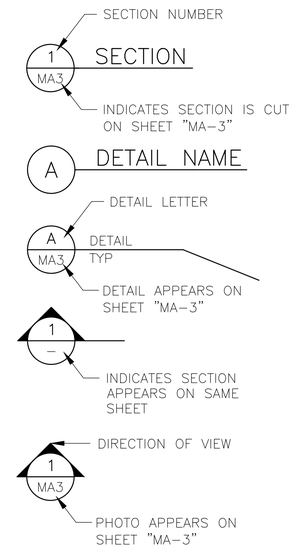
ITEM	DESCRIPTION
AB	ANCHOR BOLT
ACI	AMERICAN CONCRETE INSTITUTE
ADJ	ADJUSTABLE
AGGR	AGGREGATE
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
ALUM	ALUMINUM
ALT	ALTERNATE
ANDZ	ANODIZE
ARCH	ARCHITECTURAL
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
ASHRAE	AMERICAN SOCIETY OF HEATING, REFRIGERATING & AIR CONDITIONING ENGINEERS
ASTM	AMERICAN SOCIETY OF TESTING & MATERIALS
API	AMERICAN PETROLEUM INSTITUTE
AWS	AMERICAN WELDING SOCIETY
AWWA	AMERICAN WATER WORKS ASSOCIATION
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
ACI	AMERICAN CONCRETE INSTITUTE
AUTO	AUTOMATIC
AUX	AUXILIARY
@	AT
AV	AIR RELEASE VALVE
AVG	AVERAGE
BC	BACK OF CURB
BF	BLIND FLANGE
BFP	BACKFLOW PREVENTER
BFV	BUTTERFLY VALVE
BLDG	BUILDING
BVL	BALL VALVE
BM	BENCHMARK
BOT	BOTTOM
BRC	BRIDGE CRANE
BV	BALL VALVE
BWCP	BAR WRAPPED CONCRETE CYLINDER PIPE
C	CHANNEL (BEAM)
CAB	CABINET
CC	CONCENTRIC
CEIL	CEILING
CFM	CUBIC FEET PER MINUTE
CFS	CUBIC FEET PER SECOND
CHEM	CHEMICAL
CJ	CONSTRUCTION JOINT
CLO	CLOSET
CLR	CLEAR
℄	CENTERLINE
CTF	CENTRIFUGE
CTR	CENTER
CMU	CONCRETE MASONRY UNIT
CO	CLEANOUT
COL	COLUMN
CONT	CONTINUOUS
COORD	COORDINATE
CPLG	COUPLING
CS	CONSTANT SPEED
CRS	COLD ROLLED STEEL
CF, CU FT	CUBIC FOOT
CU IN	CUBIC INCH
CV	CHECK VALVE
CY, CU YD	CUBIC YARD
°C	DEGREE CENTIGRADE
D	PENNY (NAIL SIZE)
DBL	DOUBLE
DET	DETAIL
DI	DUCTILE IRON
ø, DIA	DIAMETER
DIST	DISTRIBUTION
DSP	DISTRIBUTION PUMP
DWG	DRAWING
E	EAST
EA	EACH
EC	ECCENTRIC
EFF	EFFLUENT
EF	EACH FACE
EL, ELEV	ELEVATION
ELB	ELBOW
ELEC	ELECTRICAL
ENGR	ENGINEER
E/S	EROSION/SEDIMENTATION
EST	ELEVATED STORAGE TANK
EQPT	EQUIPMENT
EW	EACH WAY
EWEF	EACH WAY EACH FACE
EX, EXIST	EXISTING
EXH	EXHAUST
EXP	EXPANSION
EXP AB	EXPANSION ANCHOR BOLT
EXP JT	EXPANSION JOINT

ITEM	DESCRIPTION
FC	FLEXIBLE COUPLING
FCA	FLANGED COUPLING ADAPTER
FD	FLOOR DRAIN
FDA	FLOOR DRAIN W/INTERNAL TRAP
FDN	FOUNDATION
FF	FINISHED FLOOR
FG	FINISHED GRADE
FH	FIRE HYDRANT
FIG	FIGURE
FIN	FINISH
FIT	FLOW INDICATING TRANSMITTER
FL	FLOWLINE, FLOOR
FLG	FLANGE
FLH	FLAT HEAD
FLTR	FILTER
FM	ULTRASONIC FLOWMETER
FT	FOOT, FEET
FTG	FOOTING
FV	FLAP VALVE
FWD	FORWARD
°F	DEGREES. FAHRENHEIT
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GC	GROOVED COUPLING
GCF	GROOVED COUPLING FITTING
GL	GLASS
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GS	GALVANIZED STEEL
GST	GROUND STORAGE TANK
GV	GATE VALVE
HB	HOSE BIBB
HCL	HYDROCHLORIC ACID
HDW	HARDWARE
HG, HGL	HYDRAULIC GRADE
HGT	HEIGHT
HH	HAND HOLE
HMC	HARNESSED MECHANICAL COUPLING
HORIZ	HORIZONTAL
HP	HORSEPOWER
HT	HOIST/TROLLEY
HWL	HIGH WATER LEVEL
ID	INSIDE DIAMETER
IN	INCH, INCHES
INFL	INFLUENT
INSTM	INSTRUMENT
INV	INVERT
ISA	INSTRUMENT SOCIETY OF AMERICA
IEEE	INSTITUTE OF ELECTRICAL & ELECTRONIC ENGINEERS
IES	ILLUMINATING ENGINEERING SOCIETY
IF	INSIDE FACE
JT	JOINT
KIP	THOUSAND POUNDS
KW	KILOWATT
L OR Δ	ANGLE
LAB	LABORATORY
LAV	LAVATORY
LB	POUND
LB/CU FT	POUNDS PER CUBIC FOOT
LF	LINEAR FEET
LOC	LIMITS OF CONSTRUCTION
LR	LONG RADIUS
LT	LEFT
LWL	LOW WATER LEVEL
M	MOTORIZED
MAS	MASONRY
MAX	MAXIMUM
MCC	MOTOR CONTROL CENTER
MECH	MECHANICAL
MFR	MANUFACTURER
MFM	MAGNETIC FLOW METER
MGD	MILLION GALLONS PER DAY
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MJ	MECHANICAL JOINT
ML	MIXED LIQUIDS
MWS	MAXIMUM WATER SURFACE
N	NORTH
NEC	NATIONAL ELECTRIC CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION
NIC	NOT IN CONTRACT
NO	NUMBER
NPT	NATIONAL PIPE THREADS
NSF	NATIONAL SANITARY FOUNDATION

ITEM	DESCRIPTION
NTS	NOT TO SCALE
NWL	NORMAL WATER LEVEL
OC	ON CENTER
OD	OUTSIDE DIAMETER OR OVERHEAD DOOR
OF	OUTSIDE FACE
OH	OVERHEAD POWER LINE OR OPPOSITE HAND
OSD	OPEN SITE DRAIN
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
OPNG	OPENING
OZ	OUNCE
P	PIPE
PC	POINT OF CURVATURE
PCV	PUMP CONTROL VALVE
PE	PLAIN END
PI	POINT OF INTERSECTION
PL	PLATE (STEEL)
PLC(S)	PLACE(S)
PLYWD	PLYWOOD
PMP	VERTICAL TURBINE PUMP
PREFAB	PREFABRICATED
PRESS	PRESSURE
PRI	PRIMARY
PR/PSV	PRESSURE RELIEF/PRESSURE SUSTAINING VALVE
PROP	PROPOSED, PROPERTY
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSIG	POUNDS PER SQUARE INCH GAUGE
PVC	POLYVINYL CHLORIDE
Q	FLOW
RAD	RADIUS
RD	ROOF DRAIN
RDCR	REDUCER
RECIRC	RECIRCULATION
RECT	RECTANGULAR
RED	REDUCER
REF	REFER, REFERENCE
REFR	REFRIGERATOR
REINF	REINFORCE, REINFORCED, REINFORCING
REP	REPRESENTATIVE
REQ'D	REQUIRED
RH	ROD HOLE
RL	RAIN LEADER
RM	ROOM
ROW	RIGHT-OF-WAY
RST	REINFORCING STEEL
RT	RIGHT
RTN	RETURN
RV	ROOF VENT
S	STEEL
SCFM	STANDARD CUBIC FEET PER MINUTE
SCHED	SCHEDULE
SD	STORM DRAIN
SEC	SECONDARY
SECT	SECTION
SEW	SEWAGE
SHT	SHEET
SIM	SIMILAR
SLG	SLIDE GATE
SOLN	SOLUTION
SP	SUMP PUMP
SPEC	SPECIFICATIONS
SQ	SQUARE
SQ FT	SQUARE FOOT
SQ IN	SQUARE INCH
SRV	SURGE RELIEF VALVE
SS	STAINLESS STEEL
STA	STATION
STD	STANDARD
STM	STORM
STRUC	STRUCTURE
STL	STRUCTURAL STEEL
SUB	SUBSTANTIAL
SPPT	SUPPORT
SYMN	SYMMETRICAL
SPKR	SPRINKLER
TB	TEST BORING
TBG	TUBING
TC	TOP OF CURB
TAN	TANGENT
TDCV	TILT DISK CHECK VALVE
TDH	TOTAL DYNAMIC HEAD
TECH	TECHNICAL
TEL	TELEPHONE
TEMP	TEMPERATURE
THD	THREAD
TOC	TOP OF CONCRETE
TP	TURNING POINT
TS	TOP OF SLAB
TT	THRUST TIE
TW	TOP OF WALL
TYP	TYPICAL

ITEM	DESCRIPTION
UBC	UNIFORM BUILDING CODE
UFC	UNIFORM FIRE CODE
UMC	UNIFORM MECHANICAL CODE
UNO	UNLESS OTHERWISE NOTED
UPC	UNIFORM PLUMBING CODE
V	VENT, VOLT
VAC	VACUUM
VC	VERTICAL
VERT	VERTICAL CURVE
VTR	VENT THRU ROOF
W/	WITH
WC	WATER CLOSET
WF	WIDE FLANGE (BEAM)
WTR	WATER
WH	WATER HEATER
WL	WATER LEVEL
WS	WATER SURFACE, WATERSTOP
WWMH	WASTEWATER MANHOLE
Y, YD	YARD, YARDS

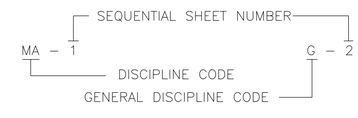
DRAFTING SYMBOLS



DISCIPLINE CODE

CODE	DESCRIPTION
G	GENERAL
C	CIVIL – GENERAL
CA	CIVIL – SOUTHEAST GST
CB	CIVIL – SOUTH 81 EST
CZ	CIVIL – DETAILS
S	STRUCTURAL – GENERAL
SA	STRUCTURAL – SOUTHEAST GST
SB	STRUCTURAL – SOUTH 81 EST
SZ	STRUCTURAL – DETAILS
M	MECHANICAL – GENERAL
MA	MECHANICAL – SOUTHEAST GST
MB	MECHANICAL – SOUTH 81 EST
MZ	MECHANICAL – DETAILS
E	ELECTRICAL – GENERAL
EA	ELECTRICAL – SOUTHEAST GST
EB	ELECTRICAL – SOUTH 81 EST
EZ	ELECTRICAL – DETAILS
IA	INSTRUMENTATION – SOUTHEAST GST
IB	INSTRUMENTATION – SOUTH 81 EST
IZ	INSTRUMENTATION – DETAILS

DRAWING IDENTIFICATION SYSTEM



EXISTING	PROPOSED	DESCRIPTION
		REINFORCED CONCRETE SECTION
		BUILDING PLAN VIEW
		CONCRETE ROAD, DRIVEWAY, OR SIDEWALK
		GRATING – PLAN VIEW
		ALUMINUM OR STEEL DECK PLATE
		SELECT BACKFILL
		GRANULAR FILL OR GRAVEL ROAD
		DEMOLITION
		ASPHALT PAVEMENT
		STEEL IN SECTION
		MASONRY (BRICK OR BLOCK)
X–X–X OR PIPE LEGEND	X–X–X OR PIPE LEGEND	PIPE, SMALL SIZE. SEE PIPE LEGEND (SHEET M–1)
PIPE LEGEND	PIPE LEGEND	PIPE, LARGE SIZE. SHOWN AS TWO LINES WITH CENTERLINE
BURIED E	BURIED E	UNDERGROUND ELECTRICAL – UGE
BURIED C	BURIED C	UNDERGROUND COMMUNICATION DUCTBANK
OH	OH	OVERHEAD POWER LINE
		SHALE OR LIMESTONE
		EARTH OR GRADE
		YARD HYDRANT STATION
		FIRE HYDRANT
MH	MH	MANHOLE
TB–1	TB–1	TEST BORING LOCATION AND NUMBER
		BENCHMARK LOCATION
		COORDINATE LOCATION
X	X	FENCE
PL	PL	PROPERTY LINE
		RAILROAD

REFERENCES: _CPY_Standard_Border_Base.dwg _Std ENVIRO SEALS
May 31, 2017 – 1:45pm C:\pwworking\cpy\pw_cpy\smedina\d0459006\RNDR14486 CPY G-5.dwg LAYOUT: Layout1 USER:

CP&Y, INC.
TBPE FIRM REGISTRATION NO. #F-1741

ROUND ROCK TEXAS

STATE OF TEXAS
JESSE W. PENN
83340
LICENSED
PROFESSIONAL ENGINEER
6/5/2017

NO.	REVISION	BY	DATE

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0 1"

CITY OF ROUND ROCK
SOUTHEAST GST & SOUTH 81 EST
PUMP STATION IMPROVEMENTS

GENERAL ABBREVIATIONS, DRAFTING SYMBOLS & DRAWING LEGEND

Date: JUNE 2017
Designed: K.KNIPPA
Drawn: S.MEDINA
Reviewed: L.WEBB
CP&Y Proj. No. RNDR14486

SHEET
G–5
SHEET 5 OF 57

A. GENERAL SITE DATA

PROJECT LIMITS:

SEE SHEET CA–2 FOR LIMITS OF CONSTRUCTION (LOC).

PROJECT SITE MAPS:

1. PROJECT LATITUDE: 30.51438109 N
   PROJECT LONGITUDE: 97.645897695 W
2. PROJECT LOCATION MAP:
   SEE SHEET G–2; VICINITY MAP AND SHEET INDEX
3. DRAINAGE PATTERNS:
   SEE SHEET CA–2 SITE PLAN IMPROVEMENTS – SOUTHEAST GST
4. MAJOR CONTROLS AND LOCATIONS OF THE STABILIZATION PRACTICES:
   SEE SHEET CA–2 SITE PLAN IMPROVEMENTS – SOUTHEAST GST
5. SURFACE WATERS AND DISCHARGE LOCATIONS:
   SEE SHEET CA–2 SITE PLAN IMPROVEMENTS – SOUTHEAST GST

PROJECT DESCRIPTION:

THIS PROJECT WILL CONSIST OF REPLACING EXISTING PUMP MOTORS, REPLACING SHELL AND APPURTENANCES OF EXISTING PUMP STATION BUILDING, DEMOLITION OF ABANDONED MASONRY CHLORINE STORAGE BUILDING, REPLACING EXISTING ELECTRICAL WIRING AND CONDUITS, REPLACING EXISTING MOTOR CONTROL CENTER, REPLACING EXISTING SUCTION SIDE BUTTERFLY VALVES, REPLACING MISCELLANEOUS PIPING AND VALVES, AND ABANDONING EXISTING BYPASS LINE.

MAJOR SOIL DISTURBING SEQUENCE OF CONSTRUCTION:

1. INSTALL CONTROLS AS INDICATED ON THE SITE PLAN.
2. MAJOR SOIL DISTURBING ACTIVITIES MAY INCLUDE CLEARING AND GRUBBING, EXCAVATION, FINAL GRADING, AND PLACEMENT OF TOP SOIL.

EXISTING AND PROPOSED SITE CONDITIONS:

DESCRIPTION OF EXISTING VEGETATIVE COVER:
WOODS
PERCENTAGE OF EXISTING VEGETATIVE COVER:
59.63%
DESCRIPTION OF SOILS:
– OAKALLA SILTY CLAY LOAM, 0 TO 2 PERCENT SLOPES, FREQUENTLY FLOODED.
– QUEENY CLAY LOAM, 1 TO 5 PERCENT SLOPES.
– SUNEV SILTY CLAY LOAM, 1 TO 3 PERCENT SLOPES.

TOTAL PROJECT AREA : 0.57 ACRES
TOTAL PROJECT AREA DISTURBED: 0.05 ACRES (9%)

WEIGHTED RUNOFF COEFFICIENT:
PRE–CONSTRUCTION: 0.59 (RATIONAL METHOD COEFFICIENT)
POST–CONSTRUCTION: 0.59 (RATIONAL METHOD COEFFICIENT)

RECEIVING WATERS:

NAME OF RECEIVING WATERS THAT WILL RECEIVE DISCHARGES FROM DISTURBED AREAS OF THE PROJECT: BRUSHY CREEK

AN IMPAIRED STREAM DOES NOT PASSES THROUGH THE PROJECT SITE.
STREAM NAME: N/A SEGMENT NO.: N/A

SITE IS IN A MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4).
MS4 OPERATOR: CITY OF ROUND ROCK

A WATER POLLUTION ABATEMENT PLAN (WPAP) OR CONTRIBUTING ZONE PLAN IS NOT REQUIRED.

USACE WETLANDS ARE NOT LOCATED ON THIS SITE. CONTRACTOR SHALL DISTURB WITHOUT SPECIFIC AUTHORIZATION.

B. BEST MANAGEMENT PRACTICES

SOIL STABILIZATION PRACTICES:
(SELECT T=TEMPORARY OR P=PERMANENT BMP)

__P__ SEEDING
__P__ MULCHING
____ SODDING
____ VEGETATIVE BUFFER ZONES
____ PRESERVATION OF NATURAL RESOURCES
____ SOIL BLANKETS AND MATTING
____ COMPOST MULCH
____ OTHER: _____
NOTE: SEE SITE PLAN (CA–2) FOR LOCATIONS OF BMPS.

STRUCTURAL PRACTICES:
(SELECT T=TEMPORARY OR P=PERMANENT BMP)

__T__ FIBER ROLLS/SILT FENCE
____ ROCK BERMS
____ DIVERSION, INTERCEPTOR, OR PERIMETER DIKES
____ DIVERSION, INTERCEPTOR, OR PERIMETER SWALES
____ PIPE SLOPE DRAINS
____ CURB AND GUTTER
____ STORM SEWER
____ CONSTRUCTION EXIT
____ SEDIMENT TRAPS
____ SEDIMENT BASINS
____ STORM INLET SEDIMENT TRAP
____ STONE OUTLET STRUCTURES
____ VELOCITY CONTROL DEVICES
____ OTHER: _____
NOTE: SEE SITE PLAN (CA–2) FOR LOCATION OF BMPS.

STORM WATER MANAGEMENT:

1. ELEMENTS THAT CONVEY STORM WATER ARE DESIGNED TO ALLOW ADEQUATE VOLUME AND VELOCITY, MINIMIZING ANY SIGNIFICANT EROSION OCCURENCES.

2. ADDITIONAL FACTORS AFFECTING THE POST–CONSTRUCTION STORM WATER AT THE PROJECT LOCATION INCLUDE:
   ____ EXISTING OR NEW VEGETATION PROVIDING FOR NATURAL FILTRATION
   ____ PRESERVATION OF BUFFER ZONES ALONG NATURAL WATERWAYS
   ____ OPEN AREAS PROVIDES FOR INFILTRATION
   ____ VELOCITY DISSIPATION DEVICES TO MINIMIZE EROSION
   ____ DETENTION/RETENTION POND TO MINIMIZE INCREASED SITE RUNOFF
   ____ OTHER: _____

3. CONCRETE TRUCK WASH WATER DISCHARGES ON THIS SITE IS PROHIBITED AND SHALL NOT CONTAMINATE SURFACE WATER. CONCRETE TRUCK WASH–OUT LOCATIONS SHALL NOT BE LOCATED IN AREAS OF CONCENTRATED FLOW AND WILL BE INSPECTED REGULARLY FOR DISCHARGES.

4. HAZARDOUS SPILL/LEAK SHALL BE PREVENTED OR MINIMIZED. AT A MINIMUM, THIS INCLUDES ASPHALT PRODUCTS, FUELS, OILS, LUBRICANTS, SOLVENTS, PAINTS, ACIDS, CONCRETE CURING COMPOUNDS, AND CHEMICAL ADDITIVES FOR SOIL STABILIZATION. BMPS SHALL BE IMPLEMENTED TO THE STORAGE AREAS OF THESE PRODUCTS. ALL SMALL SPILLS MUST BE CLEANED AND DISPOSED OF PROPERLY. REPORT ANY RELEASE AT OR ABOVE THE REPORTABLE QUANTITY (RQ) DURING A 24–HOUR PERIOD TO TCEQ AT 1–800–832–8224, EPA NATIONAL RESPONSE CENTER AT 1–800–424–8802, AND THE CITY OF ROUND ROCK STORM WATER PROGRAM AT 512–218–5555. FOR SPILLS AND LEAKS OF HAZARDOUS AND TOXIC MATERIALS SEE FINAL RQ IN TABLE 302.4 IN 40 CFR § 302.4.

REPORTABLE QUANTITIES FOR SPILLS

MATERIAL	WHERE DISCHARGED	REPORTABLE QUANTITY
OIL & OIL PRODUCTS	SOIL	25 GALLONS
	WATER	VISIBLE SHEEN
CRUDE OIL	SOIL	210 GALLONS (5 BARRELS)
	WATER	VISIBLE SHEEN
DIESEL FUEL & GASOLINE	SOIL	13 GALLONS (100 POUNDS)
WATER		VISIBLE SHEEN
DEGREASERS (CAUSTICS)	SOIL	13 GALLONS (100 POUNDS)
	WATER	13 GALLONS (100 POUNDS)
HYDROCHLORIC & SULFURIC ACIDS (BATTERY ACID)	SOIL	13 GALLONS (100 POUNDS)
	WATER	13 GALLONS (100 POUNDS)
ANTIFREEZE	SOIL	13 GALLONS (100 POUNDS)
	WATER	13 GALLONS (100 POUNDS)
HAZARDOUS SUBSTANCE	SOIL	RQ VARIES
	WATER	RQ VARIES ≤ 100 POUNDS
SOLID WASTE	SOIL	NO RQ
	WATER	100 POUNDS

AUTHORIZED NON–STORM WATER DISCHARGES:

1. DISCHARGES FROM FIRE FIGHTING ACTIVITIES
2. AIR CONDITIONING CONDENSATE
3. WATER TO CONTROL DUST IN ROADWAYS
4. GROUND WATER ENCOUNTERED DURING EXCAVATION
5. POTABLE WATER SOURCES
6. UNCONTAMINATED FIRE HYDRANT FLUSHINGS (EXCLUDING HYPER–CHLORINATED WATER)
7. LAWN WATERING OR IRRIGATION
8. VEHICLE, EXTERNAL BUILDING, AND PAVEMENT WASH WATER WHERE DETERGENTS AND SOAPS ARE NOT USED

C. OTHER REQUIREMENTS AND PRACTICES

MAINTENANCE PROCEDURES:

1. ALL EROSION AND SEDIMENT CONTROLS SHALL BE MAINTAINED IN GOOD WORKING ORDER BY THE CONTRACTOR. IF A REPAIR IS NECESSARY, IT SHALL BE PERFORMED BEFORE THE NEXT ANTICIPATED STORM EVENT BUT NO LATER THAN SEVEN (7) CALENDAR DAYS AFTER THE SURROUNDING EXPOSED GROUND HAS DRIED SUFFICIENTLY TO PREVENT FURTHER DAMAGE FROM EQUIPMENT. IF MAINTENANCE PRIOR TO THE NEXT ANTICIPATED STORM EVENT IS IMPRACTICABLE, MAINTENANCE MUST BE SCHEDULED AND ACCOMPLISHED AS SOON AS PRACTICABLE.

2. DISTURBED AREAS ON WHICH CONSTRUCTION ACTIVITIES HAVE CEASED, TEMPORARILY OR PERMANENTLY, SHALL BE STABILIZED WITHIN 14 CALENDAR DAYS UNLESS ACTIVITIES ARE SCHEDULED TO AND DO RESUME WITHIN 21 CALENDAR DAYS. THE AREAS ADJACENT TO CREEKS AND DRAINAGE WAYS SHALL HAVE PRIORITY FOLLOWED BY PROTECTING STORM SEWER INLETS.

INSPECTION PROCEDURES:

1. FOR AREAS OF THE CONSTRUCTION SITE THAT HAVE NOT BEEN PERMANENTLY STABILIZED, AREAS USED FOR STORAGE OF MATERIALS, STRUCTURAL CONTROL MEASURES, AND LOCATIONS WHERE VEHICLES ENTER OR EXIT THE SITE, QUALIFIED PERSONNEL PROVIDED BY THE CONTRACTOR OF THE SITE AND FAMILIAR WITH THE SWPPP MUST INSPECT DISTURBED AREAS AT LEAST ONCE EVERY 14 CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF A STORM EVENT OF 0.5 INCHES OR GREATER.

2. AS AN ALTERNATIVE TO THE ABOVE DESCRIBED INSPECTION SCHEDULE, THE SWPPP MAY BE DEVELOPED TO REQUIRE THAT THESE INSPECTIONS WILL OCCUR AT LEAST ONCE EVERY SEVEN (7) CALENDAR DAYS. IF THIS ALTERNATIVE SCHEDULE IS DEVELOPED, THEN THE INSPECTIONS MUST OCCUR ON A SPECIFIED DAY, REGARDLESS OF WHETHER OR NOT THERE HAS BEEN RAINFALL SINCE THE PREVIOUS INSPECTION.

3. AN INSPECTION AND MAINTENANCE REPORT SHALL BE PREPARED AND MAINTAINED ON SITE BY QUALIFIED PERSONNEL FOR EACH INSPECTION AND THE CONTROLS SHALL BE REVISED ON THE SWPPP WITHIN SEVEN (7) CALENDAR DAYS FOLLOWING INSPECTION.

WASTE MATERIALS:

1. ALL NON–HAZARDOUS MUNICIPAL WASTE MATERIAL SUCH AS LITTER, RUBBISH, TRASH, AND GARBAGE LOCATED ON OR ORIGINATING FROM THE PROJECT SHALL BE COLLECTED AND STORED IN A SECURELY LIDDED METAL DUMPSTER PROVIDED BY THE CONTRACTOR. THE DUMPSTER SHALL BE EMPTIED AS NECESSARY AND THE TRASH SHALL BE HAULED TO A PERMITTED DISPOSAL FACILITY. THE BURYING OF NON–HAZARDOUS MUNICIPAL WASTE ON THE PROJECT SHALL NOT BE PERMITTED.

2. CONSTRUCTION MATERIAL WASTE SITES, STOCK PILES, AND HAUL ROADS SHALL BE CONSTRUCTED TO MINIMIZE AND CONTROL THE AMOUNT OF SEDIMENT THAT MAY ENTER RECEIVING WATERS. CONSTRUCTION MATERIAL WASTE SITES SHALL NOT BE LOCATED IN ANY WETLAND, WATER BODY, OR STREAM BED.

3. CONSTRUCTION STAGING AREAS AND VEHICLE MAINTENANCE AREAS SHALL BE CONSTRUCTED IN A MANNER BY THE CONTRACTOR TO MINIMIZE THE RUNOFF OF POLLUTANTS.

SANITARY WASTE:

1. ALL SANITARY WASTE WILL BE COLLECTED FROM THE PORTABLE UNITS AS NECESSARY OR AS REQUIRED BY LOCAL REGULATION BY A LICENSED SANITARY WASTE MANAGEMENT CONTRACTOR.

OFF SITE VEHICLE TRACKING:

1. ALL MUD, DIRT, ROCKS, DEBRIS, ETC., SPILLED, TRACKED, OR OTHERWISE DEPOSITED ON EXISTING PAVED STREETS, DRIVES, AND AREAS USED BY THE PUBLIC SHALL BE CLEANED UP IMMEDIATELY.

OTHER:

1. ALL WATERWAYS SHALL BE CLEARED AS SOON AS PRACTICABLE OF TEMPORARY EMBANKMENT, DEBRIS, OR OTHER OBSTRUCTIONS.

2. CONSTRUCTION AREAS SHALL BE MAINTAINED IN A MANNER THAT WILL MINIMIZE AIRBORNE DUST.

SOUTHEAST GST – SWPPP INFORMATION

REFERENCES: RNDR14486_Border_Base.dwg Std ENVIRO SEALS
May 31, 2017 - 1:48pm C:\pwworking\cpy\pw_cpy\smedina\d0459006\RNDR14486 CPY G–6.dwg LAYOUT: Layout1 USER:

CP&Y, INC.
TBPE FIRM REGISTRATION NO. #F–1741

ROUND ROCK TEXAS

STATE OF TEXAS
JESSE W. PENN
83340
LICENSED
PROFESSIONAL ENGINEER
5/25/2017

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0 1"

CITY OF ROUND ROCK
SOUTHEAST GST & SOUTH 81 EST
PUMP STATION IMPROVEMENTS
STORMWATER POLLUTION PREVENTION PLAN (SWPPP) INFORMATION – SOUTHEAST GST

Date: JUNE 2017
Designed: K.KNIPPA
Drawn: S.MEDINA
Reviewed: L.WEBB
CP&Y Proj. No. RNDR14486

SHEET
G–6
SHEET 6 OF 57

A. GENERAL SITE DATA

PROJECT LIMITS:

SEE SHEET CB–2 FOR LIMITS OF CONSTRUCTION (LOC).

PROJECT SITE MAPS:

1. PROJECT LATITUDE: 30.488580155 N
   PROJECT LONGITUDE: 97.673910071 W
2. PROJECT LOCATION MAP:
   SEE SHEET G–2; VICINITY MAP AND SHEET INDEX
3. DRAINAGE PATTERNS:
   SEE SHEET CB–2 SITE PLAN IMPROVEMENTS – SOUTH 81 EST
4. MAJOR CONTROLS AND LOCATIONS OF THE STABILIZATION PRACTICES:
   SEE SHEET CB–2 SITE PLAN IMPROVEMENTS – SOUTH 81 EST
5. SURFACE WATERS AND DISCHARGE LOCATIONS:
   SEE SHEET CB–2 SITE PLAN IMPROVEMENTS – SOUTH 81 EST

PROJECT DESCRIPTION:

THIS PROJECT WILL CONSIST OF CONSTRUCTING AN OUTDOOR PUMP STATION CONSISTING OF TWO VERTICAL TURBINE PUMPS ON A CONCRETE PAD, A PRECAST CONCRETE ELECTRICAL BUILDING, ELECTRICAL WIRING AND CONDUITS, MOTOR CONTROL CENTER WITH VFDS, PIPING AND VALVES TO CONNECT TO EXISTING ELEVATED STORAGE TANK PIPING.

MAJOR SOIL DISTURBING SEQUENCE OF CONSTRUCTION:

1. INSTALL CONTROLS AS INDICATED ON THE SITE PLAN.
2. MAJOR SOIL DISTURBING ACTIVITIES MAY INCLUDE CLEARING AND GRUBBING, EXCAVATION, FINAL GRADING, AND PLACEMENT OF TOP SOIL.

EXISTING AND PROPOSED SITE CONDITIONS:

DESCRIPTION OF EXISTING VEGETATIVE COVER:
GRASS LAND
PERCENTAGE OF EXISTING VEGETATIVE COVER:
75.03%
DESCRIPTION OF SOILS:
– AUSTIN SILTY CLAY, 1 TO 3 PERCENT SLOPES.

TOTAL PROJECT AREA : 0.46 ACRES
TOTAL PROJECT AREA DISTURBED: 0.07 ACRES (15%)

WEIGHTED RUNOFF COEFFICIENT:
PRE–CONSTRUCTION: 0.50 (RATIONAL METHOD COEFFICIENT)
POST–CONSTRUCTION: 0.54 (RATIONAL METHOD COEFFICIENT)

RECEIVING WATERS:

NAME OF RECEIVING WATERS THAT WILL RECEIVE DISCHARGES FROM DISTURBED AREAS OF THE PROJECT: LAKE CREEK

AN IMPAIRED STREAM DOES NOT PASSES THROUGH THE PROJECT SITE.
STREAM NAME: N/A SEGMENT NO.: N/A

SITE IS IN A MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4).
MS4 OPERATOR: CITY OF ROUND ROCK

A WATER POLLUTION ABATEMENT PLAN (WPAP) OR CONTRIBUTING ZONE PLAN IS NOT REQUIRED.

USACE WETLANDS ARE NOT LOCATED ON THIS SITE. CONTRACTOR SHALL DISTURB WITHOUT SPECIFIC AUTHORIZATION.

B. BEST MANAGEMENT PRACTICES

SOIL STABILIZATION PRACTICES:
(SELECT T=TEMPORARY OR P=PERMANENT BMP)

- _P_ SEEDING
- _P_ MULCHING
- ____ SODDING
- ____ VEGETATIVE BUFFER ZONES
- ____ PRESERVATION OF NATURAL RESOURCES
- ____ SOIL BLANKETS AND MATTING
- ____ COMPOST MULCH

OTHER: _____
NOTE: SEE SITE PLAN (CB–2) FOR LOCATIONS OF BMPS.

STRUCTURAL PRACTICES:
(SELECT T=TEMPORARY OR P=PERMANENT BMP)

- _T_ FIBER ROLLS/SILT FENCE
- ____ ROCK BERMS
- ____ DIVERSION, INTERCEPTOR, OR PERIMETER DIKES
- ____ DIVERSION, INTERCEPTOR, OR PERIMETER SWALES
- ____ PIPE SLOPE DRAINS
- ____ CURB AND GUTTER
- ____ STORM SEWER
- ____ CONSTRUCTION EXIT
- ____ SEDIMENT TRAPS
- ____ SEDIMENT BASINS
- ____ STORM INLET SEDIMENT TRAP
- ____ STONE OUTLET STRUCTURES
- ____ VELOCITY CONTROL DEVICES
- ____ OTHER: _____

NOTE: SEE SITE PLAN (CB–2) FOR LOCATION OF BMPS.

STORM WATER MANAGEMENT:

1. ELEMENTS THAT CONVEY STORM WATER ARE DESIGNED TO ALLOW ADEQUATE VOLUME AND VELOCITY, MINIMIZING ANY SIGNIFICANT EROSION OCCURENCES.

2. ADDITIONAL FACTORS AFFECTING THE POST–CONSTRUCTION STORM WATER AT THE PROJECT LOCATION INCLUDE:
   - ____ EXISTING OR NEW VEGETATION PROVIDING FOR NATURAL FILTRATION
   - ____ PRESERVATION OF BUFFER ZONES ALONG NATURAL WATERWAYS
   - ____ OPEN AREAS PROVIDES FOR INFILTRATION
   - ____ VELOCITY DISSIPATION DEVICES TO MINIMIZE EROSION
   - ____ DETENTION/RETENTION POND TO MINIMIZE INCREASED SITE RUNOFF
   - ____ OTHER: _____

3. CONCRETE TRUCK WASH WATER DISCHARGES ON THIS SITE IS PROHIBITED AND SHALL NOT CONTAMINATE SURFACE WATER. CONCRETE TRUCK WASH–OUT LOCATIONS SHALL NOT BE LOCATED IN AREAS OF CONCENTRATED FLOW AND WILL BE INSPECTED REGULARLY FOR DISCHARGES.

4. HAZARDOUS SPILL/LEAK SHALL BE PREVENTED OR MINIMIZED. AT A MINIMUM, THIS INCLUDES ASPHALT PRODUCTS, FUELS, OILS, LUBRICANTS, SOLVENTS, PAINTS, ACIDS, CONCRETE CURING COMPOUNDS, AND CHEMICAL ADDITIVES FOR SOIL STABILIZATION. BMPS SHALL BE IMPLEMENTED TO THE STORAGE AREAS OF THESE PRODUCTS. ALL SMALL SPILLS MUST BE CLEANED AND DISPOSED OF PROPERLY. REPORT ANY RELEASE AT OR ABOVE THE REPORTABLE QUANTITY (RQ) DURING A 24–HOUR PERIOD TO TCEQ AT 1–800–832–8224, EPA NATIONAL RESPONSE CENTER AT 1–800–424–8802, AND THE CITY OF ROUND ROCK STORM WATER PROGRAM AT 512–218–5555. FOR SPILLS AND LEAKS OF HAZARDOUS AND TOXIC MATERIALS SEE FINAL RQ IN TABLE 302.4 IN 40 CFR § 302.4.

REPORTABLE QUANTITIES FOR SPILLS

MATERIAL	WHERE DISCHARGED	REPORTABLE QUANTITY
OIL & OIL PRODUCTS	SOIL	25 GALLONS
	WATER	VISIBLE SHEEN
CRUDE OIL	SOIL	210 GALLONS (5 BARRELS)
	WATER	VISIBLE SHEEN
DIESEL FUEL & GASOLINE	SOIL	13 GALLONS (100 POUNDS)
WATER		VISIBLE SHEEN
DEGREASERS (CAUSTICS)	SOIL	13 GALLONS (100 POUNDS)
	WATER	13 GALLONS (100 POUNDS)
HYDROCHLORIC & SULFURIC ACIDS (BATTERY ACID)	SOIL	13 GALLONS (100 POUNDS)
	WATER	13 GALLONS (100 POUNDS)
ANTIFREEZE	SOIL	13 GALLONS (100 POUNDS)
	WATER	13 GALLONS (100 POUNDS)
HAZARDOUS SUBSTANCE	SOIL	RQ VARIES
	WATER	RQ VARIES ≤ 100 POUNDS
SOLID WASTE	SOIL	NO RQ
	WATER	100 POUNDS

AUTHORIZED NON–STORM WATER DISCHARGES:

1. DISCHARGES FROM FIRE FIGHTING ACTIVITIES
2. AIR CONDITIONING CONDENSATE
3. WATER TO CONTROL DUST IN ROADWAYS
4. GROUND WATER ENCOUNTERED DURING EXCAVATION
5. POTABLE WATER SOURCES
6. UNCONTAMINATED FIRE HYDRANT FLUSHINGS (EXCLUDING HYPER–CHLORINATED WATER)
7. LAWN WATERING OR IRRIGATION
8. VEHICLE, EXTERNAL BUILDING, AND PAVEMENT WASH WATER WHERE DETERGENTS AND SOAPS ARE NOT USED

C. OTHER REQUIREMENTS AND PRACTICES

MAINTENANCE PROCEDURES:

1. ALL EROSION AND SEDIMENT CONTROLS SHALL BE MAINTAINED IN GOOD WORKING ORDER BY THE CONTRACTOR. IF A REPAIR IS NECESSARY, IT SHALL BE PERFORMED BEFORE THE NEXT ANTICIPATED STORM EVENT BUT NO LATER THAN SEVEN (7) CALENDAR DAYS AFTER THE SURROUNDING EXPOSED GROUND HAS DRIED SUFFICIENTLY TO PREVENT FURTHER DAMAGE FROM EQUIPMENT. IF MAINTENANCE PRIOR TO THE NEXT ANTICIPATED STORM EVENT IS IMPRACTICABLE, MAINTENANCE MUST BE SCHEDULED AND ACCOMPLISHED AS SOON AS PRACTICABLE.

2. DISTURBED AREAS ON WHICH CONSTRUCTION ACTIVITIES HAVE CEASED, TEMPORARILY OR PERMANENTLY, SHALL BE STABILIZED WITHIN 14 CALENDAR DAYS UNLESS ACTIVITIES ARE SCHEDULED TO AND DO RESUME WITHIN 21 CALENDAR DAYS. THE AREAS ADJACENT TO CREEKS AND DRAINAGE WAYS SHALL HAVE PRIORITY FOLLOWED BY PROTECTING STORM SEWER INLETS.

INSPECTION PROCEDURES:

1. FOR AREAS OF THE CONSTRUCTION SITE THAT HAVE NOT BEEN PERMANENTLY STABILIZED, AREAS USED FOR STORAGE OF MATERIALS, STRUCTURAL CONTROL MEASURES, AND LOCATIONS WHERE VEHICLES ENTER OR EXIT THE SITE, QUALIFIED PERSONNEL PROVIDED BY THE CONTRACTOR OF THE SITE AND FAMILIAR WITH THE SWPPP MUST INSPECT DISTURBED AREAS AT LEAST ONCE EVERY 14 CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF A STORM EVENT OF 0.5 INCHES OR GREATER.

2. AS AN ALTERNATIVE TO THE ABOVE DESCRIBED INSPECTION SCHEDULE, THE SWPPP MAY BE DEVELOPED TO REQUIRE THAT THESE INSPECTIONS WILL OCCUR AT LEAST ONCE EVERY SEVEN (7) CALENDAR DAYS. IF THIS ALTERNATIVE SCHEDULE IS DEVELOPED, THEN THE INSPECTIONS MUST OCCUR ON A SPECIFIED DAY, REGARDLESS OF WHETHER OR NOT THERE HAS BEEN RAINFALL SINCE THE PREVIOUS INSPECTION.

3. AN INSPECTION AND MAINTENANCE REPORT SHALL BE PREPARED AND MAINTAINED ON SITE BY QUALIFIED PERSONNEL FOR EACH INSPECTION AND THE CONTROLS SHALL BE REVISED ON THE SWPPP WITHIN SEVEN (7) CALENDAR DAYS FOLLOWING INSPECTION.

WASTE MATERIALS:

1. ALL NON–HAZARDOUS MUNICIPAL WASTE MATERIAL SUCH AS LITTER, RUBBISH, TRASH, AND GARBAGE LOCATED ON OR ORIGINATING FROM THE PROJECT SHALL BE COLLECTED AND STORED IN A SECURELY LIDDED METAL DUMPSTER PROVIDED BY THE CONTRACTOR. THE DUMPSTER SHALL BE EMPTIED AS NECESSARY AND THE TRASH SHALL BE HAULED TO A PERMITTED DISPOSAL FACILITY. THE BURYING OF NON–HAZARDOUS MUNICIPAL WASTE ON THE PROJECT SHALL NOT BE PERMITTED.

2. CONSTRUCTION MATERIAL WASTE SITES, STOCK PILES, AND HAUL ROADS SHALL BE CONSTRUCTED TO MINIMIZE AND CONTROL THE AMOUNT OF SEDIMENT THAT MAY ENTER RECEIVING WATERS. CONSTRUCTION MATERIAL WASTE SITES SHALL NOT BE LOCATED IN ANY WETLAND, WATER BODY, OR STREAM BED.

3. CONSTRUCTION STAGING AREAS AND VEHICLE MAINTENANCE AREAS SHALL BE CONSTRUCTED IN A MANNER BY THE CONTRACTOR TO MINIMIZE THE RUNOFF OF POLLUTANTS.

SANITARY WASTE:

1. ALL SANITARY WASTE WILL BE COLLECTED FROM THE PORTABLE UNITS AS NECESSARY OR AS REQUIRED BY LOCAL REGULATION BY A LICENSED SANITARY WASTE MANAGEMENT CONTRACTOR.

OFF SITE VEHICLE TRACKING:

1. ALL MUD, DIRT, ROCKS, DEBRIS, ETC., SPILLED, TRACKED, OR OTHERWISE DEPOSITED ON EXISTING PAVED STREETS, DRIVES, AND AREAS USED BY THE PUBLIC SHALL BE CLEANED UP IMMEDIATELY.

OTHER:

1. ALL WATERWAYS SHALL BE CLEARED AS SOON AS PRACTICABLE OF TEMPORARY EMBANKMENT, DEBRIS, OR OTHER OBSTRUCTIONS.

2. CONSTRUCTION AREAS SHALL BE MAINTAINED IN A MANNER THAT WILL MINIMIZE AIRBORNE DUST.

SOUTH 81 EST – SWPPP INFORMATION

CP&Y, INC.
TBPE FIRM REGISTRATION NO. #F–1741

ROUND ROCK TEXAS

STATE OF TEXAS
JESSE W. PENN
83340
LICENSED
PROFESSIONAL ENGINEER
6/5/2017

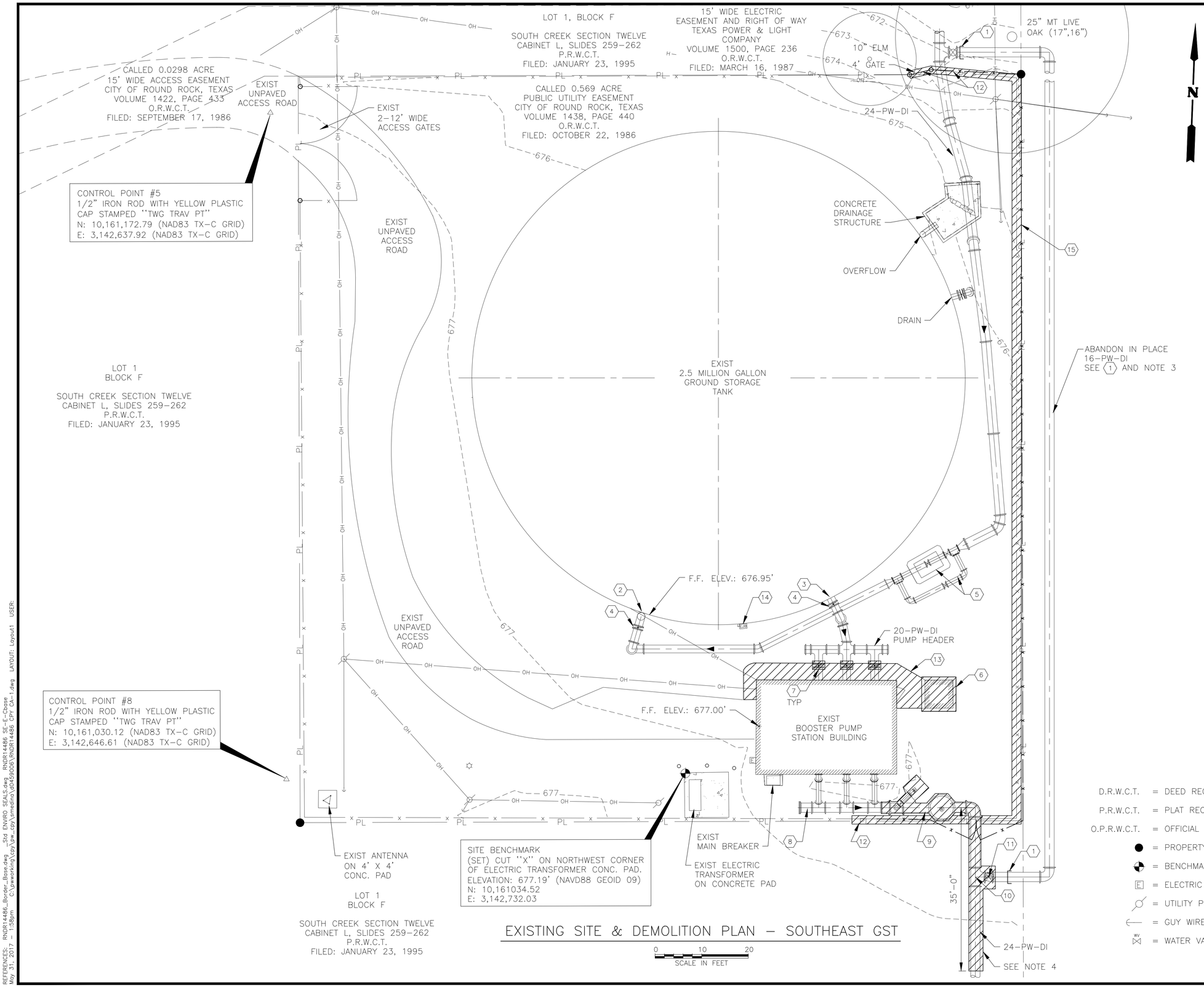
NO.	REVISION	BY	DATE

VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE
0 1"

CITY OF ROUND ROCK
SOUTHEAST GST & SOUTH 81 EST
PUMP STATION IMPROVEMENTS
STORMWATER POLLUTION PREVENTION PLAN (SWPPP) INFORMATION – SOUTH 81 EST

Date: JUNE 2017
Designed: K.KNIPPA
Drawn: S.MEDINA
Reviewed: L.WEBB
CP&Y Proj. No. RNDR14486

SHEET
G–7
SHEET 7 OF 57



EXISTING SITE & DEMOLITION PLAN – SOUTHEAST GST

NOTES BY SYMBOL (X)

1. INSTALL MJ PLUG AND BLIND FLANGE ON EXISTING 16"Ø DI LINE.
2. 20"Ø DI TANK INLET.
3. 20"Ø DI TANK OUTLET.
4. 20"Ø BUTTERFLY VALVE.
5. ALTITUDE VALVE AND VAULT ASSEMBLY W/ BYPASS TO REMAIN.
6. DEMOLISH CHLORINE BUILDING AND PAD.
7. DEMOLISH 20"Ø BUTTERFLY VALVES AND PIPING TO ACCOMODATE PROPOSED WORK, TYP OF 3.
8. 24"Ø DI PUMP DISCHARGE HEADER TO REMAIN.
9. DEMOLISH SURGE VALVE ASSEMBLY AND PIPING, 16"Ø VENTURI METER AND VAULT, AND CONCRETE PAD.
10. DEMOLISH 24" X 16" DI TEE.
11. DEMOLISH 24"Ø DI VALVE.
12. REMOVE AND REPLACE FENCE/GATE AS REQUIRED TO ACCESS EXIST VALVE/PLUG LOCATION (APPROX. 50 LF TOTAL).
13. REMOVE AND REPLACE SIDEWALK.
14. TANK LEVEL JUNCTION BOX.
15. REMOVE EXIST CHAIN LINK FENCE. REPLACE WITH CHAIN LINK FENCE AND PRIVACY SLATS ALONG EAST SIDE OF SITE AT PROPERTY LINE (APPROX. 160 LF TOTAL).

NOTES:
1. REFER TO SHEET M–1 FOR PIPING IDENTIFICATION SYSTEM AND MATERIAL SCHEDULE.
2. CONTRACTOR IS RESPONSIBLE FOR ALL COSTS FOR RELOCATION OF OR DAMAGE TO SURVEY MARKERS.
3. CONTRACTOR TO CUT AND PLUG EXIST 16" BYPASS LINE WHILE PROTECTING OH POWER AND TREES.
4. CONTRACTOR SHALL COORDINATE LIMITS OF DEMOLITION WITH TIE–IN POINT SHOWN ON CA–2.

LEGEND

D.R.W.C.T. = DEED RECORDS, WILLIAMSON COUNTY, TEXAS
P.R.W.C.T. = PLAT RECORDS, WILLIAMSON COUNTY, TEXAS
O.P.R.W.C.T. = OFFICIAL PUBLIC RECORDS, WILLIAMSON COUNTY, TEXAS
= PROPERTY CORNER
= BENCHMARK
E = ELECTRIC METER
= UTILITY POLE
= GUY WIRE
= WATER VALVE

CP&Y, INC.
TBPE FIRM REGISTRATION NO. #F–1741

ROUND ROCK TEXAS

STATE OF TEXAS
LINDSAY C. WEBB
110398
LICENSED PROFESSIONAL ENGINEER
6-5-2017

NO.	REVISION	BY	DATE

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CITY OF ROUND ROCK
SOUTHEAST GST & SOUTH 81 EST
PUMP STATION IMPROVEMENTS
EXISTING SITE & DEMOLITION PLAN – SOUTHEAST GST

Date: JUNE 2017
Designed: K.KNIPPA
Drawn: S.MEDINA
Reviewed: J.PENN
CP&Y Proj. No. RNDR14486

SHEET
CA–1
SHEET 8 OF 57

REFERENCES: RNDR14486_Border_Base.dwg _Std ENVIRO SEALS.dwg RNDR14486 SE–E–Cbase
May 31, 2017 – 1:58pm C:\pwworking\cpy\pw_cpy\smedina\d0459006\RNDR14486 CPY CA–1.dwg LAYOUT: Layout1 USER:

LOT 1, BLOCK F

SOUTH CREEK SECTION TWELVE
CABINET L, SLIDES 259–262
P.R.W.C.T.
FILED: JANUARY 23, 1995

15' WIDE ELECTRIC EASEMENT AND RIGHT OF WAY
TEXAS POWER & LIGHT COMPANY
VOLUME 1500, PAGE 236
O.R.W.C.T.
FILED: MARCH 16, 1987

CALLED 0.0298 ACRE
15' WIDE ACCESS EASEMENT
CITY OF ROUND ROCK, TEXAS
VOLUME 1422, PAGE 433
O.R.W.C.T.
FILED: SEPTEMBER 17, 1986

EXIST UNPAVED ACCESS ROAD

CALLED 0.569 ACRE
PUBLIC UTILITY EASEMENT
CITY OF ROUND ROCK, TEXAS
VOLUME 1438, PAGE 440
O.R.W.C.T.
FILED: OCTOBER 22, 1986

EXIST 2–12' WIDE ACCESS GATES

STABILIZED CONSTRUCTION ENTRANCE — EC09 / CZ1

CONTROL POINT #5
1/2" IRON ROD WITH YELLOW PLASTIC CAP STAMPED "TWG TRAV PT"
N: 10,161,172.79 (NAD83 TX–C GRID)
E: 3,142,637.92 (NAD83 TX–C GRID)

10" ELM

4' GATE

24–PW–DI

25" MT LIVE OAK (17",16")

SEE NOTE 4

PROP CONCRETE DRAINAGE STRUCTURE EXTENSION (SEE SHEET SA–1)

EXIST 2.5 MILLION GALLON GROUND STORAGE TANK

LOT 1
BLOCK F

SOUTH CREEK SECTION TWELVE
CABINET L, SLIDES 259–262
P.R.W.C.T.
FILED: JANUARY 23, 1995

20–PW–DI

8–PW–DI

D / CZ3 SIDEWALK

EXIST BOOSTER PUMP STATION BUILDING

SURGE VALVE ASSEMBLY — D / CZ2

22'–0"

6'–0"

MIN

ESMT DOC#

A / CZ2 FLOW METER VAULT

16'–8" MIN

8'–3" MIN

EXIST 24–PW–DI

CONTROL POINT #8
1/2" IRON ROD WITH YELLOW PLASTIC CAP STAMPED "TWG TRAV PT"
N: 10,161,030.12 (NAD83 TX–C GRID)
E: 3,142,646.61 (NAD83 TX–C GRID)

SITE BENCHMARK
(SET) CUT "X" ON NORTHWEST CORNER OF ELECTRIC TRANSFORMER CONC. PAD.
ELEVATION: 677.19' (NAVD88 GEOID 09)
N: 10,161034.52
E: 3,142,732.03

SITE PLAN IMPROVEMENTS – SOUTHEAST GST

0 10 20
SCALE IN FEET

NOTES BY SYMBOL (X)

1. PROP 8" SURGE LINE TO TANK INLET LINE.
2. PROP FENCE AND 2–10' WIDE ACCESS GATES.
3. PROP 24"ø DI M.J. CUTTING–IN SLEEVE.
4. PROP 24" X 20" DI REDUCER.
5. PROP 20"ø DI M.J. CUTTING–IN SLEEVE.
6. PROP FENCE AND 4' WIDE GATE.
7. PROP 20"ø DI M.J. 90° BEND WITH THRUST BLOCK, SEE DETAIL ON CZ–2.
8. PROP CHAIN LINK FENCE WITH 1 1/8" PRIVACY SLATS (GREEN) ALONG EAST SIDE OF SITE AT PROPERTY LINE.
9. PROP 20"x8" DI TEE WITH THRUST BLOCK, SEE DETAIL ON CZ–2.
10. PROP 20"ø DI M.J. GATE VALVE WITH BYPASS AND VALVE BOX.
11. PROP 7'x8' PRECAST ULTRASONIC FLOW METER VAULT.
12. PROP 8"ø M.J. 22.5° BEND WITH THRUST BLOCK, SEE DETAIL ON CZ–2.

NOTES:

1. CONTRACTOR SHALL REPAIR/REPLACE ALL PROPOSED EQUIPMENT/APPURTENANCES AS SPECIFIED AND PER MANUFACTURER RECOMMENDATIONS/REQUIREMENTS.
2. REFER TO SHEET M–1 FOR PIPING IDENTIFICATION SYSTEM AND MATERIAL SCHEDULE.
3. CONTRACTOR IS RESPONSIBLE FOR ALL COSTS FOR RELOCATION OF OR DAMAGE TO SURVEY MARKERS.
4. REFER TO SHEET CZ–1 FOR TREE PROTECTION AND SILT FENCE INFORMATION.
5. BELOW GRADE PIPE JOINTS SHALL BE FACTORY RESTRAINED. BELOW GRADE FITTINGS SHALL BE MECHANICAL JOINT WITH MECHANICAL JOINT RESTRAINTS UNLESS NOTED OTHERWISE. BURIED VALVES SHALL HAVE MECHANICAL JOINTS UNLESS OTHERWISE NOTED.
6. WRAP BURIED PIPE AND FITTINGS WITH 8–MIL POLYETHELENE PER GENERAL NOTES ON SHEET G–3.

LEGEND

- LOC = LIMITS OF CONSTRUCTION
- SF = SILT FENCE
- TP = TREE PROTECTION
- -675- = EXISTING CONTOUR
- -675- = PROPOSED CONTOUR
- = TEMPORARY EASEMENT
- D.R.W.C.T. = DEED RECORDS, WILLIAMSON COUNTY, TEXAS
- P.R.W.C.T. = PLAT RECORDS, WILLIAMSON COUNTY, TEXAS
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- = GUY WIRE
- = WATER VALVE

CP&Y, INC.
TBPE FIRM REGISTRATION NO. #F–1741

ROUND ROCK TEXAS

6-5-2017
STATE OF TEXAS
LINDSAY C. WEBB
110398
LICENSED PROFESSIONAL ENGINEER

NO.	REVISION	BY	DATE

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CITY OF ROUND ROCK
SOUTHEAST GST & SOUTH 81 EST
PUMP STATION IMPROVEMENTS –
SITE PLAN IMPROVEMENTS – SOUTHEAST GST

Date: JUNE 2017
Designed: K.KNIPPA
Drawn: S.MEDINA
Reviewed: J.PENN
CP&Y Proj. No. RNDR14486

SHEET
CA–2
SHEET 9 OF 57

REFERENCES: RNDR14486_Border_Base.dwg _Std ENVIRO SEALS.dwg RNDR14486 SE–E–Cbase
May 31, 2017 – 2:07pm C:\pwworking\cpy\pw_cpy\smedina\d0459006\RNDR14486 CPY CA–2.dwg LAYOUT: Layout1 USER:

LOT 3

DAYSTAR SUBDIVISION, SECTION TWO
CABINET GG, SLIDES 3–4
P.R.W.C.T.
FILED: JULY 17, 2009

CONTROL POINT #2
1/2" IRON ROD WITH YELLOW PLASTIC CAP STAMPED "TWG TRAV PT"
N: 10,151,539.70 (NAD83 TX–C GRID)
E: 3,134,090.95 (NAD83 TX–C GRID)

12" HACKBERRY
15" HACKBERRY
14" HACKBERRY
9" HACKBERRY

12–PW–DI
16–PW–DI
18–D–RCP

EXIST ASPHALT DRIVEWAY
EXIST FIRE HYDRANT
EXIST 4' PEDESTRIAN GATE
EXIST ROLLING GATE
1.0' DIA. CONCRETE BASE
HOG WIRE FENCE
OPENING IN FENCE
HOG WIRE FENCE

CITY OF ROUND ROCK
VOLUME 818, PAGE 28
D.R.W.C.T.
FILED: DECEMBER 3, 1980

CALLED 0.239 ACRE
CITY OF ROUND ROCK, TEXAS
DOCUMENT NO. 2001062869
O.P.R.W.C.T.

DEMOLISH ALL EXIST ASPHALT DRIVEWAY (SEE NOTE 3)

EXIST CONCRETE SIDEWALK
DOOR
EXIST 1.25 MILLION GALLON ELEVATED STORAGE TANK
BAY DOOR
1" GALVANIZED CONDUIT (SEE EB–1)
EXIST GUARD RAILS
EXIST STONE RIP–RAP

SOUTH MAYS STREET

LOT 1
BLOCK A

DELL NORTH CAMPUS SUBDIVISION
CABINET Q, SLIDES 284–287
P.R.W.C.T.
FILED: JANUARY 21, 1999

LOT 1
BLOCK A

DELL NORTH CAMPUS SUBDIVISION
CABINET Q, SLIDES 284–287
P.R.W.C.T.
FILED: JANUARY 21, 1999

CONTROL POINT #1
1/2" IRON ROD WITH YELLOW PLASTIC CAP STAMPED "TWG TRAV PT"
N: 10,151,431.11 (NAD83 TX–C GRID)
E: 3,134,131.48 (NAD83 TX–C GRID)

SITE BENCHMARK
BRASS DISK IN CONCRETE
CITY OF ROUND ROCK MONUMENT 01–017
PUBLISHED ELEVATION: 823.5811 (NAVD88)
N: 10,151,441.77 (NAD83 TX–C GRID)
E: 3,134,138.23 (NAD83 TX–C GRID)

EXISTING SITE & DEMOLITION PLAN – SOUTH 81 EST

0 10 20
SCALE IN FEET

NOTES BY SYMBOL (X)

1. EXIST CONCRETE VAULT FOR PRESSURE REDUCING/CHECK VALVE.
2. EXIST OVERFLOW/DRAIN DISCHARGE STRUCTURE.

NOTES:
1. REFER TO SHEET M–1 FOR PIPING IDENTIFICATION SYSTEM AND MATERIAL SCHEDULE.
2. CONTRACTOR IS RESPONSIBLE FOR ALL COSTS FOR RELOCATION OF OR DAMAGE TO SURVEY MARKERS.
3. CONTRACTOR IS TO REMOVE THE EXISTING ASPHALT ONLY, EXISTING BASE TO REMAIN.

LEGEND

D.R.W.C.T. = DEED RECORDS, WILLIAMSON COUNTY, TEXAS
P.R.W.C.T. = PLAT RECORDS, WILLIAMSON COUNTY, TEXAS
O.P.R.W.C.T. = OFFICIAL PUBLIC RECORDS, WILLIAMSON COUNTY, TEXAS
= PROPERTY CORNER
= BENCHMARK
= ELECTRIC METER
= UTILITY POLE
= GUY WIRE
= WATER VALVE
= WATER SHUT–OFF VALVE

CP&Y, INC.
TBPE FIRM REGISTRATION NO. #F–1741

ROUND ROCK TEXAS

STATE OF TEXAS
LINDSAY C. WEBB
110398
LICENSED PROFESSIONAL ENGINEER
6-5-2017

NO.	REVISION	BY	DATE

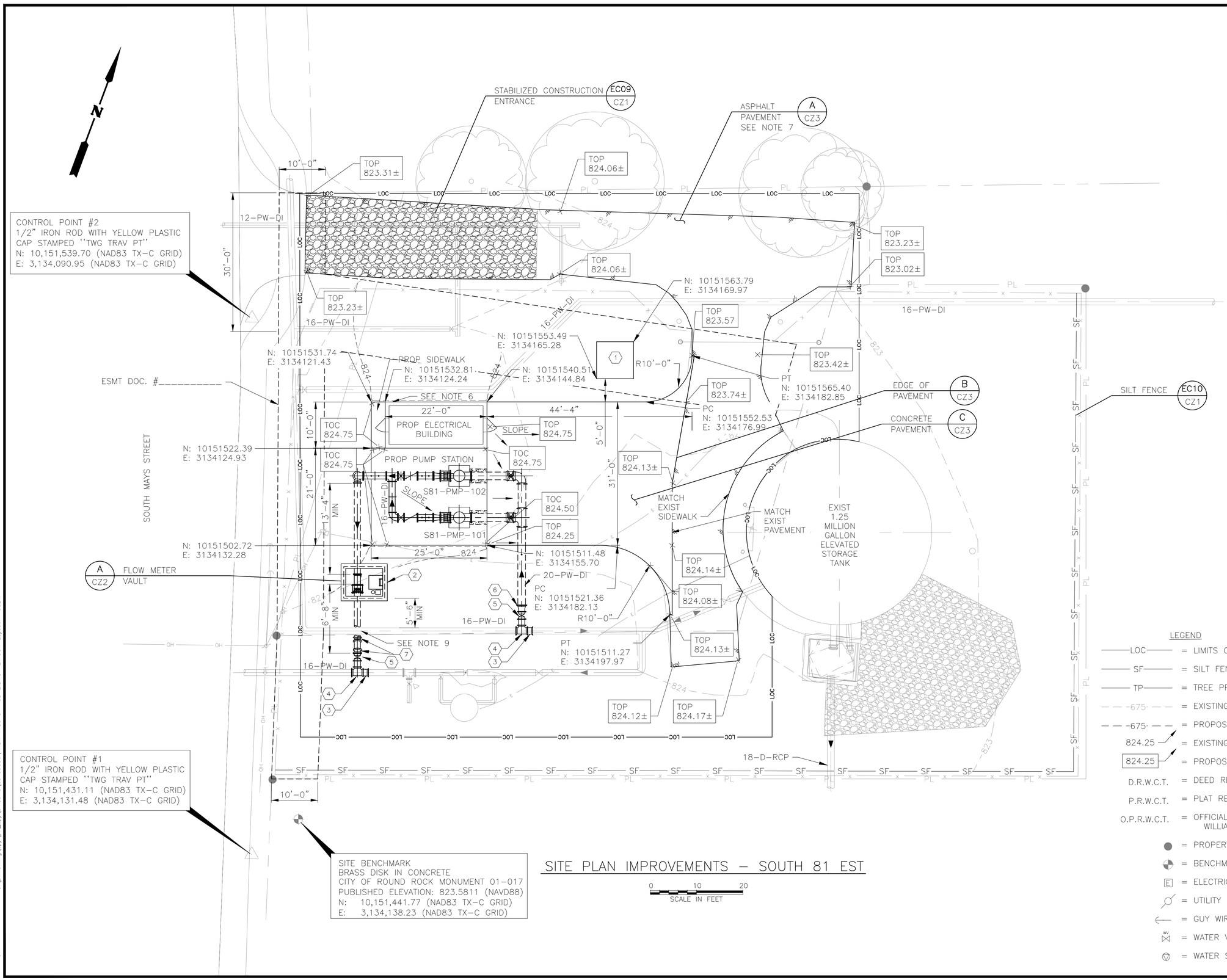
VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE
0 1"

CITY OF ROUND ROCK
SOUTHEAST GST & SOUTH 81 EST
PUMP STATION IMPROVEMENTS
EXISTING SITE & DEMOLITION PLAN – SOUTH 81 EST

Date: JUNE 2017
Designed: K.KNIPPA
Drawn: S.MEDINA
Reviewed: J.PENN
CP&Y Proj. No. RNDR14486

SHEET
CB–1
SHEET 10 OF 57

REFERENCES: RNDR14486_Border_Base.dwg _Std ENVIRO SEALS.dwg RNDR14486 S81–E–Cbase
May 31, 2017 – 2:14pm C:\pwworking\cpy\pw_cpy\smedina\d0459006\RNDR14486 CPY CB–1.dwg LAYOUT: Layout1 USER:



SITE PLAN IMPROVEMENTS – SOUTH 81 EST

0 10 20
SCALE IN FEET

NOTES BY SYMBOL (X)

1. PROP 8'x8' CONCRETE TRANSFORMER PAD PER ONCOR STANDARD DETAIL.
2. PROP 6'x8' PRECAST ULTRASONIC FLOW METER VAULT.
3. PROP 16"ø M.J. CUTTING-IN SLEEVE.
4. PROP 16" X 16" DI M.J. TEE WITH THRUST BLOCK, SEE DETAIL ON CZ-2.
5. PROP 16" DI M.J. GATE VALVE WITH VALVE BOX.
6. PROP 20"x16" DI M.J. REDUCER.
7. PROP 16"ø 22.5° BEND WITH THRUST BLOCK, SEE DETAIL ON CZ-2.

NOTES:

1. CONTRACTOR SHALL REPAIR/ REPLACE ALL PROPOSED EQUIPMENT/APPURTENANCES AS SPECIFIED AND PER MANUFACTURER RECOMMENDATION/ REQUIREMENT.
2. REFER TO SHEET M-1 FOR PIPING IDENTIFICATION SYSTEM AND MATERIAL SCHEDULE.
3. CONTRACTOR IS RESPONSIBLE FOR ALL COSTS FOR RELOCATION OF OR DAMAGE TO SURVEY MARKERS.
4. REFER TO SHEET MB-2 FOR ADDITIONAL PUMP STATION DETAILS.
5. BELOW GRADE PIPE JOINTS SHALL BE FACTORY RESTRAINED. BELOW GRADE FITTINGS SHALL BE MECHANICAL JOINT WITH MECHANICAL JOINT RESTRAINTS UNLESS NOTED OTHERWISE. BURIED VALVES SHALL HAVE MECHANICAL JOINTS UNLESS OTHERWISE NOTED.
6. PROPOSED ELECTRICAL BUILDING HAS TWO DOORS. THE EAST SIDE DOOR HAS A HEIGHT OF 9' AND THE WEST SIDE DOOR HAS A HEIGHT OF 7'. SEE SPECIAL SPECIFICATION SECTION 13120 FOR ADDITIONAL INFORMATION.
7. CONTRACTOR SHALL SCARIFY AND RE-COMPACT AND PROOF ROLL EXISTING BASE PRIOR TO ADDITION OF 2" LAYER OF ASPHALT.
8. WRAP BURIED PIPE AND FITTINGS WITH 8-MIL POLYETHELENE PER GENERAL NOTES ON SHEET G-3.
9. USE CAUTION DURING EXCAVATION. PROPOSED LINE WILL BE BELOW EXISTING LINE. FIELD VERIFY BEFORE STARTING EXCAVATION.

LEGEND

- LOC = LIMITS OF CONSTRUCTION
- SF = SILT FENCE
- TP = TREE PROTECTION
- -675- = EXISTING CONTOUR
- -675- = PROPOSED CONTOUR
- 824.25 = EXISTING ELEVATION
- 824.25 = PROPOSED ELEVATION
- D.R.W.C.T. = DEED RECORDS, WILLIAMSON COUNTY, TEXAS
- P.R.W.C.T. = PLAT RECORDS, WILLIAMSON COUNTY, TEXAS
- O.P.R.W.C.T. = OFFICIAL PUBLIC RECORDS, WILLIAMSON COUNTY, TEXAS
- = PROPERTY CORNER
- = BENCHMARK
- E = ELECTRIC METER
- = UTILITY POLE
- = GUY WIRE
- WV = WATER VALVE
- = WATER SHUT-OFF VALVE

CP&Y, INC.
TBPE FIRM REGISTRATION NO. #F-1741

ROUND ROCK TEXAS

STATE OF TEXAS
LINDSAY C. WEBB
110398
LICENSED PROFESSIONAL ENGINEER
6-5-2017

NO.	REVISION	BY	DATE

VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE
0 1"

CITY OF ROUND ROCK
SOUTHEAST GST & SOUTH 81 EST
PUMP STATION IMPROVEMENTS –
SITE PLAN IMPROVEMENTS – SOUTH 81 EST

Date: JUNE 2017
Designed: K.KNIPPA
Drawn: S.MEDINA
Reviewed: J.PENN
CP&Y Proj: No.RNDR14486

SHEET
CB-2
SHEET 11 OF 57

REFERENCES: RNDR14486 S81-P-Mbase.dwg RNDR14486 S81-P-Sbase.dwg RNDR14486 S81-P-Cbase.dwg RNDR14486 S81-E-Cbase.dwg RNDR14486_Border_Base.dwg
Jun 05, 2017 - 9:47am C:\pwworking\cpy\pw_cpy\smedina\d0459006\RNDR14486 CPY CB-2.DWG LAYOUT: Layout1 USER: _Std ENVIRO SEALS

1. ALL TREES NOT LOCATED WITHIN THE LIMITS OF CONSTRUCTION AND OUTSIDE OF DISTURBED AREAS SHALL BE PRESERVED. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING ALL TREES TO BE PRESERVED FROM HIS ACTIVITIES.
2. ALL TREES SHOWN TO BE RETAINED WITHIN THE LIMITS OF CONSTRUCTION ON THE PLANS, SHALL BE PROTECTED DURING CONSTRUCTION WITH FENCING. SEE: TREE PROTECTION TREE WELLS (EC-02), TREE PROTECTION TREE LOCATION (EC-03) AND TREE PROTECTION FENCE-CHAIN LINK (EC-04).
3. TREE PROTECTION FENCES SHALL BE ERECTED ACCORDING TO CITY STANDARDS FOR TREE PROTECTION, INCLUDING TYPES OF FENCING AND SIGNAGE.
4. TREE PROTECTION FENCES SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF ANY SITE PREPARATION WORK (CLEARING, GRUBBING, OR GRADING) AND SHALL BE MAINTAINED THROUGHOUT ALL PHASES OF THE CONSTRUCTION PROJECT.
5. EROSION AND SEDIMENTATION CONTROL BARRIERS SHALL BE INSTALLED OR MAINTAINED IN A MANNER WHICH DOES NOT RESULT IN SOIL BUILD-UP WITHIN TREE DRIPLINES.
6. FENCES SHALL COMPLETELY SURROUND THE TREE OR CLUSTERS OF TREES, LOCATED AT THE OUTERMOST LIMITS OF THE TREE BRANCHES (DRIPLINE) OR CRITICAL ROOT ZONE (CRZ), WHICHEVER IS GREATER; AND SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PROJECT IN ORDER TO PREVENT THE FOLLOWING:
   6A. SOIL COMPACTION IN CRZ AREA RESULTING FROM VEHICULAR TRAFFIC OR STORAGE OF EQUIPMENT OR MATERIAL.
   6B. CRZ DISTURBANCES DUE TO GRADE CHANGES OR TRENCHING NOT REVIEWED AND AUTHORIZED BY THE FORESTRY MANAGER.
   6C. WOUNDS TO EXPOSED ROOTS, TRUNK, OR LIMBS BY MECHANICAL EQUIPMENT
   6D. OTHER ACTIVITIES DETRIMENTAL TO TREES SUCH AS CHEMICAL STORAGE, CONCRETE TRUCK CLEANING, AND FIRES.
7. EXCEPTIONS TO INSTALLING TREE FENCES AT THE TREE DRIPLINES OR CRZ, WHICHEVER IS GREATER, MAY BE PERMITTED IN THE FOLLOWING CASES:
   7A. WHERE THERE IS TO BE AN APPROVED GRADE CHANGE, IMPERMEABLE PAVING SURFACE, OR TREE WELL;
   7B. WHERE PERMEABLE PAVING IS TO BE INSTALLED, ERECT THE FENCE AT THE OUTER LIMITS OF THE PERMEABLE PAVING AREA.
   7C. WHERE TREES ARE CLOSE TO PROPOSED BUILDINGS, ERECT THE FENCE NO CLOSER THAN 6 FEET TO THE BUILDING.
   7D. WHERE THERE ARE SEVERE SPACE CONSTRAINTS DUE TO TRACT SIZE, OR OTHER SPECIAL REQUIREMENTS, CONTACT THE FORESTRY MANAGER TO DISCUSS ALTERNATIVES.
8. WHERE ANY OF THE ABOVE EXCEPTIONS RESULT IN A FENCE THAT IS CLOSER THAN 5 FEET TO A TREE TRUNK, THE TRUNK SHALL BE PROTECTED BY STRAPPED-ON PLANKING TO A HEIGHT OF 8 FEET (OR TO THE LIMITS OF LOWER BRANCHING) IN ADDITION TO THE REDUCED FENCING PROVIDED.
9. WHERE ANY OF THE ABOVE EXCEPTIONS RESULT IN AREAS OF UNPROTECTED ROOT ZONES UNDER THE DRIPLINE OR CRZ, WHICHEVER IS GREATER, THOSE AREAS SHOULD BE COVERED WITH 4 INCHES OF ORGANIC MULCH TO MINIMIZE SOIL COMPACTION.
10. ALL GRADING WITHIN CRZ AREAS SHALL BE DONE BY HAND OR WITH SMALL EQUIPMENT TO MINIMIZE ROOT DAMAGE. PRIOR TO GRADING, RELOCATE PROTECTIVE FENCING TO 2 FEET BEHIND THE GRADE CHANGE AREA.
11. ANY ROOTS EXPOSED BY CONSTRUCTION ACTIVITY SHALL BE PRUNED FLUSH WITH THE SOIL AND BACKFILLED WITH GOOD QUALITY TOP SOIL WITHIN TWO DAYS. IF EXPOSED ROOT AREAS CANNOT BE BACKFILLED WITHIN 2 DAYS, AN ORGANIC MATERIAL WHICH REDUCES SOIL TEMPERATURE AND MINIMIZES WATER LOSS DUE TO EVAPORATION SHALL BE PLACED TO COVER THE ROOTS UNTIL BACKFILL CAN OCCUR.
12. PRIOR TO EXCAVATION OR GRADE CUTTING WITHIN TREE DRIPLINES, A CLEAN CUT SHALL BE MADE WITH A ROCK SAW OR SIMILAR EQUIPMENT, IN A LOCATION AND TO A DEPTH APPROVED BY THE FORESTRY MANAGER, TO MINIMIZE DAMAGE TO REMAINING ROOTS.
13. TREES MOST HEAVILY IMPACTED BY CONSTRUCTION ACTIVITIES WILL BE WATERED DEEPLY ONCE A WEEK DURING PERIODS OF HOT, DRY WEATHER. TREE CROWNS ARE TO BE SPRAYED WITH WATER PERIODICALLY TO REDUCE DUST ACCUMULATION ON LEAVES.
14. WHEN INSTALLING CONCRETE ADJACENT TO THE ROOT ZONE OF A TREE, A PLASTIC VAPOR BARRIER SHALL BE PLACED BEHIND THE CONCRETE TO PROHIBIT LEACHING OF LIME INTO THE CRZ.
15. ANY TRENCHING REQUIRED FOR THE INSTALLATION OF LANDSCAPE IRRIGATION SHALL BE PLACED AS FAR FROM EXISTING TREE TRUNKS AS POSSIBLE.
16. NO LANDSCAPE TOPSOIL DRESSING GREATER THAN FOUR (4) INCHES SHALL BE PERMITTED WITHIN THE DRIPLINE OR CRZ OF TREES, WHICHEVER IS GREATER. NO TOPSOIL IS PERMITTED ON ROOT FLARES OF ANY TREE.
17. PRUNING TO PROVIDE CLEARANCE FOR STRUCTURES, VEHICULAR TRAFFIC, AND CONSTRUCTION EQUIPMENT SHALL TAKE PLACE BEFORE CONSTRUCTION BEGINS. ALL PRUNING MUST BE DONE ACCORDING TO CITY STANDARDS AND AS OUTLINED IN LITERATURE PROVIDED BY THE INTERNATIONAL SOCIETY OF ARBORICULTURE (ISA PRUNING TECHNIQUES).
18. ALL OAK TREE CUTS, INTENTIONAL OR UNINTENTIONAL, SHALL BE SEALED WITH AN APPROVED PRUNING SEALER IMMEDIATELY (WITHIN 10 MINUTES). TREE PAINT MUST BE KEPT ON SITE AT ALL TIMES.
19. THE FORESTRY MANAGER HAS THE AUTHORITY TO REQUIRE ADDITIONAL TREE PROTECTION BEFORE OR DURING CONSTRUCTION.
20. TREES APPROVED FOR REMOVAL SHALL BE REMOVED IN A MANNER WHICH DOES NOT IMPACT TREES TO BE PRESERVED. REFER TO THE CITY OF ROUND ROCK TREE TECHNICAL MANUAL FOR APPROPRIATE REMOVAL METHODS.
21. PRIOR TO CONSTRUCTION, ALL LOWER TREE LIMBS OVER ROADWAYS MUST BE PRUNED TO A HEIGHT OF 14 FEET USING THE TECHNIQUES DESCRIBED IN THE CITY OF ROUND ROCK TREE TECHNICAL MANUAL.
22. DEVIATIONS FROM THE ABOVE REQUIREMENTS AND NEGLIGENT DAMAGE TO TREES MAY BE CONSIDERED AS ORDINANCE VIOLATIONS.

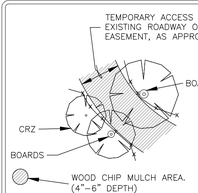
FOR QUESTIONS CONCERNING THIS DETAIL, PLEASE CONTACT THE FORESTRY MANAGER.

RECORD SIGNED COPY ON FILE AT PUBLIC WORKS APPROVED 03-25-11 DATE
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL (NOT TO SCALE)

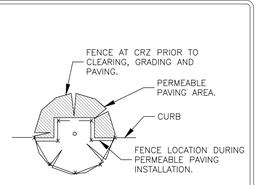
CITY OF ROUND ROCK

TREE PROTECTION NOTES

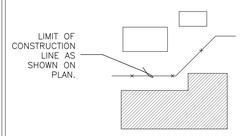
DRAWING NO: EC-01



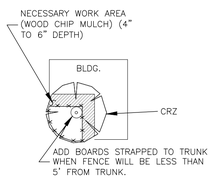
LINEAR CONSTRUCTION THROUGH TREES



TREES IN PAVING AREA



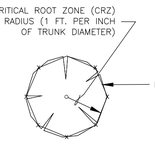
NATURAL AREAS



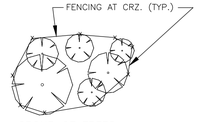
TREES NEAR CONSTRUCTION ACTIVITY

NOTE:

LIMITS OF MULCH AREAS AND DISTANCE FROM TRUNKS TO WORK/ PERMEABLE PAVING AREAS SHALL BE SUBJECT TO THE APPROVAL OF THE FORESTRY MANAGER.



INDIVIDUAL TREE



GROUP OF TREES

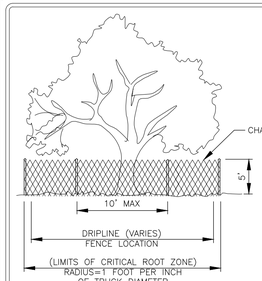
FOR QUESTIONS CONCERNING THIS DETAIL, PLEASE CONTACT THE FORESTRY MANAGER.

RECORD SIGNED COPY ON FILE AT PUBLIC WORKS APPROVED 03-25-11 DATE
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL (NOT TO SCALE)

CITY OF ROUND ROCK

TREE PROTECTION FENCE LOCATIONS

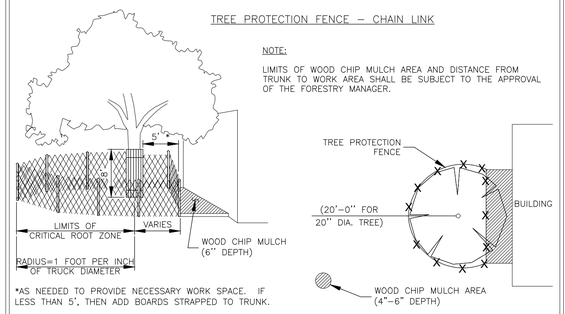
DRAWING NO: EC-03



TREE PROTECTION FENCE - CHAIN LINK

NOTE:

LIMITS OF WOOD CHIP MULCH AREA AND DISTANCE FROM TRUNK TO WORK AREA SHALL BE SUBJECT TO THE APPROVAL OF THE FORESTRY MANAGER.



TREE PROTECTION FENCE (MODIFIED) - CHAIN LINK

FOR QUESTIONS CONCERNING THIS DETAIL, PLEASE CONTACT THE FORESTRY MANAGER.

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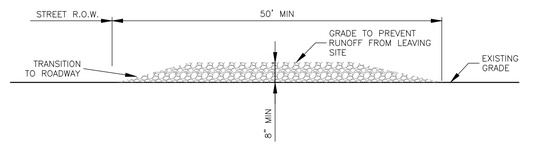
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL (NOT TO SCALE)

CITY OF ROUND ROCK

TREE PROTECTION FENCE CHAIN LINK

DRAWING NO: EC-04



CROSS SECTION

NOTES:

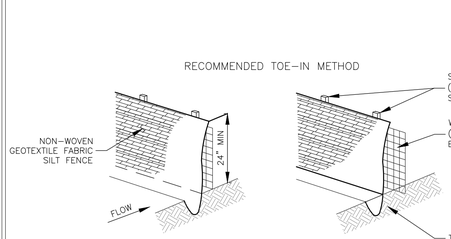
1. STONE SIZE SHALL BE 3" - 8" OPEN GRADED ROCK.
2. THICKNESS OF CRUSHED STONE PAD TO BE NOT LESS THAN 8".
3. LENGTH SHALL BE A MINIMUM OF 50' FROM ACTUAL ROADWAY, AND WIDTH NOT LESS THAN FULL WIDTH OF INGRESS/EGRESS.
4. ENTRANCE SHALL BE PROPERLY GRADED TO PREVENT RUNOFF FROM LEAVING THE CONSTRUCTION SITE.
5. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS OF WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS OF WAY MUST BE REMOVED IMMEDIATELY BY CONTRACTOR.
6. AS NECESSARY, WHEELS MUST BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHT OF WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE WHICH DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATERCOURSE USING APPROVED METHODS.

RECORD SIGNED COPY ON FILE AT PUBLIC WORKS APPROVED 03-25-11 DATE
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL (NOT TO SCALE)

CITY OF ROUND ROCK

STABILIZED CONSTRUCTION ENTRANCE DETAIL

DRAWING NO: EC-09



CROSS SECTION

NOTES:

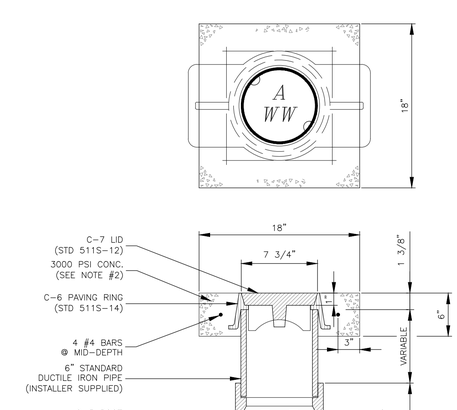
1. STEEL POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MIN. OF ONE (1') FOOT.
2. THE TOE OF THE SILT FENCE SHALL BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWNSLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW. WHERE FENCE CANNOT BE TRENCHED IN (E.G. PAVEMENT) WEIGHT FABRIC FLAP WITH WASHED GRAVEL ON UPHILL SIDE TO PREVENT FLOW UNDER FENCE.
3. THE TRENCH MUST BE A MINIMUM OF 6 INCHES DEEP AND 6 INCHES WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.
4. SILT FENCE SHALL BE SECURELY FASTENED TO EACH STEEL SUPPORT POST OR TO WOVEN WIRE, WHICH IN TURN IS SECURELY FASTENED TO THE STEEL FENCE POSTS.
5. INSPECTION SHALL BE MADE WEEKLY OR AFTER EACH RAINFALL EVENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
6. SILT FENCE SHALL BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
7. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF 6 INCHES. THE SILT SHALL BE DISPOSED OF IN AN APPROVED SITE AND IN SUCH A MANNER AS TO NOT CONTRIBUTE TO ADDITIONAL SILTATION.
8. SILT FENCE SHALL BE REMOVED AS SOON AS THE SOURCE OF SEDIMENT IS STABILIZED

RECORD SIGNED COPY ON FILE AT PUBLIC WORKS APPROVED 03-25-11 DATE
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL (NOT TO SCALE)

CITY OF ROUND ROCK

SILT FENCE DETAIL

DRAWING NO: EC-10



NOTES:

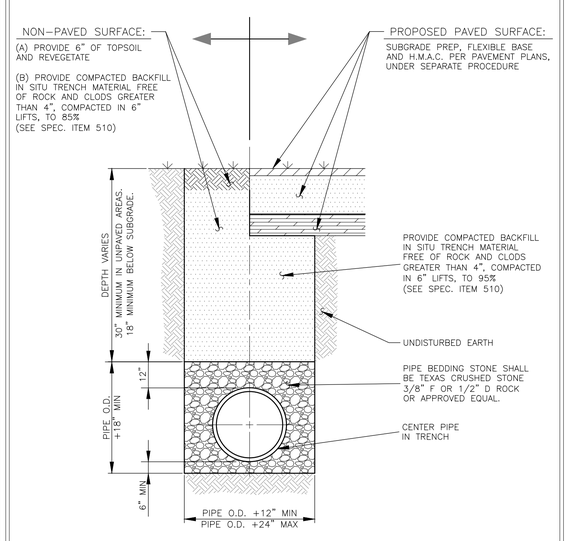
1. NUMBERED CASTINGS STANDARDS SHOWN IN PARENTHESES ARE REFERENCES TO THE CITY OF AUSTIN STANDARDS CRITERIA MANUAL.
2. DELETE CONCRETE & REBAR WHEN VALVE IS WITHIN PAVED STREET.

RECORD SIGNED COPY ON FILE AT PUBLIC WORKS APPROVED 04-01-10 DATE
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL (NOT TO SCALE)

CITY OF ROUND ROCK

VALVE BOX ASSEMBLY

DRAWING NO: WT-06



NOTE:

ALL TRENCHING AND TRENCH SAFETY SHALL COMPLY WITH APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS.

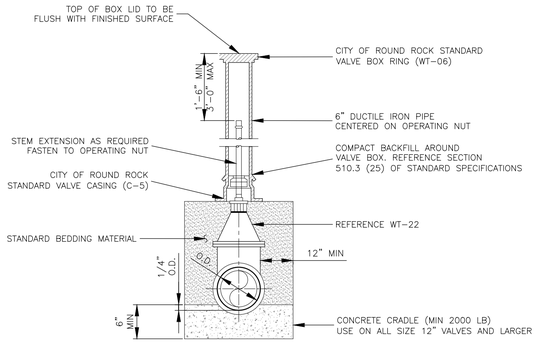
*THIS DETAIL WAS MODIFIED BY CP&Y FOR THIS PROJECT.

RECORD SIGNED COPY ON FILE AT PUBLIC WORKS APPROVED 12-04-13 DATE
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL (NOT TO SCALE)

CITY OF ROUND ROCK

WATERLINE BEDDING AND SURFACE REPAIR DETAIL (NON-PAVED & PROPOSED PAVED SURFACE)

DRAWING NO: WT-08



*THIS DETAIL WAS MODIFIED BY CP&Y FOR THIS PROJECT.

RECORD SIGNED COPY ON FILE AT PUBLIC WORKS APPROVED 04-01-10 DATE
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL (NOT TO SCALE)

CITY OF ROUND ROCK

VERTICAL VALVE INSTALLATION DETAIL

DRAWING NO: WT-11

CP&Y, INC.
TBPE FIRM REGISTRATION NO. #F-1741

ROUND ROCK TEXAS

STATE OF TEXAS
LINDSAY C. WEBB
110398
LICENSED PROFESSIONAL ENGINEER
6-5-2017

NO.	REVISION	BY	DATE

VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE
0 1"

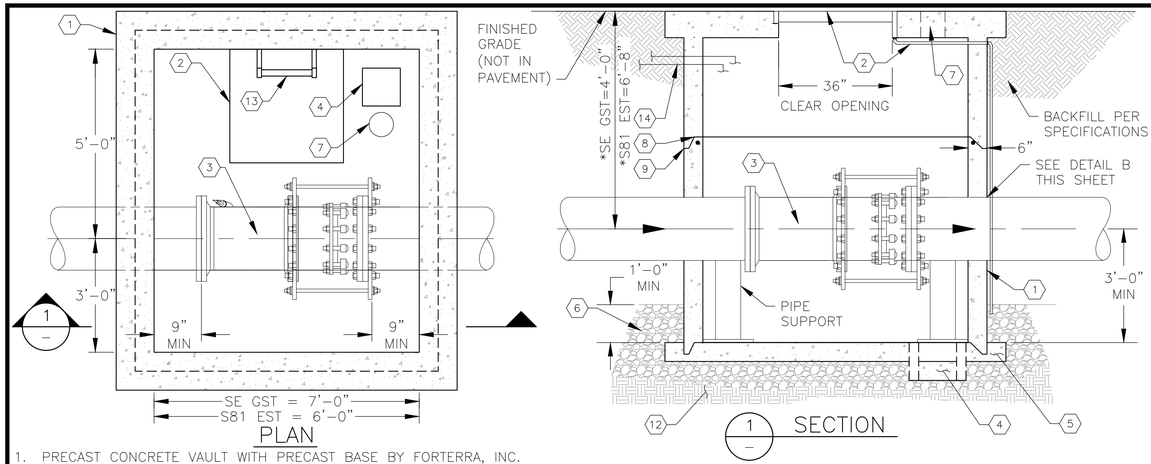
CITY OF ROUND ROCK
SOUTHEAST GST & SOUTH 81 EST
PUMP STATION IMPROVEMENTS

CIVIL DETAILS I

Date: JUNE 2017
Designed: K.KNIPPA
Drawn: S.MEDINA
Reviewed: J.PENN
CP&Y Proj. No.RNDR14486

SHEET
CZ-1
SHEET 12 OF 57

REFERENCES: RNDR14486_Border_Base.dwg _Std ENVIRO SEALS
Jun 01, 2017 - 10:33am C:\pwworking\cpy\cw_cpy\smedina\d0459066\RNDR14486 CPY CZ-1.dwg LAYOUT: Layout1 USER:



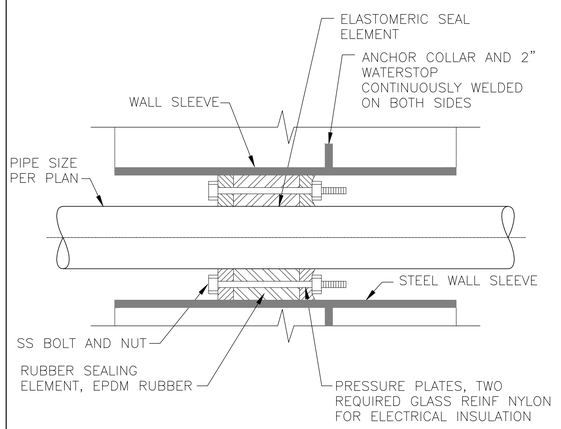
PLAN

SECTION

1. PRECAST CONCRETE VAULT WITH PRECAST BASE BY FORTERRA, INC. OR APPROVED EQUAL. INTERIOR DIMENSIONS VARY BY SITE. EXTERIOR DIMENSIONS VARY BY MANUFACTURER.
2. 3'x3' HS-20 WATERTIGHT LOADING HATCH AND DRAIN PER SPECIAL SPECIFICATION SECTION 05500. FRAME DRAIN SIZE AS REQUIRED BY HATCH MANUFACTURER. ROUTE DRAIN DOWN SIDE OF VAULT AND A MINIMUM OF 3 INCHES INTO REQUIRED ROCK GRAVEL OR CRUSHED STONE.
3. 16" OR 20" ULTRASONIC FLOW METER SPOOL PIECE. FLOW METER DEVICE SHOWN FOR SCHEMATIC PURPOSES ONLY. REFER TO SPECIAL SPECIFICATION SECTION 17520 AND MANUFACTURER'S INSTALLATION DETAILS.
4. 12"x12"x12" DEEP SUMP WITH 6" THICK CONCRETE SIDES AND BOTTOM.
5. 6" CONCRETE SLAB (4,000 TO 4,500 P.S.I.) WITH #4 @ 12" O.C. STEEL REINFORCEMENT. BASE SECTION SHALL BE DESIGNED FOR HS-20 LOADING, PLUS EARTH LOAD AT 130 PCF.
6. BED VAULT AND PIPE WITH MINIMUM 8" THICK 3/4" WASHED ROCK GRAVEL OR OTHER CRUSHED STONE ACCEPTABLE TO THE CITY OF ROUND ROCK. ROCK GRAVEL OR OTHER CRUSHED STONE TO EXTEND 1 FOOT ABOVE VAULT LIP.
7. EMBEDDED SEAL BOOT AND COVER FOR PORTABLE SUMP PUMP HOSE CONNECTION.
8. PREFORMED FLEXIBLE PLASTIC GASKET (TYP).
9. EXTERIOR OF EACH JOINT SHALL BE WRAPPED WITH A 6" EXTRUDED BUTYL ADHESIVE TAPE.
10. SEE CONSTRUCTION PLANS FOR VAULT LOCATION.
11. VAULTS SHALL BE DESIGNED TO RESIST LATERAL SOIL FORCES, VERTICAL SOIL FORCES AND BUOYANCY FORCES RESULTING FROM VAULT DEPTH. CONTRACTOR SHALL SUBMIT FOR REVIEW BY THE ENGINEER ACCURATE SHOP DRAWINGS, LATERAL/VERTICAL SOIL FORCES CALCULATIONS AND BUOYANCY FORCE CALCULATIONS SEALED BY A LICENSED PROFESSIONAL ENGINEER PRIOR TO THE FABRICATION OF THE VAULT. FORCES SHALL BE CALCULATED USING THE WEIGHT OF THE EMPTY PRECAST VAULT (EXCLUDING PIPE, FITTINGS OR APPURTENANCES WEIGHT) FOR BUOYANCY CALCULATIONS.
12. COMPACTED SUBGRADE, MIN 12" DEPTH (UNDER VAULT BASE SLAB ONLY).
13. ALUMINUM VAULT LADDER PER SPECIAL SPECIFICATION 05540.
14. ELECTRICAL/INSTRUMENTATION LINES WHERE REQUIRED. COORDINATE WITH E/I SHEETS.

* CONTRACTOR TO VERIFY VAULT DEPTHS PRIOR TO FABRICATION.

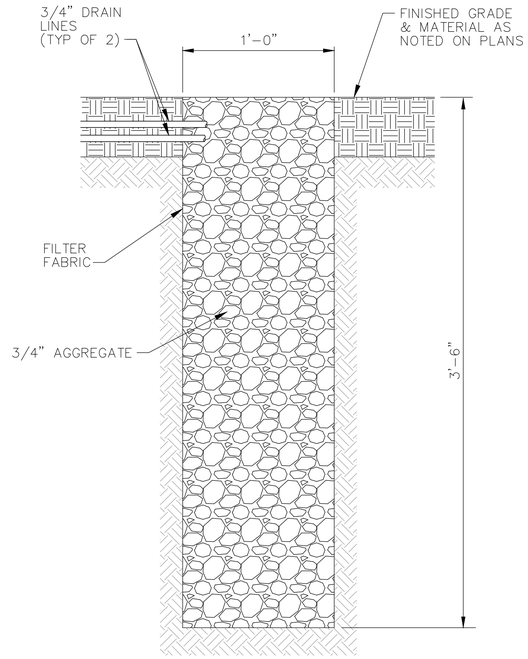
A FLOW METER VAULT
NTS



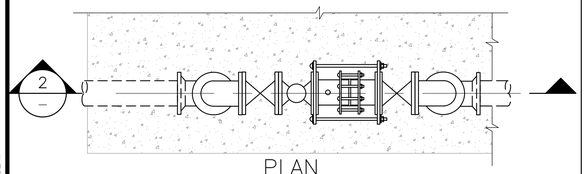
NOTES:

1. INSIDE DIAMETER OF EACH WALL OPENING SHALL BE OF THE SIZE RECOMMENDED BY THE MANUFACTURER TO FIT THE PIPE AND THE WALL SEAL ASSEMBLY TO ASSURE WATER-TIGHT JOINT.
2. PIPE TO WALL PENETRATION CLOSURES SHALL BE OF THE MODULAR TYPE, CONSISTING OF INTERLOCKING SYNTHETIC RUBBER LINKS SHAPED TO FILL THE ANGULAR SPACE BETWEEN THE PIPE AND WALL OPENING. A PRESSURE PLATE SHALL BE PROVIDED UNDER EACH BOLT HEAD AND NUT, WITH THE SEAL CONSTRUCTED TO PROVIDE ELECTRICAL INSULATION BETWEEN PIPE AND WALL.
3. WALL SEAL ASSEMBLY SHALL BE "LINK SEAL" AS MANUFACTURED BY THUNDERLINE CORP., WAYNE, MICHIGAN, OR EQUAL.

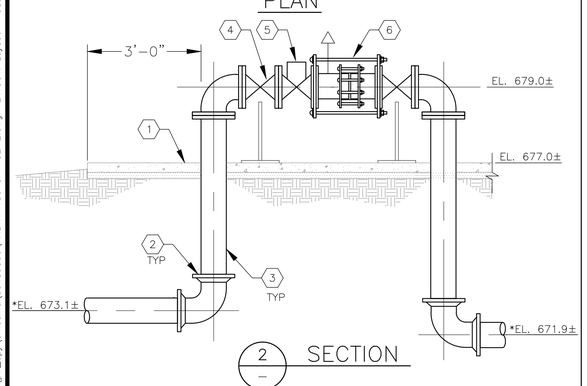
B VAULT WALL PENETRATION
NTS



C CHLORINE ANALYZER DRAIN SUMP
NTS



PLAN

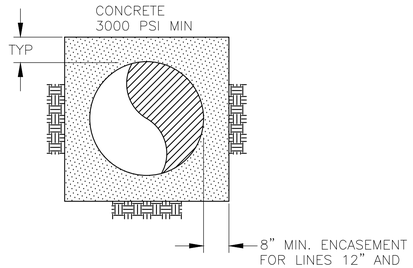


SECTION

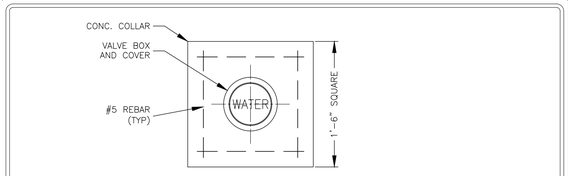
1. REINFORCED CONCRETE SIDEWALK PER DETAIL D ON CZ-3.
2. 8" 90° BEND WITH THRUST BLOCK PER WT-25 ON THIS SHEET.
3. 8" DI PIPE PER CITY STANDARD SPECIFICATION SECTION 510.
4. 8" GATE VALVE WITH PIPE SUPPORT PER SPECIAL PROVISION 511.
5. 8" SURGE RELIEF VALVE PER SPECIAL SPECIFICATION SECTION 15107.
6. 8" HARNESSED MECHANICAL COUPLING PER DETAIL A ON MZ-1.
7. AIR RELEASE VALVE PER SPECIAL PROVISION 511.
8. WRAP BURIED FITTINGS WITH 8-MIL POLYETHELENE PER GENERAL NOTES.

* CONTRACTOR TO FIELD VERIFY ELEVATIONS.

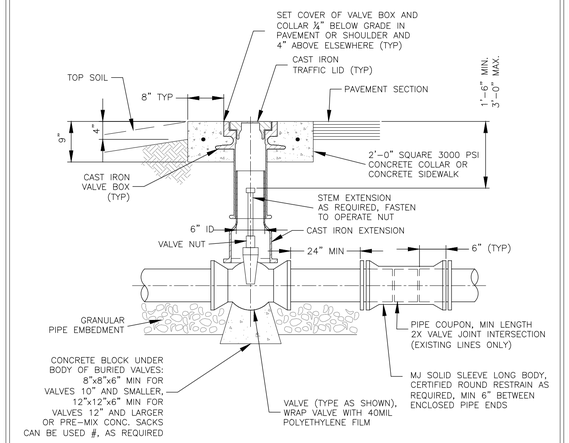
D SURGE VALVE ASSEMBLY
NTS



E CONCRETE ENCASEMENT
NTS

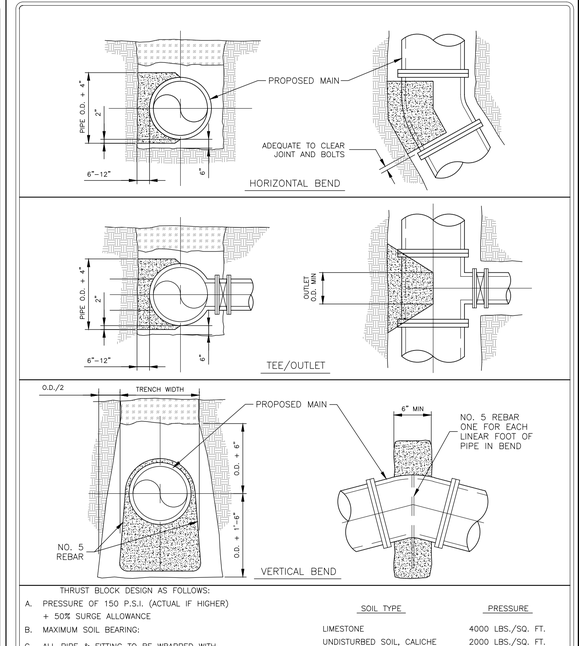


PLAN VIEW
SEE DETAIL DRAWING NO. WT-06



*THIS DETAIL WAS MODIFIED BY CP&Y FOR THIS PROJECT.

RECORD SIGNED COPY ON FILE AT PUBLIC WORKS	CITY OF ROUND ROCK	DRAWING NO: WT-22
APPROVED 04-01-10 DATE	GATE VALVE DETAIL	ROUND ROCK, TEXAS FAMILIA, PASSION, PROGRESS
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL (NOT TO SCALE)		



THRUST BLOCK DESIGN AS FOLLOWS:

A. PRESSURE OF 150 P.S.I. (ACTUAL IF HIGHER) + 50% SURGE ALLOWANCE
B. MAXIMUM SOIL BEARING:
C. ALL PIPE & FITTING TO BE WRAPPED WITH 40 PLASTIC MIL.

SOIL TYPE	PRESSURE
LIMESTONE	4000 LBS./SQ. FT.
UNDISTURBED SOIL, CALICHE	2000 LBS./SQ. FT.
LOOSE OR SPONGY SOIL	1500 LBS./SQ. FT.

RECORD SIGNED COPY ON FILE AT PUBLIC WORKS	CITY OF ROUND ROCK	DRAWING NO: WT-25
APPROVED 04-01-10 DATE	THRUST BLOCK DETAIL	ROUND ROCK, TEXAS FAMILIA, PASSION, PROGRESS
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL (NOT TO SCALE)		

CP&Y, INC.
TBPE FIRM REGISTRATION NO. #F-1741

ROUND ROCK TEXAS

STATE OF TEXAS · LINDSAY C. WEBB · 110398 · LICENSED PROFESSIONAL ENGINEER · 6-5-2017

NO.	REVISION	BY	DATE

BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE
VERIFY SCALE 0 1"

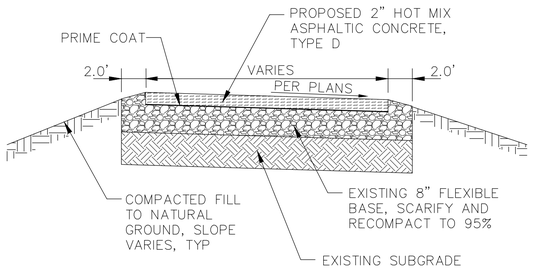
CITY OF ROUND ROCK
SOUTHEAST GST & SOUTH 81 EST
PUMP STATION IMPROVEMENTS

CIVIL DETAILS II

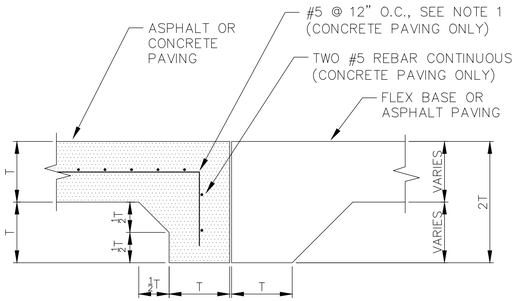
Date: JUNE 2017
Designed: K.KNIPPA
Drawn: S.MEDINA
Reviewed: J.PENN
CP&Y Proj. No. RNDR14486

SHEET
CZ-2
SHEET 13 OF 57

REFERENCES: RNDR14486_Border_Base.dwg Std ENVIRO SEALS
Jun 01, 2017 - 10:37am C:\pwworking\cpy\pw_cpy\smedina\d0459066\RNDR14486 CPY CZ-2.dwg LAYOUT: Layout1 USER:



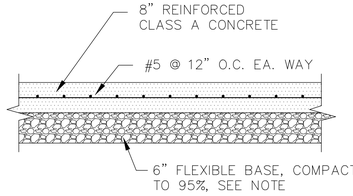
A ASPHALT PAVEMENT SECTON
NTS



NOTES:

1. FOR CONCRETE PAVEMENT BEND REBAR DOWN INTO TOE OF PAVING, PROVIDE 2" CLEAR FROM BOTTOM OF TOE TO THE END OF THE REBAR.
2. SUBGRADE FOR THE DIFFERENT TYPES OF PAVING SHALL BE PER DETAIL A, C AND E ON THIS SHEET.

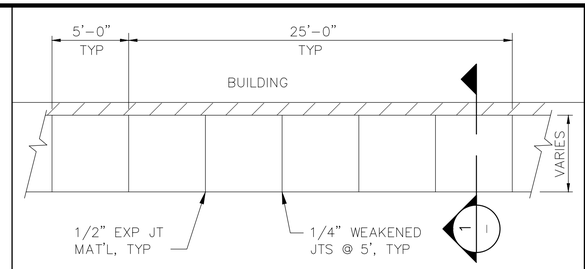
B EDGE OF PAVEMENT
NTS



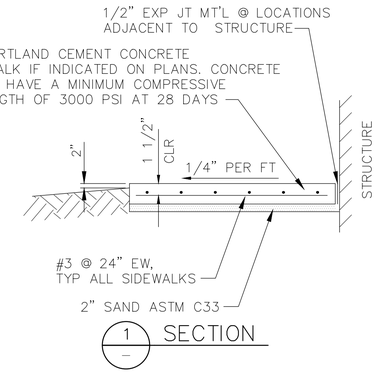
NOTE:

SUBGRADE SHALL BE SCARIFIED TO A DEPTH OF 6" AND RECOMPACTED TO 95% STANDARD PROCTOR DENSITY (ASTM D-698). WHERE P.I. OF SUBGRADE MATERIAL IS 20 OR GREATER, EXTEND TO 1' BEYOND EDGE OF PAVEMENT.

C CONCRETE PAVEMENT SECTION
NTS

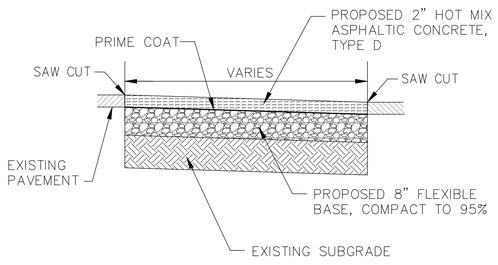


PLAN



1 SECTION

D SIDEWALK
NTS



NOTE:

MATCH EXISTING PAVEMENT OR MEET ABOVE TYPICAL SECTION, WHICHEVER IS GREATER.

E ASPHALT PAVEMENT REPAIR SECTION
NTS

CP&Y, INC.
TBPE FIRM REGISTRATION NO. #F-1741

ROUND ROCK TEXAS

STATE OF TEXAS · LINDSAY C. WEBB · 110398 · LICENSED PROFESSIONAL ENGINEER · 6-5-2017

NO.	REVISION	BY	DATE

BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE

VERIFY SCALE 0 1"

CITY OF ROUND ROCK
SOUTHEAST GST & SOUTH 81 EST
PUMP STATION IMPROVEMENTS

CIVIL DETAILS III

Date: JUNE 2017
Designed: K.KNIPPA
Drawn: S.MEDINA
Reviewed: L.WEBB
CP&Y Proj. No. RNDR14486

SHEET
CZ-3
SHEET 14 OF 57

REFERENCES: RNDR14486_Border_Base.dwg -Std ENVIRO SEALS
Jun 01, 2017 - 10:41am C:\pwworking\cpy\pw_cpy\smedina\d0459006\RNDR14486 CPY CZ-3.dwg LAYOUT: Layout1 USER:

GENERAL NOTES FOR STRUCTURES

REINFORCED CONCRETE

1. REINFORCED CONCRETE REQUIREMENTS SHALL BE PER THE DRAWINGS AND SPECIFICATIONS.

2. MINIMUM DEVELOPMENT LENGTH FOR REINFORCING BARS IN TENSION AND COMPRESSION, FOR STANDARD HOOKS IN TENSION, AND MINIMUM LAP SPLICE LENGTH FOR REINFORCING BARS IN TENSION AND COMPRESSION SHALL BE AS GIVEN IN THE FOLLOWING TABLE FOR GR 60 REINFORCEMENT IN 4000 PSI CONCRETE.

BAR SIZE	DEVELOPMENT LENGTH (IN)				LAP SPLICE LENGTH (IN)		
	TOP BARS IN TENSION LD	OTHER BARS IN TENSION LD	BARS IN COMPRES-SION LDC	STD HOOK IN TENSION LDH	TOP BARS IN TENSION LST	OTHER BARS IN TENSION LST	BARS IN COMPRES-SION LSC
#3	16	13	8	7	21	16	12
#4	21	16	9	9	27	21	15
#5	26	20	12	12	33	26	19
#6	30	23	14	14	38	30	23
#7	42	32	17	17	54	42	26
#8	46	36	19	19	60	46	30
#9	51	39	21	21	66	51	34
#10	55	42	24	24	72	55	38
#11	59	45	27	27	77	59	42

   a. TOP BARS ARE HORIZONTAL BARS SO PLACED THAT MORE THAN 12" OF CONCRETE IS CAST IN THE MEMBER BELOW THE BAR. HORIZONTAL BARS IN WALLS ARE TO BE PROVIDED WITH LAPS AS REQUIRED FOR TOP BARS.

   b. EXCEPT AS OTHERWISE INDICATED ON THE PLANS, USE DEVELOPMENT LENGTH AND LAP SPLICE LENGTH FOR REINFORCING BARS IN TENSION.

   c. MINIMUM DEVELOPMENT AND LAP SPLICE LENGTHS FOR BARS IN TENSION AS SHOWN IN THE ABOVE TABLE ARE BASED ON 1–1/2 IN MINIMUM CONCRETE CLEAR COVER.

   d. MINIMUM DEVELOPMENT LENGTH FOR #11 OR SMALLER STANDARD HOOKS IN TENSION MAY BE MULTIPLIED BY 0.7 IF SIDE COVER IS LARGER THAN 2–1/2 IN AND FOR 90–DEGREE HOOK WITH COVER ON BAR EXTENSION BEYOND HOOK LARGER THAN 2 IN.

   e. MINIMUM DEVELOPMENT LENGTH FOR BARS IN COMPRESSION MAY BE MULTIPLIED BY 0.75 IF CONFINEMENT CONDITIONS DEFINED IN ACI 318–14 TABLE 25.4.9.3 ARE MET.

3. UNLESS OTHERWISE SHOWN, THE MINIMUM CONCRETE CLEAR COVER FOR REINFORCING STEEL SHALL BE AS FOLLOWS:

CONCRETE EXPOSURE	COVER (IN)
CAST AGAINST AND PERMANENTLY IN CONTACT WITH GROUND	3
EXPOSED TO EARTH, LIQUID, WEATHER OR IN CONTACT WITH GROUND	2
NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND	1–1/2

4. REINFORCING BAR SPACING INDICATED IN DRAWINGS SHALL BE MEASURED FROM BARS CENTER TO CENTER.

5. DESIGN DRAWINGS DO NOT SHOW ADDITIONAL REINF. BARS AT WALL CORNERS AND OPENINGS. CONTRACTOR SHALL REFER TO STRUCTURAL STANDARD SHEETS TO ADD ALL REQUIRED REINF. BARS IN THE SHOP DRAWINGS.

6. CONTRACTOR TO REPAIR, PATCH, ETC. ANY CONCRETE SURFACE AFTER DEMOLISHING WALL, WALKWAY, ETC. INCLUDING ALL HOLES DUE TO REMOVAL OF PIPES, UTILITIES, ETC PER SPECIFICATION AND STANDARD DETAIL.

7. CONTRACTOR TO REPAIR CRACKS, EXPANSION JOINTS, ETC PER SPECIFICATIONS AND STANDARD DETAILS.

STRUCTURAL STEEL

I. STRUCTURAL STEEL AND MISC METAL REQUIREMENTS SHALL BE PER THE DRAWINGS AND SPECIFICATIONS.

II. STRUCTURAL STEEL DETAILING, FABRICATION AND ERECTION SHALL CONFORM TO THE AISC MANUAL OF STEEL CONSTRUCTION.

MASONRY

I. MASONRY VENEER SHALL BE IN ACCORDANCE WITH THE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS.

II. CONCRETE BLOCKS SHALL BE HOLLOW LOAD–BEARING CONCRETE MASONRY UNITS CONFORMING TO ASTM C90. USE BOND BEAMS AT HORIZONTAL REINFORCING. USE KNOCK–OUT LINTEL UNITS WHERE HORIZONTAL AND VERTICAL REINFORCEMENT CROSS.

III. MASONRY WALL ASSEMBLY SHALL BE CONSTRUCTED SUCH THAT PRISM STRENGTH OF F'M=1500 PSI IS DEVELOPED. MORTAR SHALL CONFORM TO ASTM C270, TYPE S.

IV. HORIZONTAL JOINT REINFORCING SHALL BE TRUSS TYPE 9 GA. WELDED WIRE @ 16 IN VERTICALLY. LAP HORIZONTAL JOINT REINFORCING 6" AT SPLICES.

V. GROUT WITH 3/8 INCH AGGREGATE WITH A 28 DAY COMPRESSIVE STRENGTH OF 3000 PSI SHALL BE USED FOR VERTICAL & HORIZONTAL REINFORCED SECTIONS. ALL CELLS SCHEDULED OR INDICATED AS BEING REINFORCED AND AS SHOWN ON MASONRY DETAILS SHALL BE FULLY GROUTED. 1/2 INCH MAXIMUM AGGREGATE SHALL BE USED FOR LINTELS AND BOND BEAMS.

VI. ALL REINFORCING SHALL BE ASTM C615 GRADE 60. PROVIDE MINIMUM 1/2 INCH CLEARANCE BETWEEN MAIN REINFORCING AND MASONRY UNITS. VERTICAL AND HORIZONTAL REINFORCING SHALL BE AS INDICATED ON THE DRAWINGS. REINFORCING BARS SHALL BE STRAIGHT EXCEPT FOR BENDS AROUND CORNERS AND WHERE DETAILED OTHERWISE ON THE DRAWINGS.

VII. MINIMUM DEVELOPMENT LENGTH AND LAP SPLICE LENGTH FOR REINFORCING BARS SHALL BE AS GIVEN IN THE FOLLOWING TABLE.

BAR SIZE	DEVELOPMENT LENGTH & LAP SPLICE (IN)			
	BARS CENTERED IN WALL (SINGLE REINFORCING)		BARS PLACED WITH COVER = 3" (DOUBLE REINFORCING)	
	8" CMU	12" CMU	8" CMU	12" CMU
#3	18	18	18	18
#4	24	24	24	24
#5	30	30	30	30
#6	37	36	49	49
#7	–	42	–	63

VIII. USE 'LOW LIFT' CONSTRUCTION, WITH A MAXIMUM GROUT POUR HEIGHT OF 4 FEET.

IX. CELLS SHALL BE IN VERTICAL ALIGNMENT. DOWELS IN FOUNDATIONS SHALL BE SET TO ALIGN WITH CORES CONTAINING REINFORCING STEEL. PROVIDE DOWELS EQUAL TO WALL REINFORCEMENT IN SIZE, QUANTITY AND SPACING AND HOOK INTO CONCRETE FOOTINGS WITH STANDARD HOOKS.

X. REFER TO BUILDING ELEVATION DRAWINGS FOR SURFACE AND HEIGHT OF MASONRY UNITS, LAYING PATTERN AND JOINT TYPE.

COORDINATION

I. PIPING AND MECHANICAL PENETRATIONS IN THE STRUCTURAL FRAMING COMPONENT MEMBERS ARE INDICATED ON THE STRUCTURAL DRAWINGS AT CRITICAL LOCATIONS. HOWEVER, ALL SLEEVES, INSERTS AND OPENINGS, INCLUDING FRAMES AND/OR SLEEVES SHALL BE PROVIDED FOR PASSAGE, PROVISION AND/OR INCORPORATION OF THE WORK OF THE CONTRACT, INCLUDING BUT NOT LIMITED TO ARCHITECTURAL, MECHANICAL, HVAC PIPING, ELECTRICAL AND PLUMBING WORK. THIS WORK SHALL INCLUDE THE COORDINATION OF SIZES, ALIGNMENT, DIMENSIONS, POSITION, LOCATIONS, ELEVATIONS AND GRADES AS REQUIRED TO SERVE THE INTENDED PURPOSE. OPENINGS NOT INDICATED ON THE STRUCTURAL DRAWINGS, BUT REQUIRED AS NOTED ABOVE, SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW. NOT ALL PENETRATIONS ARE SHOWN IN STRUCTURAL DRAWINGS. CONTRACTOR TO COORDINATE W/ALL OTHER DISCIPLINE DRAWINGS PRIOR TO FABRICATION OR PLACING CONCRETE.

II. FLOOR ELEVATIONS, SLOPES, DRAINS AND LOCATION OF DEPRESSED AND ELEVATED FLOOR AREAS SHALL BE COORDINATED WITH ALL DISCIPLINE DRAWINGS PRIOR TO CONSTRUCTION. NOTIFY THE ENGINEER IN THE EVENT OF A DISCREPANCY BETWEEN DISCIPLINES.

III. COMPATIBILITY OF THE STRUCTURE AND PROVISIONS FOR BUILDING EQUIPMENT SUPPORTED ON OR FROM STRUCTURAL COMPONENTS SHALL BE VERIFIED AS TO SIZE, DIMENSIONS, CLEARANCES, ACCESSIBILITY, WEIGHTS AND REACTION WITH THE EQUIPMENT FOR WHICH THE STRUCTURE HAS BEEN DESIGNED PRIOR TO SUBMISSION OF SHOP DRAWINGS AND DATA FOR EACH PIECE OF EQUIPMENT AND FOR STRUCTURAL COMPONENTS. DIFFERENCES SHALL BE NOTED ON THE SUBMITTALS.

IV. SHOP DRAWINGS SHALL BE PREPARED FOR ALL STRUCTURAL ITEMS AND SUBMITTED FOR REVIEW BY THE ENGINEER. CONTRACT DRAWINGS SHALL NOT BE REPRODUCED AND USED AS SHOP DRAWINGS. ALL ITEMS DEVIATING FROM THE CONTRACT DRAWINGS OR FROM PREVIOUSLY SUBMITTED SHOP DRAWINGS SHALL BE CLOUDED.

V. THE DETAILS DESIGNATED AS "TYPICAL DETAILS" OR "STANDARD DETAILS" APPLY GENERALLY TO THE DRAWINGS IN ALL AREAS WHERE CONDITIONS ARE SIMILAR TO THOSE DESCRIBED IN THE DETAILS.

VI. ALL RELEVANT DIMENSIONS AND CONDITIONS OF EXISTING CONSTRUCTION SHALL BE FIELD VERIFIED AT THE PROJECT SITE PRIOR TO FABRICATION OR CONSTRUCTION. DISCREPANCIES BETWEEN EXISTING CONSTRUCTION AND THE DRAWINGS SHALL BE REFERRED TO THE ENGINEER FOR RESOLUTION THROUGH A REQUEST FOR INFORMATION (RFI). DIFFERENCES SHALL ALSO BE CLOUDED ON THE SHOP DRAWINGS.

VII. THE DESIGN AND PROVISION OF ALL TEMPORARY SUPPORTS SUCH AS GUYS, BRACES, FALSEWORK, SUPPORTS AND ANCHORS FOR SAFETY LINES, RIBBING, OR ANY OTHER TEMPORARY ELEMENTS REQUIRED FOR THE EXECUTION OF THE CONTRACT ARE NOT INCLUDED IN THESE DRAWINGS AND SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. TEMPORARY SUPPORTS SHALL NOT RESULT IN THE OVERSTRESS OR DAMAGE OF THE ELEMENTS TO BE BRACED NOR ANY ELEMENTS USED AS BRACE SUPPORTS.

CODES

I. INTERNATIONAL BUILDING CODE IBC (2012).

II. MINIMUM DESIGN LOADS FOR BUILDING AND OTHER STRUCTURES (ASCE/SEI 7–10).

III. BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE (ACI 318–14).

IV. CODE REQUIREMENTS OF ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES (ACI 350–06).

V. AISC MANUAL OF STEEL CONSTRUCTION (14TH EDITION).

VI. BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES (TMS 402–13)

DESIGN LOADS

I.	ACCESS FLOOR, WALKWAY LIVE LOAD:	125 PSF (UON)
II.	RISK CATEGORY:	IV
III.	GROUND SNOW LOAD:	5 PSF
VI.	DESIGN WIND SPEED:	120 MPH (3 SEC GUST)
	EXPOSURE CATEGORY:	C
V.	SEISMIC DESIGN CATEGORY:	A
	SEISMIC SITE CLASS:	D
	SEISMIC DESIGN PARAMETER Ss:	6.4%g
	SEISMIC DESIGN PARAMETER S1:	3.3%g

CP&Y, INC.
TBPE FIRM REGISTRATION NO. #F-1741

ROUND ROCK TEXAS

STATE OF TEXAS · JEFFREY P. WOUTERS · 80701 · REGISTERED PROFESSIONAL ENGINEER

06-05-2017

NO.	REVISION	BY	DATE

VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE
0 1"

CITY OF ROUND ROCK
SOUTHEAST GST & SOUTH 81 EST
PUMP STATION IMPROVEMENTS

STRUCTURAL GENERAL NOTES

Date: JUNE 2017
Designed: J.WOUTERS
Drawn: S.MEDINA
Reviewed: C.POTTER
CP&Y Proj. No. RNDR14486

SHEET
S–1
SHEET 15 OF 57

REFERENCES: RNDR14486_Border_Base.dwg _Std ENVIRO SEALS
Jun 01, 2017 - 10:42am C:\pworking\cpy\pw_cpy\smedina\d0459006\RNDR14486 CPY S-1.dwg LAYOUT: Layout1 USER:

STRUCTURAL ABBREVIATIONS

ABOVE FINISH FLOOR	–	AFF
ADDITIONAL	–	ADDN'L
ANCHOR BOLT	–	AB
APPROXIMATE	–	APPROX
ARCHITECT	–	ARCH
ARCHITECTURAL	–	ARCH'L
AIR CONDITIONER	–	A/C
AIR HANDLING UNIT	–	AHU
BASEMENT	–	BSMT
BEAM	–	BM
BEARING	–	BRG
BELOW FINISH FLOOR	–	BFF
BETWEEN	–	BTWN
BLOCK	–	BLK
BLOCKING	–	BLKG
BOTTOM	–	BOT
BUILDING	–	BLDG
BUILDING LINE	–	BL
CAST–IN–PLACE	–	CIP
CEILING	–	CLG
CENTER LINE	–	CL OR ℄
CLEAR	–	CLR
COLUMN	–	COL
COMPRESSION	–	C OR COMP
CONCRETE	–	CONC
CONCRETE MASONRY UNIT	–	CMU
CONNECTION (S)	–	CONN(S)
CONTINUOUS	–	CONT
CONSTRUCTION JOINT	–	CJ
DETAIL	–	DET
DEAD LOAD	–	DL
DEMOLITION	–	DEMO
DIAGONAL	–	DIAG
DIAMETER	–	DIA OR ø
DIMENSION(S)	–	DIM(S)
DRAWING(S)	–	DWG(S)
DOUBLE	–	DBL
DOWEL(S)	–	DWL(S)
EACH	–	EA
EACH FACE	–	EF
EACH SIDE	–	ES
EACH WAY	–	EW
ELECTRICAL	–	ELEC
ELEVATION	–	EL
EMBEDMENT	–	EMBED
EQUAL	–	EQ
EXPANSION JOINT	–	EJ
EXISTING	–	EXIST OR EX
FACE TO FACE	–	F TO F
FAR SIDE	–	FS
FINISHED FLOOR	–	FF
FLANGE	–	FLG
FLOOR OR FLOW LEVEL	–	FL OR ℄
FLOOR DRAIN	–	FD
FOOTING	–	FTG
FOUNDATION	–	FDN
GAGE OR GAUGE	–	GA
GALVANIZED	–	GALV
GENERAL CONTRACTOR	–	GC
GRADE BEAM	–	GR BM
HEADED STUDS	–	HS
HEIGHT	–	HT
HIGH POINT	–	HP
HOLLOW STRUCTURAL SECTION	–	HSS
HORIZONTAL	–	HORIZ
INFORMATION	–	INFO
INSIDE DIAMETER	–	ID
INSIDE FACE	–	IF
INTERIOR	–	INT
INTERMEDIATE	–	INTERM
JOINT	–	JT
JOIST(S)	–	JST(S)
KIPS (1000 LBS)	–	K
KIP PER LINEAR FOOT	–	KLF
KIP PER SQUARE FOOT	–	KSF
LIVE LOAD	–	LL
LONG	–	LG
LONGITUDINAL	–	LONG
LONG LEG HORIZONTAL	–	LLH
LONG LEG VERTICAL	–	LLV
LOW POINT	–	LP
MANUFACTURER	–	MFR
MAXIMUM	–	MAX
MECHANICAL	–	MECH
MEZZANINE	–	MEZZ
MINIMUM	–	MIN
MISCELLANEOUS	–	MISC
MOMENT CONNECTION	–	MC
NEAR SIDE	–	NS
NOMINAL	–	NOM
NOT IN CONTRACT	–	NIC
NOT TO SCALE	–	NTS
NUMBER	–	NO OR #
ON CENTER	–	OC
OPENING(S)	–	OPNG(S)
OPPOSITE	–	OPP
OPPOSITE HAND	–	OH
OUTSIDE FACE	–	OF
OUTSIDE DIAMETER	–	OD
PERPENDICULAR	–	PERP
PIECE	–	PC
PLATE	–	PL OR ℄
POST–TENSION(ED)(ING)	–	P–T
POUNDS PER SQUARE FOOT	–	PSF
POUNDS PER SQUARE INCH	–	PSI
PRECAST CONCRETE	–	P/C
RADIUS	–	R
REINFORCED CONCRETE PIPE	–	RCP
REINFORCE(ING) (ED) (MENT)	–	REINF
REQUIRED	–	REQ'D
ROOF DRAIN	–	RD
SCHEDULE(D)	–	SCHED
SECTION	–	SECT
SHEET(S)	–	SHT(S)
SIMILAR	–	SIM
SPACE	–	SP
SPECIFICATION(S)	–	SPEC(S)
SQUARE FOOT (FEET)	–	SF
STAINLESS STEEL	–	SS
STANDARD	–	STD
STEEL	–	STL
STIFFENER	–	STIFF
STRAIGHT	–	STR
STIRRUPS	–	STIR
STRUCTURAL	–	STRUCT'L
SYMMETRICAL	–	SYM
THICK	–	THK
TONGUE AND GROOVE	–	T & G
TOP AND BOTTOM	–	T & B
TOP OF BEAM	–	TOB
TOP OF FOOTING	–	TOF
TOP OF JOIST	–	TOJ
TOP OF PIER	–	TOP
TOP OF PIER CAP	–	TOPC
TOP OF STEEL	–	TOS
TOP OF STRUCTURAL CONCRETE	–	TOSC
TOP OF WALL	–	TOW
TYPICAL	–	TYP
UNLESS OTHERWISE NOTED	–	UON
VERTICAL	–	VERT
WELDED WIRE FABRIC	–	WWF
WITH	–	W/
WITHOUT	–	W/O
WORK POINT	–	WP

CP&Y, INC.
TBPE FIRM REGISTRATION NO. #F-1741

ROUND ROCK TEXAS

STATE OF TEXAS
JEFFREY P. WOUTERS
80701
REGISTERED
PROFESSIONAL ENGINEER

06-05-2017

NO	REVISION	BY	DATE

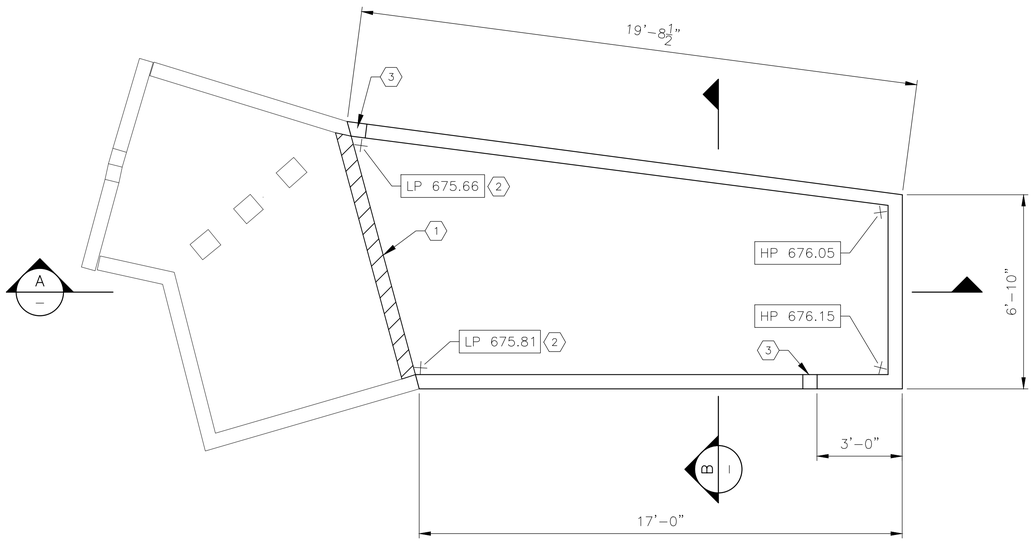
VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE
0 1"

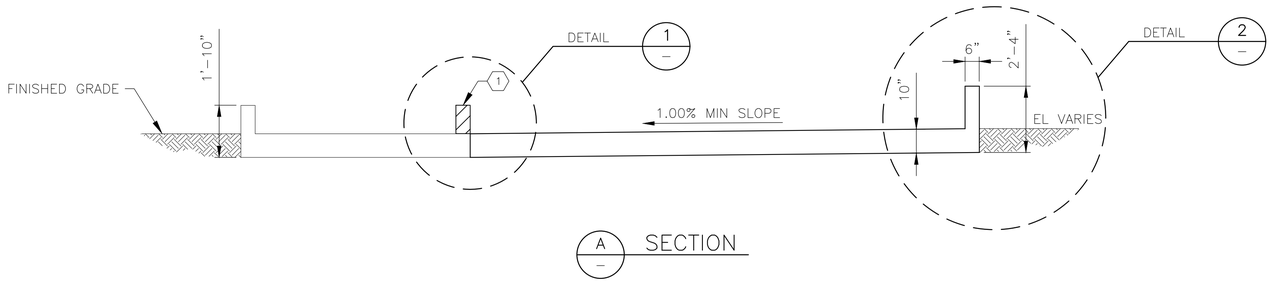
CITY OF ROUND ROCK
SOUTHEAST GST & SOUTH 81 EST
PUMP STATION IMPROVEMENTS

STRUCTURAL ABBREVIATIONS

Date: JUNE 2017
Designed: J.WOUTERS
Drawn: S.MEDINA
Reviewed: C.POTTER
CP&Y Proj. No. RNDR14486

SHEET
S–2
SHEET 16 OF 57





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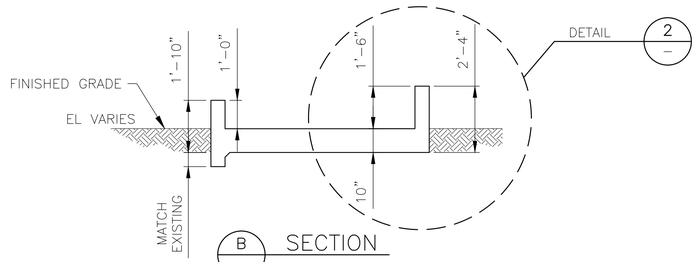

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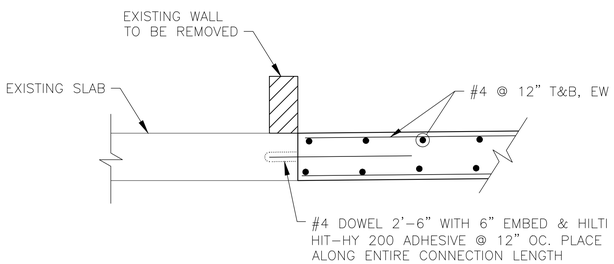
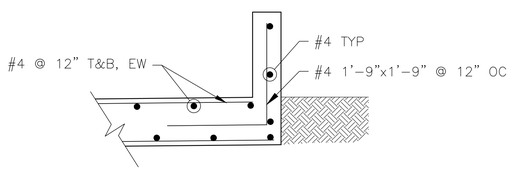


1 DETAIL



2 DETAIL

SOUTHEAST GST – DRAINAGE STRUCTURE

2 1 0 4
SCALE IN FEET

NOTES BY SYMBOL (X)

1. DEMO SOUTHERN WALL OF EXISTING DRAINAGE BASIN.
2. APPROXIMATE ELEVATIONS. MATCH EXISTING.
3. 45° TRANSITION FROM 1'-6" WALL TO 1'-0" WALL.

NOTES:
1. SEE STRUCTURAL GENERAL NOTES, STANDARD DETAILS AND PROJECT SPECIFICATIONS FOR ADDITIONAL INFORMATION NOT SHOWN.
2. COORDINATE WORK WITH CIVIL, MECHANICAL AND ELECTRICAL DRAWINGS AND DETAILS.
3. CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS PRIOR TO CONSTRUCTION OR ORDERING MATERIALS.

CP&Y, INC.
TBPE FIRM REGISTRATION NO. #F-1741

ROUND ROCK TEXAS

STATE OF TEXAS · JEFFREY P. WOUTERS · 80701 · LICENSED PROFESSIONAL ENGINEER

06-05-2017

NO.	REVISION	BY	DATE

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1" 0

CITY OF ROUND ROCK
SOUTHEAST GST & SOUTH 81 EST
PUMP STATION IMPROVEMENTS

DRAINAGE STRUCTURE
PLAN & SECTION – SOUTHEAST GST

Date: JUNE 2017
Designed: J.WOUTERS
Drawn: S.MEDINA
Reviewed: C.POTTER
CP&Y Proj. No. RNDR14486

SHEET
SA-1
SHEET 17 OF 57

REFERENCES: RNDR14486_Border_Base.dwg _Std ENVIRO SEALS.dwg RNDR14486 SE-E-Sbase.dwg RNDR14486 SE-E-Mbase.dwg RNDR14486 SE-E-Chase
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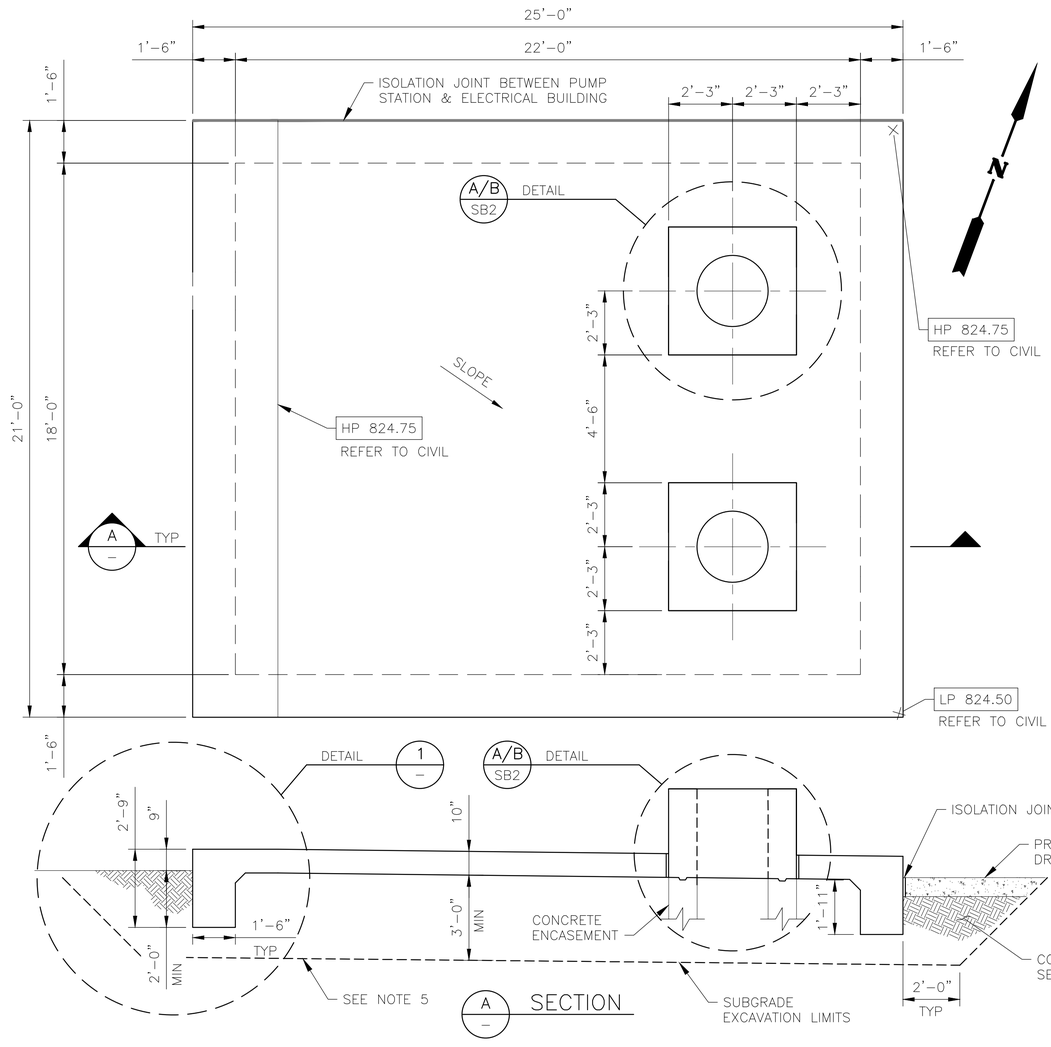
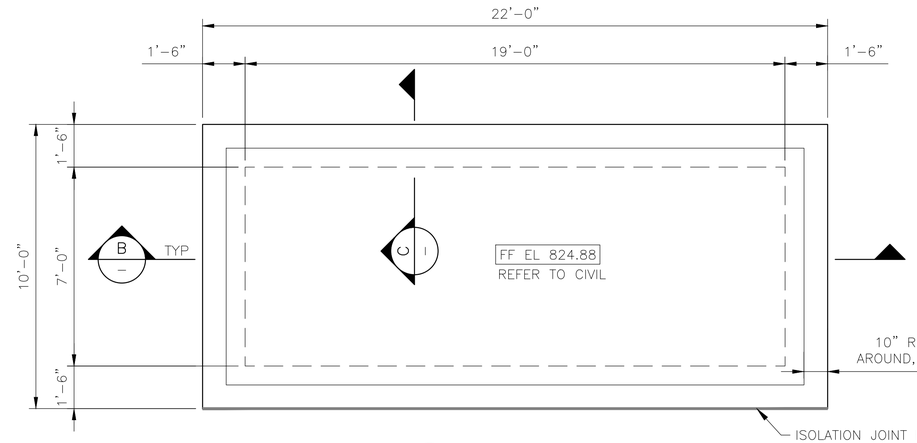
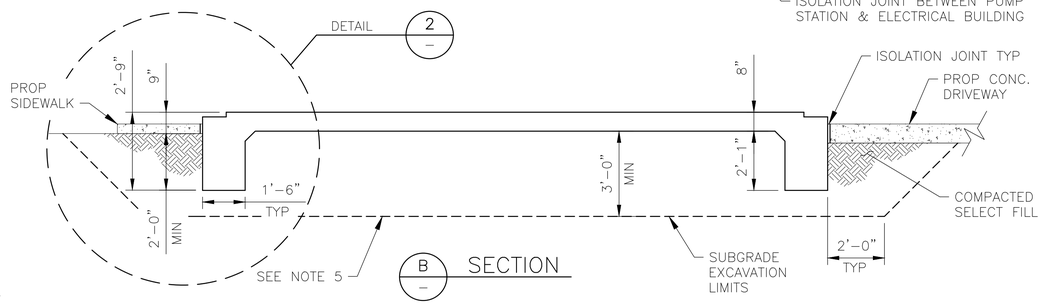


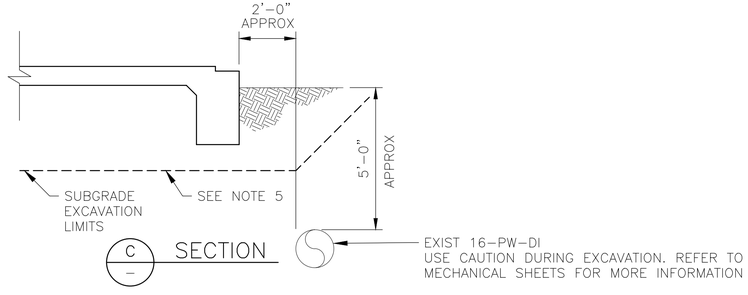


NOTES:
1. SEE STRUCTURAL GENERAL NOTES, STANDARD DETAILS AND PROJECT SPECIFICATIONS FOR ADDITIONAL INFORMATION NOT SHOWN.
2. COORDINATE WORK WITH CIVIL, MECHANICAL AND ELECTRICAL DRAWINGS AND DETAILS.
3. CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS PRIOR TO CONSTRUCTION OR ORDERING MATERIALS.
4. COORDINATE RECESS WITH BUILDING MANUFACTURER.
5. EXPOSED SUBGRADE SHALL BE COMPACTED AND PROOF ROLLED PRIOR TO PLACING SELECT FILL.



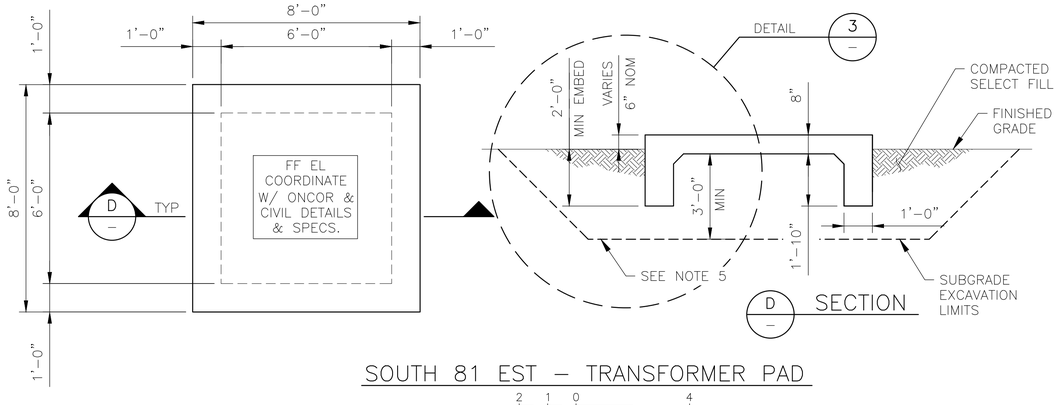
SOUTH 81 EST – PUMP STATION

SCALE IN FEET



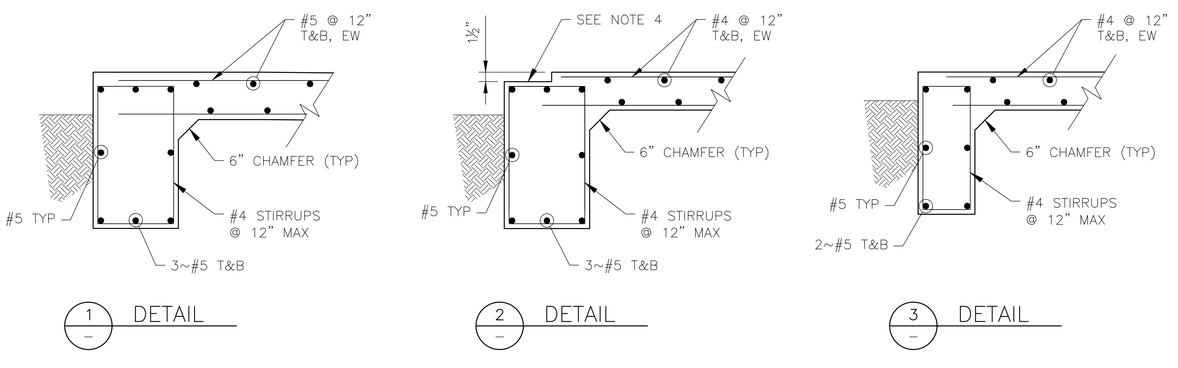
SOUTH 81 EST – ELECTRICAL BUILDING

SCALE IN FEET



SOUTH 81 EST – TRANSFORMER PAD

SCALE IN FEET



CP&Y, INC.
TBPE FIRM REGISTRATION NO. #F-1741

ROUND ROCK TEXAS

STATE OF TEXAS
JEFFREY P. WOUTERS
80701
LICENSED PROFESSIONAL ENGINEER
06-05-2017

NO.	REVISION	BY	DATE

VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE
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CITY OF ROUND ROCK
SOUTHEAST GST & SOUTH 81 EST
PUMP STATION IMPROVEMENTS

PUMP STATION & ELEC. BLDG. PLAN & SECTION – SOUTH 81 EST

Date: JUNE 2017
Designed: J.WOUTERS
Drawn: S.MEDINA
Reviewed: C.POTTER
CP&Y Proj. No. RNDR14486

SHEET
SB-1
SHEET 18 OF 57

REFERENCES: RNDR14486_Border_Base.dwg _Std ENVIRO SEALS.dwg RNDR14486 S81-P-Sbase
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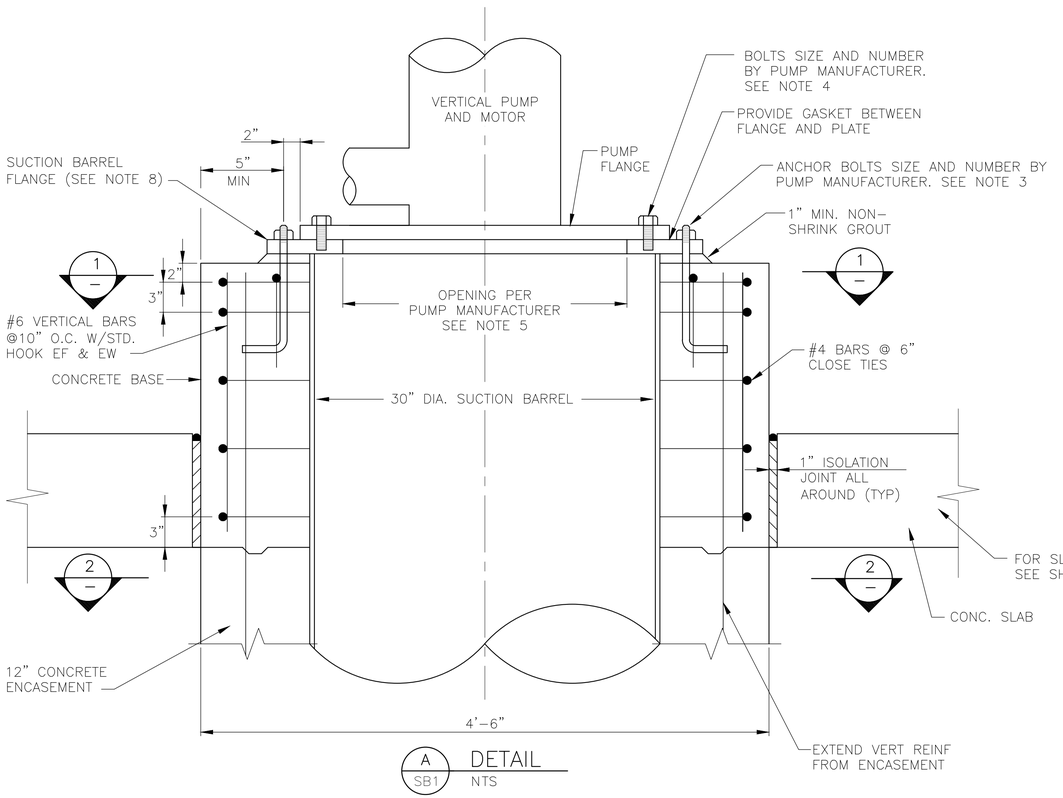
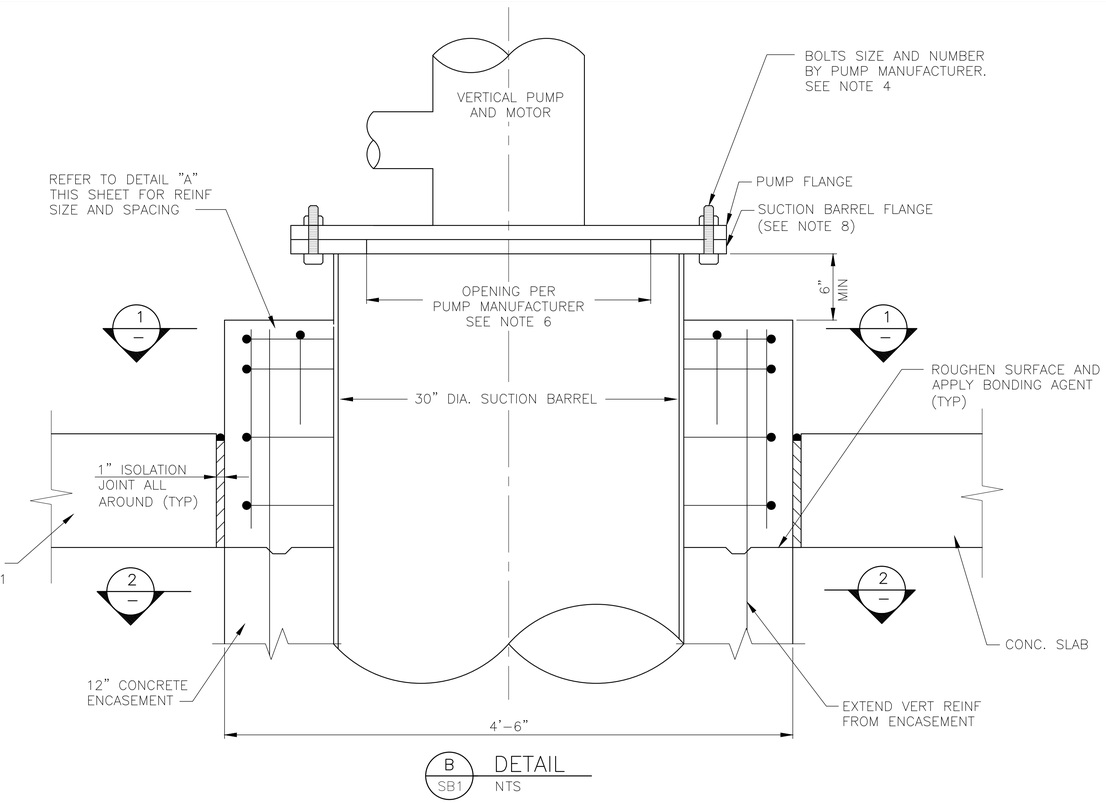
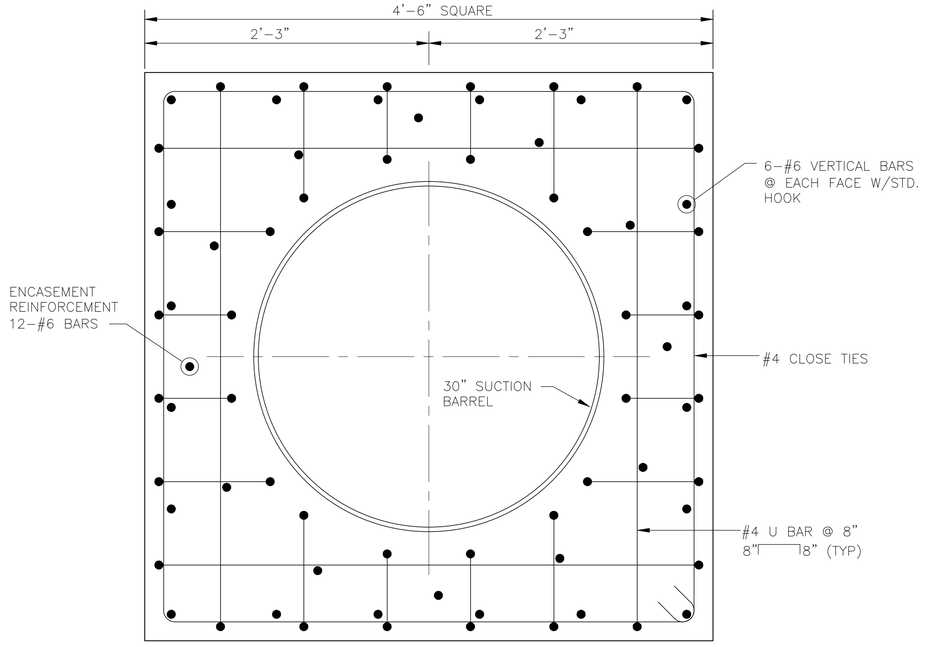
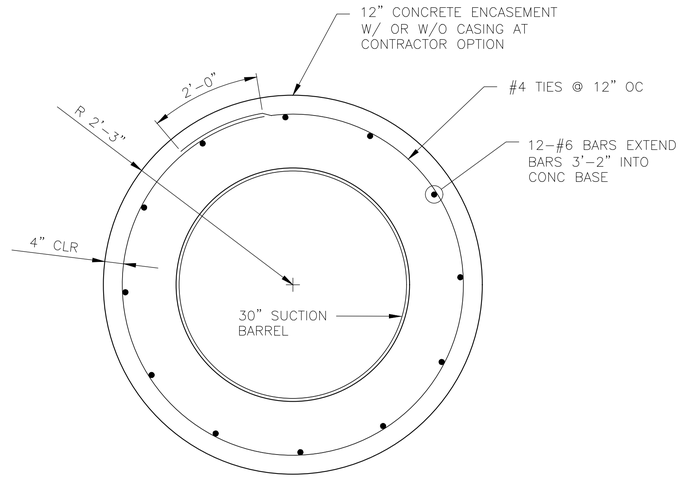






NOTES:

1. CONTRACTOR TO COORDINATE DETAILS SHOWN WITH MECHANICAL DETAILS AND SPECIFICATIONS.
2. CONTRACTOR TO COORDINATE VERTICAL PUMP FLANGE, SUCTION BARREL FLANGE WITH CONCRETE BASE ELEVATION. CONCRETE CAN BASE ELEVATION TO BE DETERMINED BY PUMP MANUFACTURER.
3. CONTRACTOR TO COORDINATE ALL ANCHORAGE LOCATIONS, NUMBERS, SIZE, EMBEDMENT LENGTH, ETC. PRIOR TO INSTALLATION WITH PUMP AND SUCTION BARREL SUPPLIER.
4. CONTRACTOR TO COORDINATE PUMP FLANGE BOLTS WITH SUCTION BARREL FLANGES, PROVIDED BY MANUFACTURER.
5. DETAIL "A" SHOWN FOR SUCTION BARREL CONCRETE BASE MAY VARY BY THE PUMP SIZE AND MANUFACTURER. CONTRACTOR TO COORDINATE AND VERIFY THAT CHANGES HAVE BEEN MADE PRIOR TO INSTALLATION.
6. DETAIL "B" IS ALTERNATIVE DETAIL FOR SUCTION BARREL BASE AND MAY VARY BY THE PUMP SIZE AND MANUFACTURER. CONTRACTOR TO COORDINATE AND VERIFY THAT CHANGES HAVE BEEN MADE PRIOR TO INSTALLATION.
7. CONTRACTOR OPTION TO DRILL OR DRIVE CASING. CASING SIZE TO BE DETERMINED BY PUMP SIZE AND CONTRATOR TO COORDINATE WITH PUMP MANFACTURER CASING TO BE FILLED WITH REINFORCED CONCRETE AS SHOWN IN SECTION 2. CONTRACTOR TO SUBMIT ALL DETAILS FOR ENGINEER.
8. SEE SECTION 11215 – VERTICAL TURBINE PUMPS FOR LEVELING TOLERANCES OF THE SUCTION BARREL FLANGE.



CP&Y, INC.
TBPE FIRM REGISTRATION NO. #F-1741

ROUND ROCK TEXAS

STATE OF TEXAS
JEFFREY P. WOUTERS
80701
REGISTERED PROFESSIONAL ENGINEER

06-05-2017

NO.	REVISION	BY	DATE

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CITY OF ROUND ROCK
SOUTHEAST GST & SOUTH 81 EST
PUMP STATION IMPROVEMENTS

PUMP SUCTION BARREL SUPPORT PLAN & SECTION – SOUTH 81 EST

Date: JUNE 2017
Designed: J.WOUTERS
Drawn: S. MEDINA
Reviewed: C.POTTER
CP&Y Proj. No. RNDR14486

SHEET
SB-2
SHEET 19 OF 57

REFERENCES:: RNDR14486_Border_Base.dwg -Std ENVIRO SEALS
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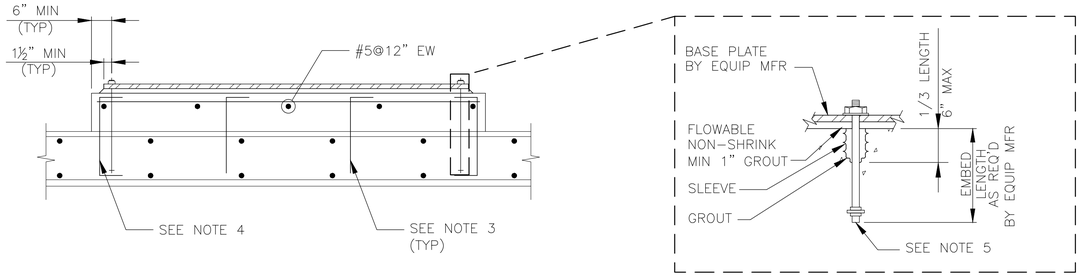
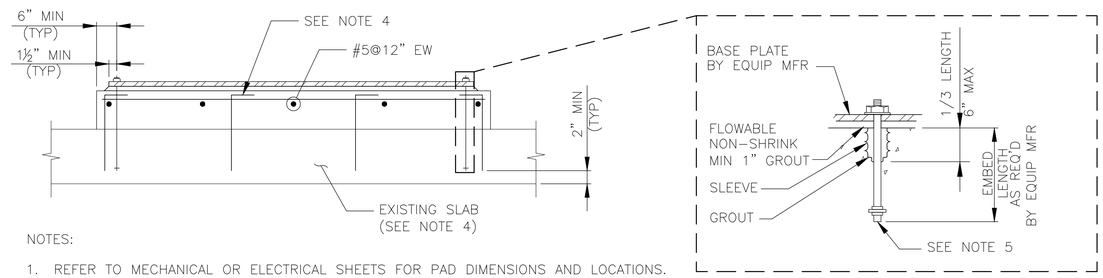


NOTES:

1. REFER TO MECHANICAL OR ELECTRICAL SHEETS FOR PAD DIMENSIONS AND LOCATIONS.
2. PAD THICKNESS 6" MINIMUM OR GREATER IF REQUIRED BY EQUIPMENT MANUFACTURER.
3. #4 DOWELS W/ STD HOOK AT 2'-0" MAXIMUM SPACING WITH A MINIMUM OF 2 DOWELS IN EACH DIRECTION.
4. #5 DOWELS W/ 12" MIN LEGS @ 12" AROUND THE PERIMETER.
5. ALL ANCHOR BOLTS TO BE 316 SS. BASE PLATE, ANCHOR BOLT SIZE, NUMBER & LOCATION AS REQUIRED BY EQUIPMENT MANUFACTURER.

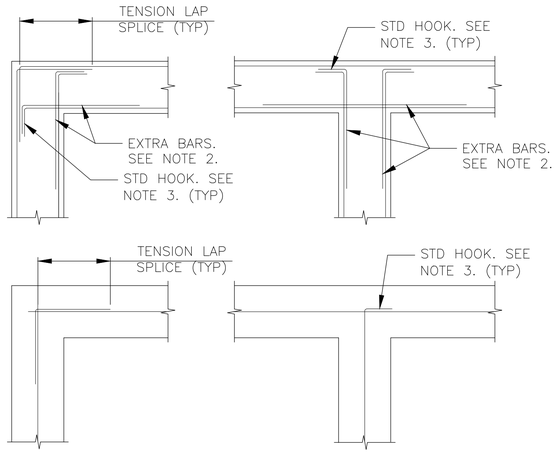
A EQUIPMENT PAD AT NEW SLAB
NTS



NOTES:

1. REFER TO MECHANICAL OR ELECTRICAL SHEETS FOR PAD DIMENSIONS AND LOCATIONS.
2. CONTRACTOR TO VERIFY SLAB EXISTING CONDITION AND THICKNESS PRIOR TO CONSTRUCTION OR ORDERING MATERIALS. CLEAN AND ROUGHEN TOP SURFACE IN CONTACT WITH EQUIPMENT PAD AND APPLY BONDING AGENT PRIOR TO INSTALLATION.
3. PAD THICKNESS 6" MINIMUM OR GREATER IF REQUIRED BY EQUIPMENT MANUFACTURER.
4. #4 DOWELS W/ STD HOOK AT 2'-0" MAXIMUM SPACING WITH A MINIMUM OF 2 DOWELS IN EACH DIRECTION. DOWEL INTO EXISTING SLAB USING HILTI HIT-HY 200 OR HVU CAPSULE. REDUCE STANDARD EMBEDMENT DEPTH TO MAINTIAN 2" MINIMUM END COVER AS REQUIRED.
5. ALL ANCHOR BOLTS TO BE 316 SS. BASE PLATE AND ANCHOR BOLT SIZE, NUMBER, SPACING ETC. AS REQUIRED BY EQUIPMENT MANUFACTURER. EXTEND ANCHOR BOLTS INTO EXISTING SLAB AS REQUIRED.

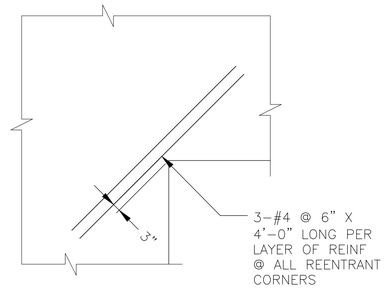
B EQUIPMENT PAD AT EXISTING SLAB
NTS



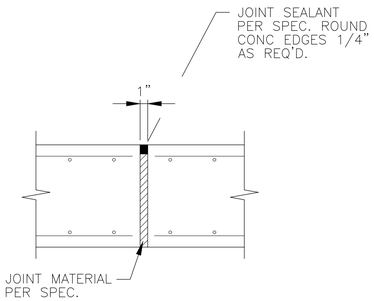
NOTES:

1. VERTICAL REINFORCEMENT NOT SHOWN FOR CLARITY.
2. USE DEVELOPMENT LENGTH AND LAP SPLICE LENGTH FOR TOP BARS UON.
3. STANDARD HOOKS SHALL BE FULLY DEVELOPED FOR TOP BARS IN TENSION. IF NOT POSSIBLE, EXTEND THE BAR LEG TO DEVELOPMENT LENGTH REQUIRED FOR TOP BARS.
4. EXTRA BARS, SAME SIZE AND SPACING AS HORIZONTAL REINFORCEMENT, SHALL BE PROVIDED ON INSIDE FACE OF WATER CONTAINING STRUCTURES. EXTRA BARS SHALL ALTERNATE WITH HORIZONTAL REINFORCEMENT. STAGGER EXTRA BARS IN EACH WALL.

C GRADE BEAM CORNER REINFORCING DETAIL
NTS



D SLAB DETAIL AT RE-ENTRANT CORNER
NTS



NOTE:
REFER TO PLAN FOR SLAB JOINT LOCATIONS.

E SLAB ISOLATION JOINT DETAIL
NTS

CP&Y, INC.
TBPE FIRM REGISTRATION NO. #F-1741

ROUND ROCK TEXAS

STATE OF TEXAS
JEFFREY P. WOUTERS
80701
LICENSED PROFESSIONAL ENGINEER
06-05-2017

NO.	REVISION	BY	DATE

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CITY OF ROUND ROCK
SOUTHEAST GST & SOUTH 81 EST
PUMP STATION IMPROVEMENTS

STANDARD STRUCTURAL DETAILS I

Date: JUNE 2017
Designed: J.WOUTERS
Drawn: S.MEDINA
Reviewed: C.POTTER
CP&Y Proj. No.RNDR14486

SHEET
SZ-1
SHEET 20 OF 57

REFERENCES:: RNDR14486_Border_Base.dwg _Std ENVIRO SEALS
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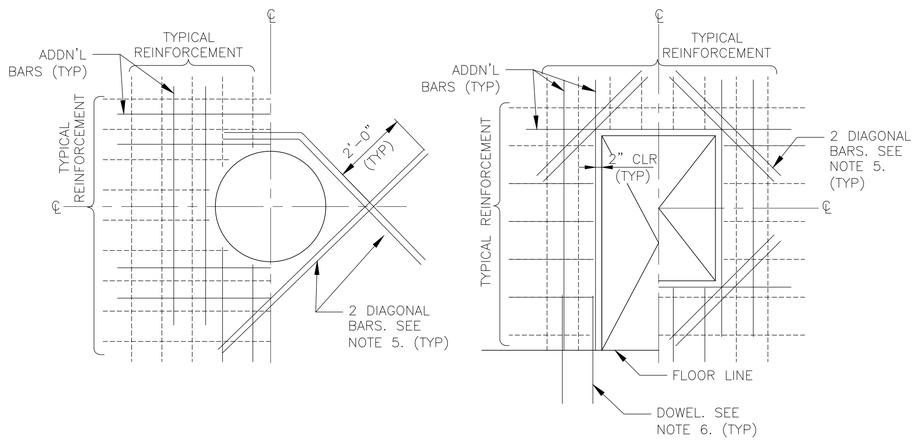

CIRCULAR OPNG

RECTANGULAR OPNG

NOTES:

1. CUT TYPICAL REINFORCEMENT 2 INCH FROM THE OPENING.
2. INSTALL ADDN'L HORIZONTAL AND VERTICAL REINFORCEMENT TO EACH SIDE OF THE OPENING. ADDN'L BAR AREA SHALL BE EQUAL TO THE BAR AREA CUT BY THE OPENING, AND SHALL BE EVENLY DIVIDED TO EACH SIDE OF THE OPENING. EXTEND ADDN'L REINFORCMENT A MINIMUM OF LAP SPLICE LENGTH BEYOND THE OPENING. ADDN'L BARS TO BE PLACED:

   A) AT CENTERLINE OF WALLS OR SLABS WHERE ONE LAYER OF REINFORCEMENT IS PROVIDED.

   B) AT EACH FACE OF WALLS OR SLABS WHERE TWO LAYERS OF REINFORCEMENT ARE PROVIDED.
3. INCREASE SIZE OF ADDN'L BARS AS NEEDED TO FIT WITHIN A DISTANCE OF 2 X WALL/SLAB THICKNESS FROM OPENING. PROVIDE 2" MIN CLEAR BETWEEN BARS.
4. WHERE A SLAB OR INTERSECTING WALL CONNECTS WITHIN ONE WALL THICKNESS OF THE OPENINGS, ADDN'L BARS ON THAT SIDE MAY BE OMITTED.
5. 2 DIAGONAL BARS SHALL BE PROVIDED PER LAYER OF REINFORCEMENT.

   A) AT RECTANGULAR OPENINGS, USE 2 – #5 X 4'–0" LONG.

   B) AT CIRCULAR OPENINGS, USE 2 – #5 BARS. HOOPS CAN BE USED IN LIEU OF DIAGONAL BARS.
6. DOWELS TO FLOOR SHALL BE LAPPED WITH ADDN'L VERTICAL BARS AND DEVELOPED IN FLOOR. USE SAME BAR SIZE AS ADDN'L BARS.

A ADDITIONAL REINF AT RECTANGULAR/CIRCULAR OPENING
NTS

CP&Y, INC.
TBPE FIRM REGISTRATION NO. #F-1741

ROUND ROCK TEXAS

STATE OF TEXAS
JEFFREY P. WOUTERS
80701
REGISTERED
PROFESSIONAL ENGINEER

06-05-2017

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0 1"

CITY OF ROUND ROCK
SOUTHEAST GST & SOUTH 81 EST
PUMP STATION IMPROVEMENTS

STANDARD STRUCTURAL DETAILS II

Date: JUNE 2017
Designed: J.WOUTERS
Drawn: S.MEDINA
Reviewed: C.POTTER
CP&Y Proj. No. RNDR14486

SHEET
SZ–2
SHEET 21 OF 57

IDENTIFICATION SYSTEM

NOTES:
1. EQUIPMENT TAGS SHALL BE SUBMITTED TO OWNER VIA CONSTRUCTION SUBMITTAL OR RFI BY CONTRACTOR TO VERIFY CORRECT NAMING CONVENTION.
2. SEE SHEET G-5 FOR ABBREVIATIONS.

EQUIPMENT LEGEND
SE-PMP-201
- SE — SITE
- PMP — EQUIPMENT ABBREVIATION
- 201 — EQUIPMENT NUMBER

PIPE LEGEND
8-PW-DI
- 8 — PIPE DIAMETER (INCHES)
- PW — FLUID ABBREVIATION
- DI — MATERIAL ABBREVIATION

VALVE SYMBOLS

- AV — AIR RELIEF & VACUUM VALVE
- AR — AIR RELEASE VALVE
- ANGLE VALVE
- BACKFLOW PREVENTER
- BALL CHECK VALVE
- BALL VALVE
- GATE VALVE
- KNIFE GATE VALVE
- MUD VALVE
- MULTI PORT VALVE
- NEEDLE VALVE
- PINCH VALVE
- SURGE RELIEF VALVE
- BUTTERFLY VALVE
- CA — COMBINATION AIR VALVE
- CONE VALVE
- DIAPHRAGM VALVE
- DOUBLE DISC CHECK VALVE
- FLAP GATE
- PLUG VALVE
- PUMP CONTROL VALVE
- S — SOLENOID VALVE
- SWING CHECK VALVE
- GLOBE VALVE
- PR PRESSURE RELIEF VALVE

PIPING SYMBOLS

- COUPLING FOR GROOVED END JOINTS
- DIRECTION OF FLOW
- FLANGED JOINT
- MECHANICAL COUPLING
- MECHANICAL JOINT
- RESTRAINED MECHANICAL COUPLING
- QUICK CONNECT COUPLING
- UNION
- WELDED JOINT

MISCELLANEOUS SYMBOLS

- FLOOR DRAIN
- CONCENTRIC REDUCER OR REDUCING BUSHING
- ECCENTRIC REDUCER OR REDUCING BUSHING
- BLIND FLANGE
- Y-STRAINER
- OPEN EQUIPMENT DRAIN

FLUID ABBREVIATION	FUNCTION — THIS LIST INCLUDES SOME LINES NOT USED IN THIS PROJECT (*SEE NOTE 5)	PIPING MATERIALS (SEE SCHEDULE BELOW) — EXPOSED PIPING (SEE NOTE 14) 4" DIA AND SMALLER	EXPOSED PIPING (SEE NOTE 14) 6" DIA AND LARGER	BURIED PIPING (SEE NOTE 13) 4" DIA AND SMALLER	BURIED PIPING (SEE NOTE 13) 6" DIA AND LARGER	FIELD TEST REQUIREMENTS (SEE NOTE 3 AND NOTE 4) MINIMUM TEST PRESSURE PSI	TEST MEDIUM	LEAKAGE ALLOWANCE (SEE NOTE 2)
D	DRAIN	16	16	16	16	NOTE 7	AIR/WATER	2(C)
PW	POTABLE WATER	11,16	11	11,16	11	150	WATER	2 (A,B)
NPW	NON-POTABLE WATER (UTILITY WATER)	11,16	11,16	11,16	11	150	WATER	2

PIPING MATERIAL SCHEDULE
(SEE NOTE 4 AND GENERAL NOTE AT RIGHT)

GROUP NO.	MATERIAL ABBREVIATION	PIPE (SEE NOTE 13)	FITTINGS	VALVES, 6" AND SMALLER (SEE NOTE 1 & 15)
11	DI	DUCTILE IRON, ANSI A21.51, (AWWA C151 AND MODIFIED PER SECTION 02565), ENDS BELL AND SPIGOT, MECH. JOINTS OR ANSI A 21.15, (AWWA C115) FLGD JOINTS. (TYPICAL SERVICE – WATER LINES).	DUCTILE IRON AWWA C110 AND MODIFIED PER SECTION 02565, BELL AND SPIGOT JOINTS (RESTRAINT OR NON-RESTRAINT), MECHANICAL COUPLING, FLANGED, OR MECHANICAL JTS, 250 PSI, (PRESS. RATING).	GATE: AWWA C500, O-RING SEALS, MECHANICAL JOINT ENDS, CLOW F-5065. BUTTERFLY: AWWA, ECCENTRIC PLUG DEZURIK PEC, CAST IRON OR MILLIKEN 603E. BALL: PRATT OR APCO-WILLAMETTE. AS INDICATED ON DRAWINGS.
16	PVC	POLYVINYL CHLORIDE, SCHEDULE 80, NORMAL IMPACT. ASTM D1785.	POLYVINYL CHLORIDE, SCHEDULE 80, AWWA C900, NORMAL IMPACT, BELL AND SPIGOT JOINTS. SOCKET SOLVENT WELD JOINTS SMALLER THAN 4-INCH DIAMETER, ASTM D2467. SOLVENT SHALL BE COMPATIBLE WITH FLUID SERVICE.	POLYVINYL CHLORIDE, BALL DIAPHRAGM, BUTTERFLY OR LIFT CHECK: NIBCO/CHEMTROL, MCCANNA-MARPAC, OR GEORGE FISCHER SLOANE.
22	RCP	REINFORCED CONCRETE. ASTM C76, TONGUE AND GROOVED JOINTS.	REINFORCED CONCRETE. ASTM C76, GASKETED.	-------

EQUIPMENT

EQUIPMENT NO.	NAME	DWG NO	SERVICE	TYPE	SIZE / CAPACITY	HORSEPOWER	REMARKS
SE-PMP-201	SE PUMP NO. 1	MA-2	POTABLE WATER	VERTICAL TURBINE	2,500 GPM	300 HP	CS
SE-PMP-202	SE PUMP NO. 2	MA-2	POTABLE WATER	VERTICAL TURBINE	2,500 GPM	300 HP	CS
SE-PMP-203	SE PUMP NO. 3	MA-2	POTABLE WATER	VERTICAL TURBINE	2,500 GPM	300 HP	CS
S81-PMP-101	S81 PUMP NO. 1	MB-2	POTABLE WATER	VERTICAL TURBINE	3,500 GPM	100 HP	VFD
S81-PMP-102	S81 PUMP NO. 2	MB-2	POTABLE WATER	VERTICAL TURBINE	3,500 GPM	100 HP	VFD

MECHANICAL NOTES

GENERAL NOTE:
ALTHOUGH SEVERAL PIPE MATERIAL GROUPS MAY BE LISTED ON THIS SHEET FOR A GIVEN FLUID SERVICE, CONTRACTOR SHALL PROVIDE ONLY THE PIPE MATERIAL GROUP SHOWN ON THE DRAWINGS AND SPECIFIED FOR THAT FLUID SERVICE.

NOTE 1: PROPRIETARY NAMES HAVE BEEN QUOTED FOR IDENTIFICATION PURPOSES ONLY. SUBSTITUTIONS WILL BE PERMITTED SUBJECT TO PROVISIONS OF THE SPECIFICATIONS.

NOTE 2: LEAKAGE ALLOWANCE IS AS FOLLOWS:
(A) PIPES SO DESIGNATED SHALL SHOW ZERO LEAKAGE.
(B) PIPES SO DESIGNATED SHALL SHOW ZERO LEAKAGE FOR EXPOSED PIPE AND NOT MORE THAN 0.02 GALLON PER HOUR PER INCH DIAMETER PER 100 FEET OF BURIED PIPE.
(C) PIPES SO DESIGNATED SHALL NOT SHOW A LEAKAGE OF MORE THAN 0.15 GALLON PER HOUR PER INCH OF DIAMETER PER 100 FEET OF PIPE.
(D) PIPES DESIGNATED SHALL NOT SHOW A LOSS OF PRESSURE OF MORE THAN 5 PERCENT.
(E) PIPE SO DESIGNATED SHALL NOT SHOW A LOSS OF VACUUM OF MORE THAN 4 INCHES MERCURY COLUMN.

NOTE 3: FOR FIELD TEST PROCEDURES AND ADDITIONAL TEST REQUIREMENTS, SEE PIPING SECTION OF SPECIFICATIONS.

NOTE 4: NO SUBSTITUTIONS UNLESS ACCEPTED BY THE ENGINEER PER THE SPECIFICATIONS.

NOTE 5: PIPING GROUP NUMBER SHOWN THUS * SHALL BE INSULATED. SEE PIPING SECTION OF SPECIFICATIONS FOR INSULATING MATERIALS.

NOTE 6: STATIC WATER TEST WITH SURFACE 5 FEET ABOVE HIGH POINT OF PIPE.

NOTE 7: INSPECTION AND TESTING SHALL BE IN ACCORDANCE WITH APPLICABLE PLUMBING CODE.

NOTE 8: NO APPARENT LEAKS UNDER NORMAL OPERATING CONDITIONS.

NOTE 9: INSPECTION AND TESTING SHALL BE IN ACCORDANCE WITH APPLICABLE NATIONAL FIRE PROTECTION ASSOCIATION STANDARDS.

NOTE 10: PIPING MATERIALS SHALL BE IN ACCORDANCE WITH NATIONAL FIRE PROTECTION ASSOCIATION STANDARDS.

NOTE 11: FOR VALVES 6" AND LARGER SEE SPECIFICATIONS.

NOTE 12: CHANGE IN PIPING MATERIAL GROUP NUMBER IS INDICATED THUS: ——◆——. FOR DISSIMILAR MATERIALS SEE SPECS FOR JOINTS.

NOTE 13: FOR PIPE LINING AND COATING, SEE SPECIFICATIONS.

NOTE 14: EXPOSED PIPING SHALL BE PAINTED IN ACCORDANCE WITH SPECIFICATIONS. COLORS TO BE IN ACCORDANCE WITH THE CURRENT TCEQ GUIDELINES AND APPROVED BY ENGINEER.

NOTE 15: FOR VALVE ENDS, SEE SPECIFICATIONS.

NOTE 16: FOR ALL LINES TEST PRESSURE 250 PSI.

NOTE 17: MINIMUM TEST PRESSURE IS 1.5 x DESIGN PRESSURE.

CP&Y, INC.
TBPE FIRM REGISTRATION NO. #F-1741

ROUND ROCK TEXAS

STATE OF TEXAS — LINDSAY C. WEBB — 110398 — LICENSED PROFESSIONAL ENGINEER — 6-5-2017

DATE | BY | REVISION | NO.

VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE
1" 0

CITY OF ROUND ROCK
SOUTHEAST GST & SOUTH 81 EST
PUMP STATION IMPROVEMENTS

MECHANICAL NOTES, ABBREVIATIONS, SYMBOLS & LEGENDS

Date: JUNE 2017
Designed: K.KNIPPA
Drawn: S.MEDINA
Reviewed: J.PENN
CP&Y Proj. No. RNDR14486

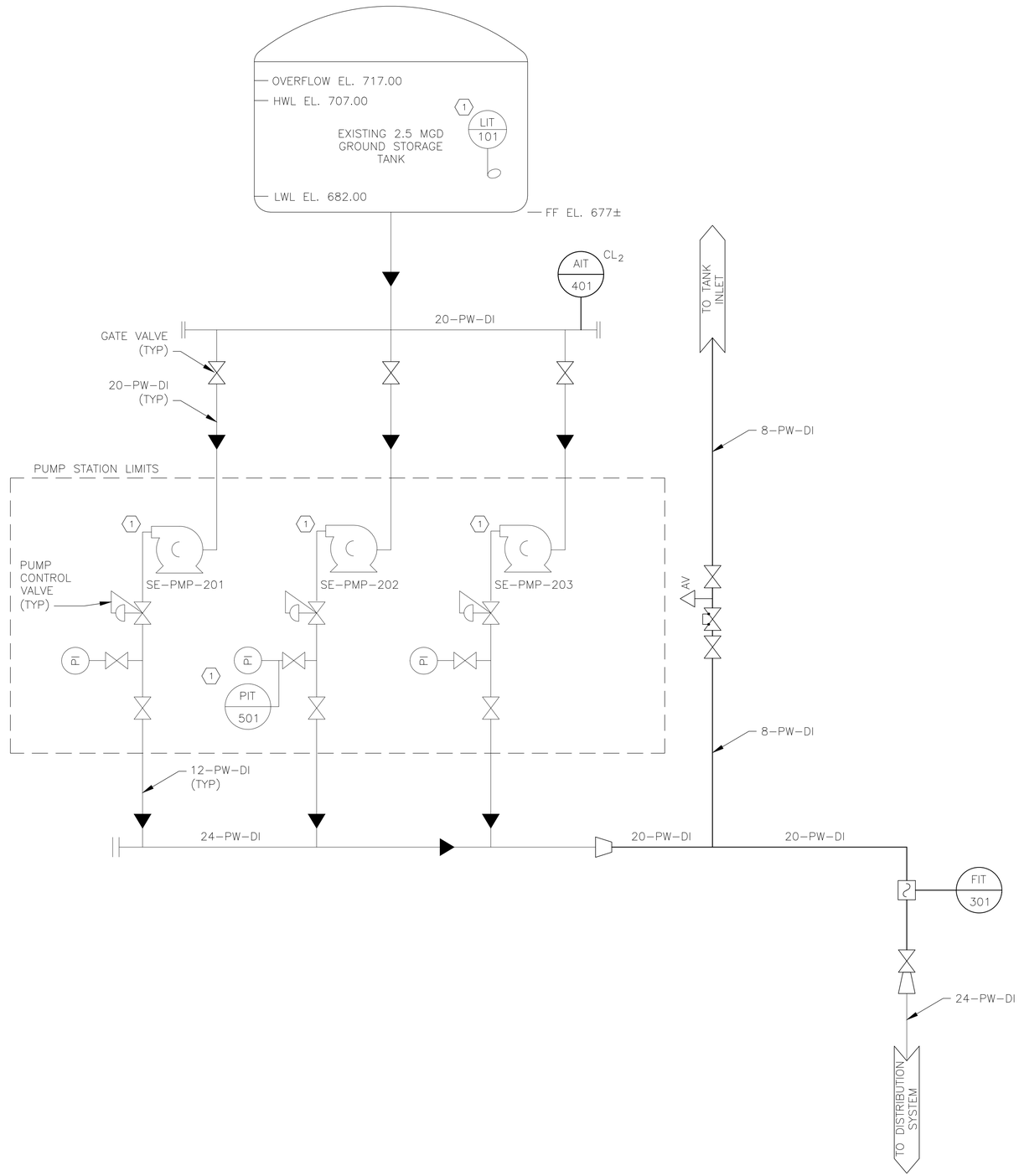
SHEET
M-1
SHEET 22 OF 57

REFERENCES: RNDR14486_Border_Base.dwg _Std ENVIRO SEALS
Jun 01, 2017 - 11:09am C:\pworking\cpy\pw_cpy\smedina\d0459006\RNDR14486 CPY M-1.dwg LAYOUT: Layout1 USER:

NOTES BY SYMBOL (1)

1.	EXISTING EQUIPMENT. NO NEW PLC/HMI PROGRAMMING REQUIRED. PROVIDE NEW EQUIPMENT TAG PER SPECIFICATION 16012.

NOTES:
1. SEE I-1 FOR SYMBOL IDENTIFICATION.
2. AIR RELEASE VALVE IS 2".



PMID – SOUTHEAST GST

CP&Y, INC.
TBPE FIRM REGISTRATION NO. #F-1741

ROUND ROCK TEXAS

STATE OF TEXAS
LINDSAY C. WEBB
110398
LICENSED PROFESSIONAL ENGINEER
6-5-2017

NO.	REVISION	BY	DATE

VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE
0 1"

CITY OF ROUND ROCK
SOUTHEAST GST & SOUTH 81 EST
PUMP STATION IMPROVEMENTS

PMID – SOUTHEAST GST

Date: JUNE 2017
Designed: K.KNIPPA
Drawn: S.MEDINA
Reviewed: J.PENN
CP&Y Proj. No. RNDR14486

SHEET
MA-1
SHEET 23 OF 57

REFERENCES: RNDR14486_Border_Base.dwg _Std ENVIRO SEALS
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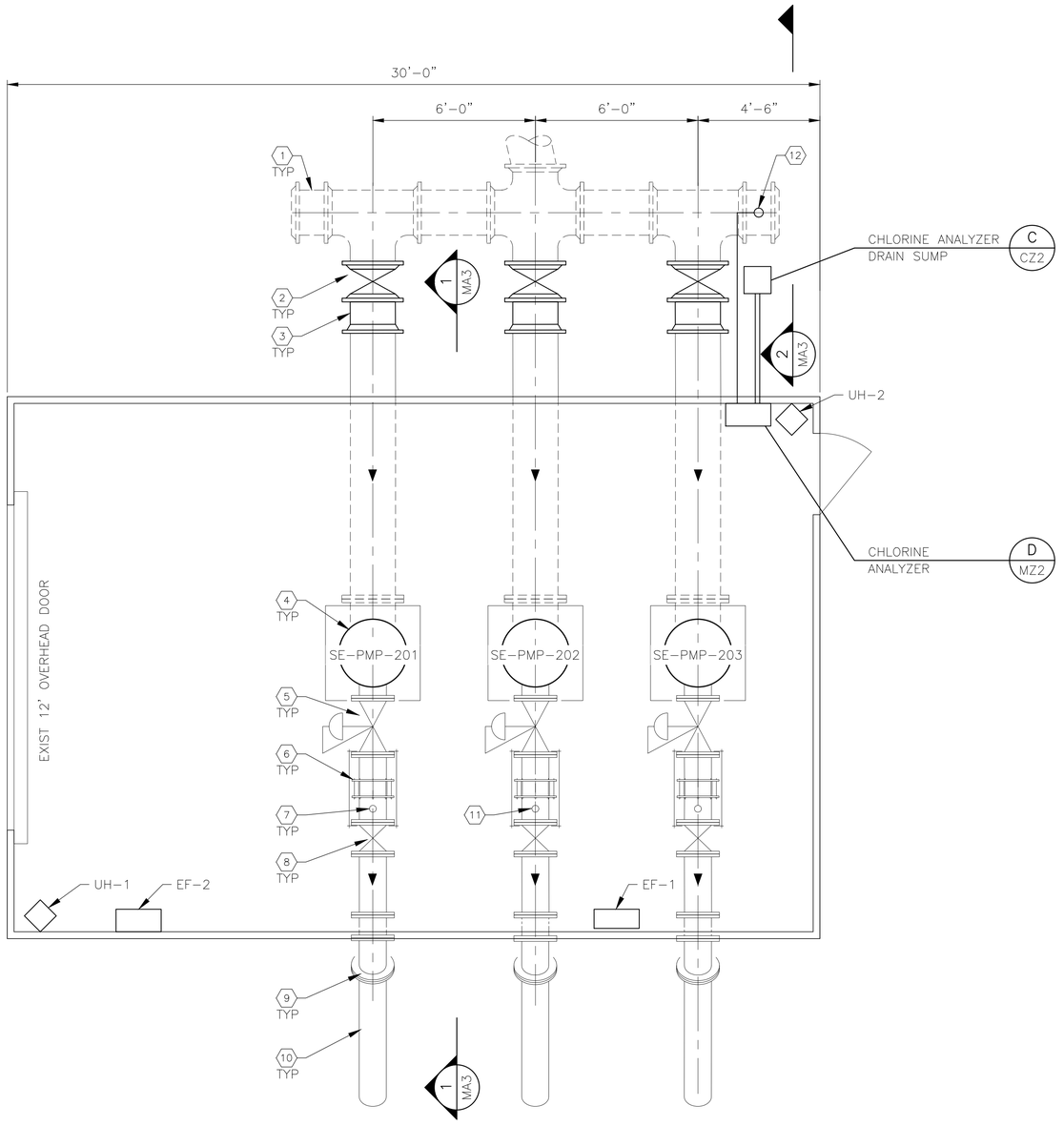


MECHANICAL PLAN – SOUTHEAST GST

2 1 0 4

SCALE IN FEET

NOTES BY SYMBOL (X)

1. EXIST 20"ø DI PUMP SUCTION FROM GROUND STORAGE TANK.
2. PROP 20" GATE VALVE WITH VALVE BOX, TYP OF 3 (SEE NOTE 1).
3. PROP 20" DI M.J. CUTTING-IN SLEEVE, TYP OF 3.
4. PROP 300 HP MOTOR, TYP OF 3 (SEE NOTE 2).
5. EXIST PUMP CONTROL VALVE, TYP OF 3, TO REMAIN.
6. EXIST HARNESSED MECHANICAL COUPLING, TYP OF 3, TO REMAIN.
7. EXIST PRESSURE INDICATING GAUGE, TYP OF 3, TO REMAIN.
8. EXIST 12" GATE VALVE, TYP OF 3, TO REMAIN.
9. EXIST 45 DEG. DI ELBOW, TYP OF 3, TO REMAIN.
10. EXIST 12"ø DI PUMP DISCHARGE TO DISTRIBUTION, TYP OF 3, TO REMAIN.
11. EXIST PRESSURE TRANSMITTER.
12. PROP CHLORINE ANALYZER TAP.

NOTES:

1. REMOVE AND REPLACE EXISTING 20" BUTTERFLY VALVES, ACTUATORS AND VALVE BOXES WITH GATE VALVES.
2. REMOVE AND REPLACE EXISTING 300 HP MOTORS ONLY. ALL OTHER PUMP EQUIPMENT IS TO REMAIN UNDISTURBED.
3. REMOVE THE FOLLOWING BUILDING COMPONENTS:
   - A. ROOF SHEETING
   - B. INSULATION
   - C. METAL WALL PANEL
   - D. CORNER TRIM, DOOR TRIM OVERHEAD DOOR TRIM
   - E. 36"x36" EXHAUST FAN (EF-1)
   - F. ELECTRICAL UNIT HEATERS

   AND REPLACE WITH THE FOLLOWING:

   - A. "PBR" 26 GAUGE ROOF PANEL
   - B. SINGLE FACED FIBERGLASS INSULATION 3.5", R-11 (ROOF AND WALLS)
   - C. "PBR" 26 GAUGE WALL PANEL
   - D. OVERHEAD DOOR TRIM, DOOR TRIM, CORNER TRIM, RAKE TRIM
   - E. 36"x36" EXHAUST FAN – 3 PHASE WALL MOUNTED CABINET FAN (EF-1)
   - F. TWO ELECTRIC UNIT HEATERS

   (COORDINATE COLOR WITH OWNER).
4. ADD 36"x36" EXHAUST FAN – 3 PHASE WALL MOUNTED CABINET FAN (EF-2) TO WEST SIDE OF SOUTH WALL.
5. CONTRACTOR TO REPAINT ALL EXISTING MECHANICAL COMPONENTS PER SECTION 09900 – PAINTING.

EXISTING LOUVER SCHEDULE*

UNIT	NOMINAL SIZE	TYPE
L-1	36" X 36"	MANUAL
L-2	36" X 36"	MANUAL
L-3	36" X 36"	MANUAL
L-4	36" X 36"	MANUAL

* LOUVERS ON NORTH WALL – NOT SHOWN FOR CLARITY

PROPOSED ELECTRIC UNIT HEATER SCHEDULE

UNIT	KW	VOLT / PHASE
UH-1	5	480 / 3
UH-2	5	480 / 3

PROPOSED FAN SCHEDULE

UNIT	TYPE	SIZE	WEIGHT	AIR CAPACITY		ELECTRICAL DATA		LOCATION	DRIVE
		INCHES	POUNDS	TOTAL CFM	RPM	MOTOR HP	VOLT/PHASE		
EF-1	EXHAUST	36	77	8000	825	1/2	115/1	WALL MOUNTED	DIRECT
EF-2	EXHAUST	36	77	8000	825	1/2	115/1	WALL MOUNTED	DIRECT

CP&Y, INC.
TBPE FIRM REGISTRATION NO. #F-1741

ROUND ROCK TEXAS

6-5-2017
STATE OF TEXAS
LINDSAY C. WEBB
110398
LICENSED PROFESSIONAL ENGINEER

NO.	REVISION	BY	DATE

VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE
0 1"

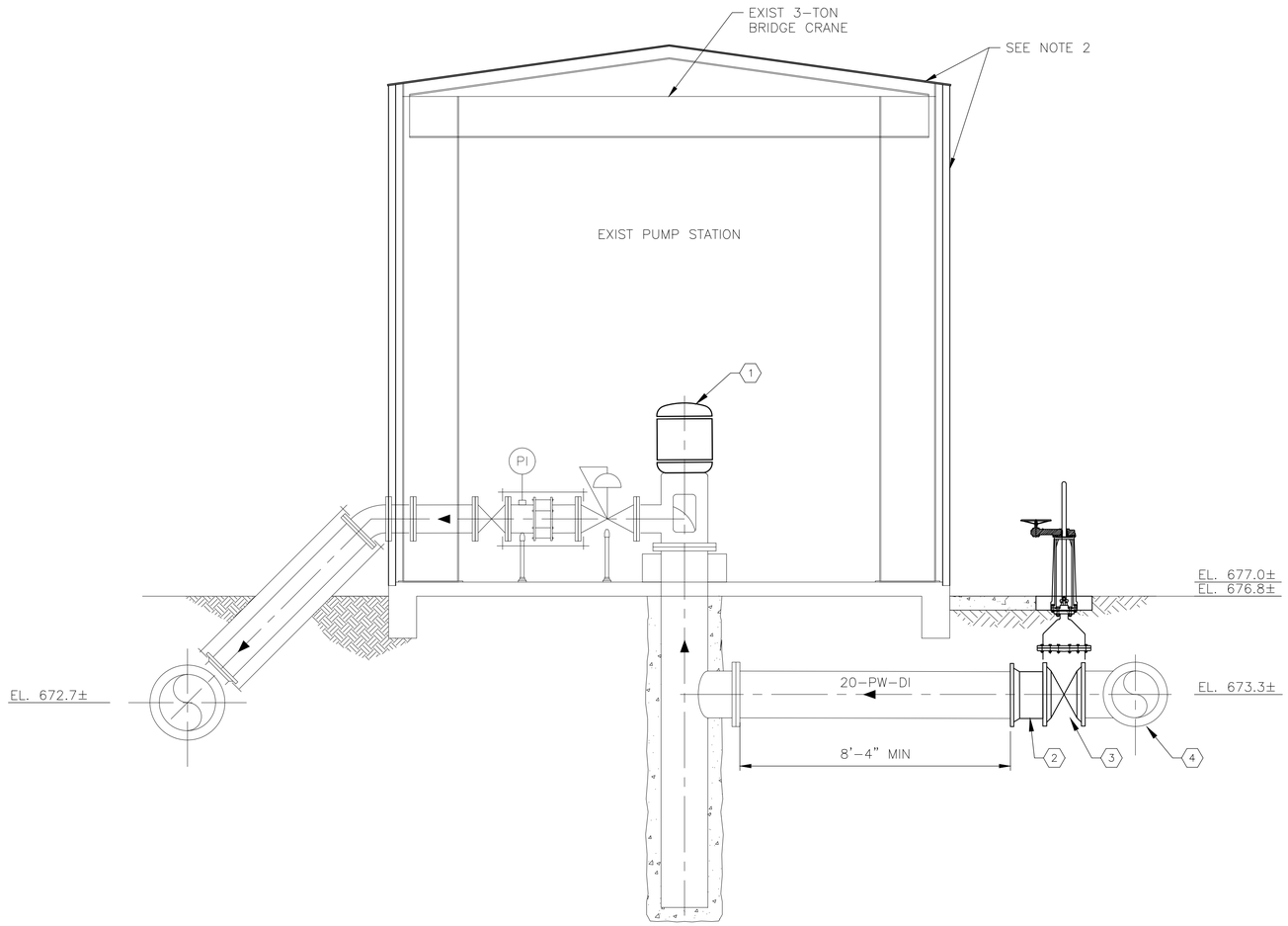
CITY OF ROUND ROCK
SOUTHEAST GST & SOUTH 81 EST
PUMP STATION IMPROVEMENTS

MECHANICAL PLAN – SOUTHEAST GST

Date: JUNE 2017
Designed: K.KNIPPA
Drawn: S.MEDINA
Reviewed: J.PENN
CP&Y Proj. No.RNDR14486

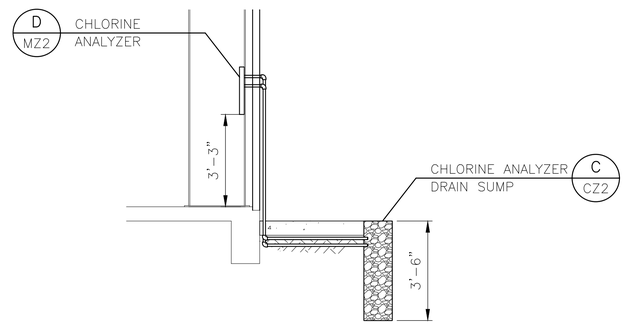
SHEET
MA-2
SHEET 24 OF 57

REFERENCES: RNDR14486_Border_Bose.dwg _Std ENVIRO SEALS.dwg RNDR14486 SE-E-Sbose.dwg RNDR14486 SE-E-Mbose
Jun 01, 2017 - 12:35pm C:\pwworking\cpy\pw_cpy\smedina\d0459006\RNDR14486 CPY MA-2.dwg LAYOUT: Layout1 USER:



1 MA2 SECTION

2 1 0 4
SCALE IN FEET



2 MA2 SECTION

2 1 0 4
SCALE IN FEET

NOTES BY SYMBOL (X)

1. PROP 300 HP MOTOR (SEE NOTE 1).
2. PROP 20" DI M.J. CUTTING–IN SLEEVE.
3. PROP 20" VERTICAL GATE VALVE W/ SPUR GEAR AND SPOKE TYPE HANDWHEEL.
4. EXIST 20"ø DI PUMP SUCTION HEADER FROM GROUND STORAGE TANK TO REMAIN.

NOTES:

1. REMOVE AND REPLACE EXISTING 300 HP MOTORS ONLY. ALL OTHER PUMP EQUIPMENT IS TO REMAIN UNDISTURBED.
2. REMOVE AND REPLACE BUILDING COMPONENTS PER NOTES ON MA–2.
3. BELOW GRADE PIPE JOINTS SHALL BE FACTORY RESTRAINED. BELOW GRADE FITTINGS SHALL BE MECHANICAL JOINT WITH MECHANICAL JOINT RESTRAINTS UNLESS NOTED OTHERWISE. BURIED VALVES SHALL HAVE MECHANICAL JOINTS UNLESS OTHERWISE NOTED.
4. WRAP BURIED PIPE AND FITTINGS WITH 8–MIL POLYETHELENE PER GENERAL NOTES, SHEET G–3.
5. CONTRACTOR TO REPAINT ALL EXISTING MECHANICAL COMPONENTS PER SECTION 09900 – PAINTING.

CP&Y, INC.
TBPE FIRM REGISTRATION NO. #F–1741

ROUND ROCK TEXAS

STATE OF TEXAS · LINDSAY C. WEBB · 110398 · LICENSED PROFESSIONAL ENGINEER · 6-5-2017

NO.	REVISION	BY	DATE

VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE
0 1"

CITY OF ROUND ROCK
SOUTHEAST GST & SOUTH 81 EST
PUMP STATION IMPROVEMENTS

MECHANICAL SECTIONS – SOUTHEAST GST

Date: JUNE 2017
Designed: K.KNIPPA
Drawn: S.MEDINA
Reviewed: J.PENN
CP&Y Proj. No. RNDR14486

SHEET
MA–3
SHEET 25 OF 57

REFERENCES:: RNDR14486_Border_Base.dwg –Std ENVIRO SEALS.dwg RNDR14486 SE–E–Sbase.dwg RNDR14486 SE–E–Mbase
Jun 01, 2017 – 11:16am C:\pwworking\cpy\pw_cpy\smedina\d0459006\RNDR14486 CPY MA–3.dwg LAYOUT: Layout1 USER:

NOTES:
1. SEE I-1 FOR SYMBOL IDENTIFICATION.
2. AIR RELEASE VALVES ARE 2".
3. COMBINATION AIR VALVE IS 3".
4. BALL VALVES ARE 1".

PMID – SOUTH 81 EST

CP&Y, INC.
TBPE FIRM REGISTRATION NO. #F-1741

ROUND ROCK TEXAS

STATE OF TEXAS
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LICENSED PROFESSIONAL ENGINEER
6-5-2017

NO.	REVISION	BY	DATE

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CITY OF ROUND ROCK
SOUTHEAST GST & SOUTH 81 EST
PUMP STATION IMPROVEMENTS
PMID – SOUTH 81 EST

Date: JUNE 2017
Designed: K.KNIPPA
Drawn: S.MEDINA
Reviewed: J.PENN
CP&Y Proj. No. RNDR14486

SHEET
MB-1
SHEET 26 OF 57

REFERENCES: RNDR14486_Border_Base.dwg -Std ENVIRO SEALS
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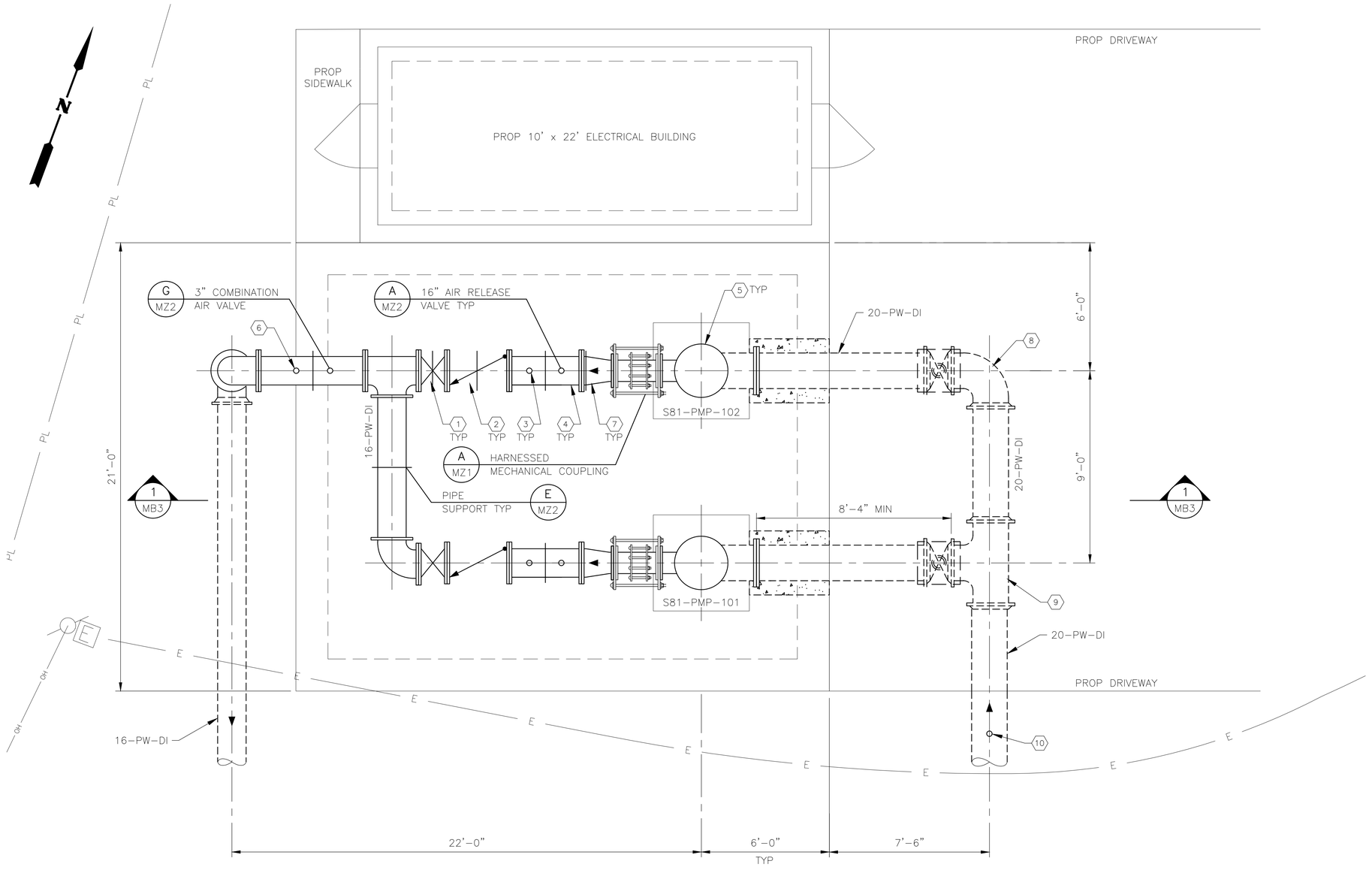

MECHANICAL PLAN – SOUTH 81 EST

2 1 0 4
SCALE IN FEET

NOTES BY SYMBOL (X)

1. PROP 16"ø GATE VALVE WITH PIPE SUPPORT, TYP OF 2.
2. PROP 16"ø SWING CHECK VALVE WITH PIPE SUPPORT, TYP OF 2.
3. PROP 4" LIQUID FILLED PRESSURE INDICATING GAUGE, TYP OF 2.
4. PROP 16"ø DI PUMP DISCHARGE SPOOL PIECE, TYP OF 2.
5. PROP 3500 GPM VERTICAL TURBINE PUMP AND 100 HP MOTOR, TYP OF 2.
6. PROP PRESSURE INDICATING GAUGE AND TRANSMITTER.
7. PROP 16"x12"ø DI REDUCER, TYP OF 2.
8. PROP 20"ø M.J. 90° BEND WITH THRUST BLOCK, SEE DETAIL ON CZ-2.
9. PROP 20"x20"ø M.J. TEE WITH THRUST BLOCK, SEE DETAIL ON CZ-2.
10. LOW SUCTION PRESSURE SWITCH.

NOTES:

1. BELOW GRADE PIPE JOINTS SHALL BE FACTORY RESTRAINED. BELOW GRADE FITTINGS SHALL BE MECHANICAL JOINT WITH MECHANICAL JOINT RESTRAINTS UNLESS NOTED OTHERWISE. BURIED VALVES SHALL HAVE MECHANICAL JOINTS UNLESS OTHERWISE NOTED.
2. WRAP BURIED PIPE AND FITTINGS WITH 8-MIL POLYETHELENE PER GENERAL NOTES SHEET G-3.
3. SEE PRESSURE INDICATING GAUGE AND TRANSMITTER DETAIL ON INSTRUMENTATION SHEETS.

CP&Y, INC.
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ROUND ROCK TEXAS

STATE OF TEXAS
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LICENSED PROFESSIONAL ENGINEER
6-5-2017

NO.	REVISION	BY	DATE

VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE
0 1"

CITY OF ROUND ROCK
SOUTHEAST GST & SOUTH 81 EST
PUMP STATION IMPROVEMENTS
MECHANICAL PLAN – SOUTH 81 EST

Date: JUNE 2017
Designed: K.KINIPPA
Drawn: S.MEDINA
Reviewed: J.PENN
CP&Y Proj. No. RNDR14486

SHEET
MB-2
SHEET 27 OF 57

REFERENCES: RNDR14486_Border_Bose.dwg _Std ENVIRO SEALS.dwg RNDR14486 S81-P-Sbose.dwg RNDR14486 S81-P-Mbose.dwg RNDR14486 S81-P-Cbose.dwg
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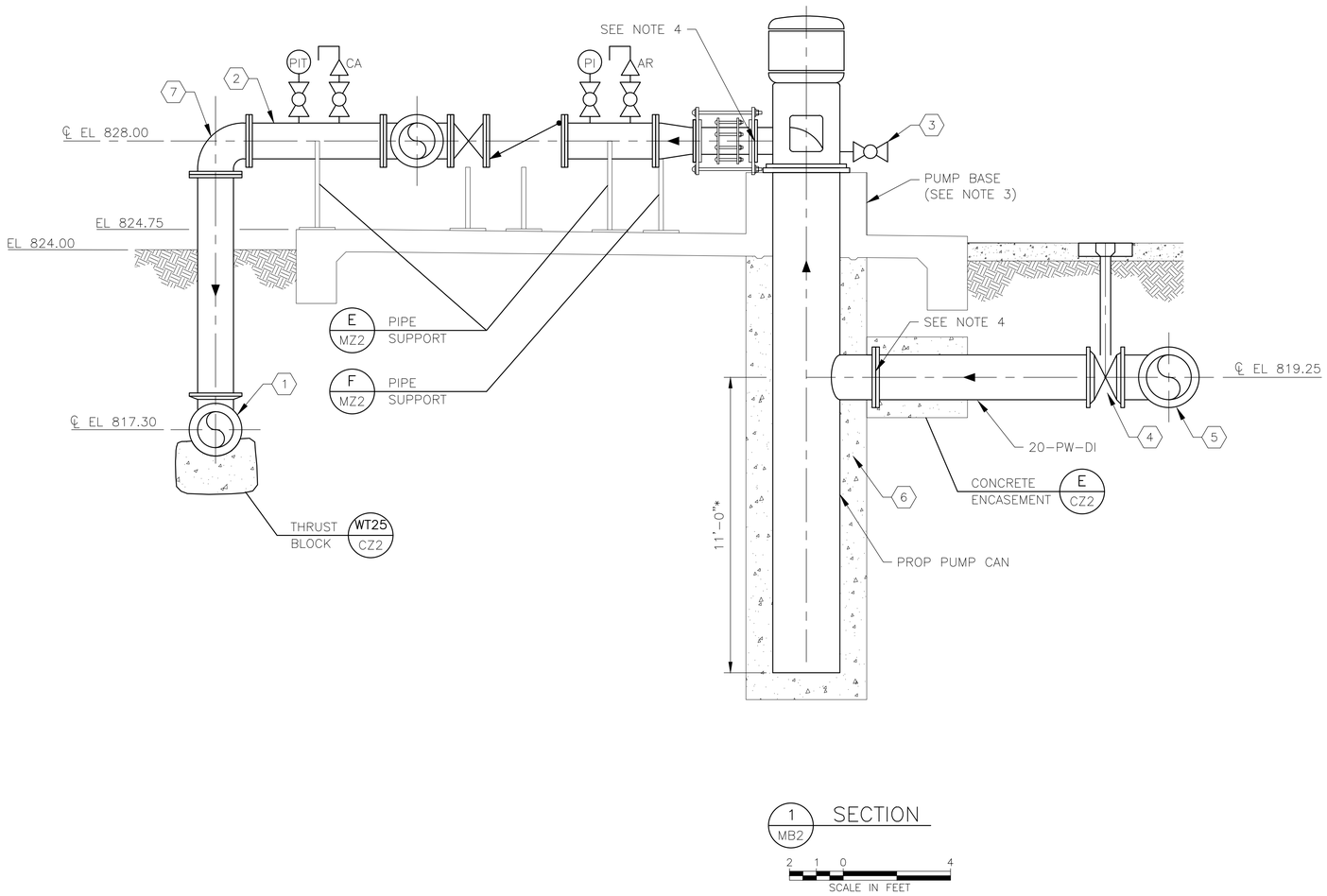

1 MB2 SECTION

2 1 0 4
SCALE IN FEET

NOTES BY SYMBOL (X)

1. PROP 16"ø DI PUMP DISCHARGE HEADER.
2. PROP 16"ø DI PUMP DISCHARGE.
3. PROP 1" GALVANIZED STEEL SCHEDULE 40 WITH 1" BALL VALVE TAPPED INTO PUMP CAN THROUGH DISCHARGE TOP OF PUMP BASE.
4. PROP 20"ø GATE VALVE WITH VALVE BOX.
5. PROP 20"ø DI PUMP SUCTION HEADER.
6. PROP 12" CONCRETE ENCASEMENT, 3000 PSI MINIMUM.
7. PROP 16"ø FLANGED 90° BEND.
8. PROP 16"ø M.J. 90° BEND WITH THRUST BLOCK.

* HEIGHT MAY VARY PER PUMP MANUFACTURER. CONTRACTOR TO COORDINATE DIMENSION WITH MANUFACTURER.

NOTES:
1. BELOW GRADE PIPE JOINTS SHALL BE FACTORY RESTRAINED. BELOW GRADE FITTINGS SHALL BE MECHANICAL JOINT WITH MECHANICAL JOINT RESTRAINTS UNLESS NOTED OTHERWISE. BURIED VALVES SHALL HAVE MECHANICAL JOINTS UNLESS OTHERWISE NOTED.
2. WRAP BURIED PIPE AND FITTINGS WITH 8-MIL POLYETHELENE PER GENERAL NOTES SHEET G-3.
3. REFER TO STRUCTURAL SHEETS FOR PUMP BASE DETAILS.
4. REFER TO SPECIAL SPECIFICATION SECTION 15120 FOR DISSIMILAR METAL PIPE CONNECTION REQUIREMENTS.

CP&Y, INC.
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ROUND ROCK TEXAS

STATE OF TEXAS
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110398
LICENSED PROFESSIONAL ENGINEER
6-5-2017

NO.	REVISION	BY	DATE

VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE
1" 0

CITY OF ROUND ROCK
SOUTHEAST GST & SOUTH 81 EST
PUMP STATION IMPROVEMENTS

MECHANICAL SECTION - SOUTH 81 EST

Date: JUNE 2017
Designed: K.KNIPPA
Drawn: S.MEDINA
Reviewed: J.PENN
CP&Y Proj. No. RNDR14486

SHEET
MB-3
SHEET 28 OF 57

REFERENCES: RNDR14486_Border_Base.dwg _Std ENVIRO SEALS.dwg RNDR14486 S81-P-Sbase.dwg RNDR14486 S81-P-Mbase.dwg RNDR14486 S81-P-Cbase
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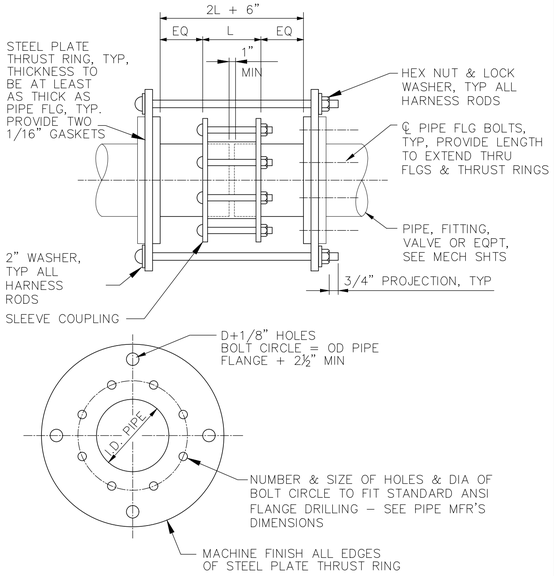
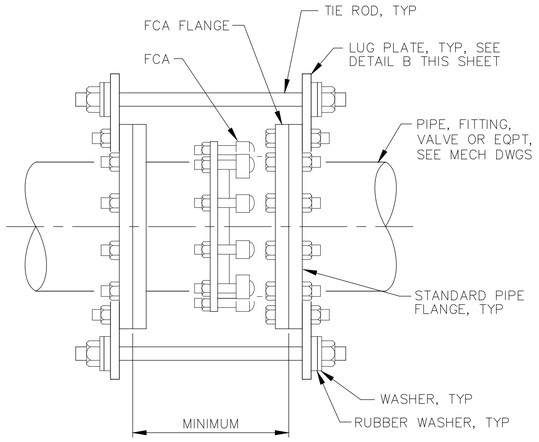


NOTES:

1. LUG PLATE MAY BE USED TO HARNESS MECHANICAL COUPLING, FLANGED COUPLING ADAPTOR OR EXPANSION JOINT, AS APPLICABLE.
2. SEE TABLE I, THIS SHEET, FOR NUMBER AND DIAMETER OF HARNESS RODS.

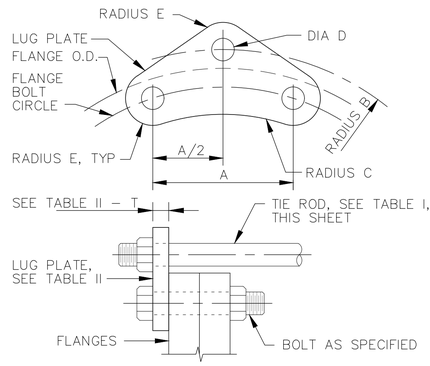
A HARNESSED MECHANICAL COUPLING
NTS



NOTES:

1. FOR NUMBER AND SIZE OF TIE RODS, SEE TABLE I, THIS SHEET.
2. LUG PLATE THICKNESS SHALL BE AS PER TABLE II, THIS SHEET.

B FLANGED COUPLING ADAPTOR WITH THRUST HARNESS
NTS



NOTES:

1. ALL DIMENSIONS ARE IN INCHES.
2. DIMENSION "A" AS REQUIRED BY FLANGE SPECIFIED.
3. RADIUS "B" = $\frac{(\text{FLANGE O.D.})}{2}$ + DIA D + 1/4"
4. RADIUS "C" = $\frac{(\text{BOLT CIRCLE})}{2}$ – RADIUS E
5. DIAMETER "D" = ROD DIAMETER + 1/8"
6. RADIUS "E" = BOLT DIAMETER X 1.25
7. INSTALL TIE ROD ASSEMBLIES SUCH THAT ALL RODS ARE EQUALLY SPACED AROUND FLANGE. ON PIPING 20 INCHES AND LARGER, RODS MAY BE GROUPED IN PAIRS BUT GROUPS MUST BE EQUALLY SPACED AROUND FLANGE. THE TOTAL NUMBER OF THE RODS SHALL BE INCREASED ABOVE THAT TABULATED AS NECESSARY TO MEET SPACING REQUIREMENTS.
8. LUG PLATE MAY BE USED TO HARNESS MECHANICAL COUPLING, FLANGED COUPLING ADAPTOR OR EXPANSION JOINT, AS APPLICABLE.
9. SEE TABLE I, THIS SHEET, FOR ROD DIAMETER.

C LUG PLATE
NTS

TABLE I – HARNESS RODS

	PRESSURE=50 psi		PRESSURE=100 psi		PRESSURE=150 psi		PRESSURE=200 psi		PRESSURE=250 psi	
PIPE SIZE (inch)	NO. RODS	SIZE RODS	NO. RODS	SIZE RODS	NO. RODS	SIZE RODS	NO. RODS	SIZE RODS	NO. RODS	SIZE RODS
3	4	5/8	4	5/8	4	5/8	4	5/8	4	5/8
4	4	5/8	4	5/8	4	5/8	4	5/8	4	5/8
6	4	5/8	4	5/8	4	5/8	4	5/8	4	5/8
8	4	5/8	4	5/8	4	5/8	4	5/8	4	5/8
10	4	5/8	4	5/8	4	5/8	4	5/8	4	5/8
12	4	5/8	4	5/8	4	3/4	4	3/4	4	3/4
14	4	5/8	4	5/8	4	3/4	4	3/4	4	7/8
16	4	5/8	4	5/8	4	3/4	4	7/8	4	1
18	4	5/8	4	3/4	4	7/8	4	1	4	1
20	4	5/8	4	3/4	4	7/8	4	1	4	1 1/8
24	4	5/8	6	3/4	6	7/8	4	1 1/4	4	1 3/8
30	6	3/4	6	1	6	1 1/8	6	1 1/4	6	1 3/8
36	6	7/8	6	1 1/8	6	1 1/4	6	1 1/2	6	1 5/8
42	6	1	6	1 1/4	6	1 1/2	8	1 1/2	8	1 5/8
48	6	1	6	1 3/8	6	1 5/8	8	1 5/8	8	1 3/4
54	6	1 1/8	6	1 1/2	8	1 1/2	8	2	8	2 1/4
60	6	1 1/4	6	1 5/8	8	1 3/4	8	2	8	2 1/4
66	6	1 3/8	6	1 3/4	8	2	10	2	10	2 1/4
72	6	1 1/2	6	2	8	2	12	2	12	2 1/4

TABLE II – LUG PLATES

	PRESSURE=50 psi		PRESSURE=100 psi		PRESSURE=150 psi		PRESSURE=200 psi		PRESSURE=250 psi	
PIPE SIZE (inch)	NO. LUGS	LUG THICK. T	NO. LUGS	LUG THICK. T	NO. LUGS	LUG THICK. T	NO. LUGS	LUG THICK. T	NO. LUGS	LUG THICK. T
3	4	3/8	4	3/8	4	3/8	4	1/2	4	1/2
4	4	1/2	4	1/2	4	1/2	4	3/4	4	3/4
6	4	3/4	4	3/4	4	3/4	4	1	4	1
8	4	3/4	4	3/4	4	1	4	1	4	1
10	4	1	4	1	4	1 1/4	4	1	4	1 1/4
12	4	1	4	1	4	1 1/4	4	1 1/4	4	1 1/4
14	4	1	4	1	4	1 1/4	4	1 1/4	4	1 1/2
16	4	1	4	1	4	1 1/4	4	1 1/2	4	1 1/2
18	4	1 1/4	4	1 1/4	4	1 1/4	4	1 1/2	4	1 3/4
20	4	1 1/4	4	1 1/4	4	1 1/2	4	1 1/2	4	1 3/4
24	4	1 1/4	6	1 1/4	6	1 1/2	4	2	4	2 1/4
30	6	1 1/2	6	1 1/2	6	1 3/4	6	2	6	2 1/4
36	6	1/1/2	6	1/1/2	6	2	6	2	6	2 1/4

NOTES:

1. DIMENSIONS SHOWN ARE IN INCHES.
2. PRESSURE SHOWN IN TABLE I, THIS SHEET, IS THE FIELD TEST PRESSURE OF THE PIPELINE.
3. HARNESS RODS SHALL BE INSTALLED BASED ON PIPE SIZE AND TEST PRESSURE OF THE PIPELINE. SPACE HARNESS LUGS EQUALLY AROUND PIPE.
4. STUD BOLTS 5/8" THROUGH 7/8" DIA SHALL HAVE UNC THREADS. STUD BOLTS 1" DIA & LARGER SHALL HAVE EIGHT UN THREADS PER INCH.
5. STUD MATERIAL SHALL CONFORM TO ASTM A193, GRADE B8, 304 STAINLESS STEEL FOR SUBMERGED, BURIED, IN VAULTS, SUBJECT TO SPLASHING OR CORROSIVE ENVIRONMENT. ALL OTHER APPLICATION STUD MATERIAL SHALL CONFORM TO ASTM A193, GRADE B7.
6. NUTS AND WASHERS SHALL CONFORM TO ASTM A194, GRADE 8, 304 STAINLESS STEEL FOR SUBMERGED, BURIED, IN VAULTS, SUBJECT TO SPLASHING OR CORROSIVE ENVIRONMENT. ALL OTHER APPLICATION NUTS AND WASHERS SHALL CONFORM TO ASTM A194, GRADE 2H.
7. COAT THREADED PORTIONS OF STAINLESS STEEL BOLTS AND NUTS WITH ANTI–SEIZE LUBRICANT PRIOR TO ASSEMBLY.
8. DURING INSTALLATION OF THRUST HARNESS HAND TIGHTEN THE NUT & LOCKNUT GRADUALLY & EQUALLY AT OPPOSITE SIDES UNTIL SNUG TO PREVENT MISALIGNMENT AND ENSURE ALL STUDS CARRY EQUAL LOADS. THEN WRENCH TIGHTEN THE LOCKNUT 1/6 OF COMPLETE TURN. THE THREADS OF THE STUDS SHALL PROTRUDE A MINIMUM OF 3/4" FROM NUT.
9. SPACE REQUIRED NUMBER OF RODS EVENLY ABOUT CENTERLINE OF PIPE. ROD LOCATION MAY BE ROTATED TO ACCOMMODATE SPECIFIC REQUIREMENTS.
10. VERIFY THAT CENTER SLEEVE WILL BE ABLE TO CLEAR PLAIN END OF PIPE WHEN MOVED IN ONE DIRECTION.
11. WHERE INSULATED SLEEVE COUPLINGS ARE INDICATED, INSTALL SLEEVES AND WASHERS ON THRUST RODS. INSULATED SLEEVE COUPLING SHALL HAVE RUBBER BOOT ON BOTH ENDS.
12. PUMP MANUFACTURER SHALL DESIGN THRUST HARNESS FOR PUMP SUCTION AND DISCHARGE PIPING IN ACCORDANCE WITH HYDRAULIC INSTITUTE STANDARDS. PUMP MANUFACTURER SHALL PROVIDE THIS INFORMATION TO THE CONTRACTOR. CONTRACTOR SHALL PROVIDE ANY AND ALL RESTRAINTS, EXCEEDING THOSE SHOWN ON THIS DRAWING, THAT ARE REQUIRED BY THE MANUFACTURER AT NO ADDITIONAL COST TO THE OWNER.
13. WHEN USING TWO DIFFERENT DETAILS FOR THRUST HARNESS, CONTRACTOR TO MODIFY GUSSET PLATE HEIGHT TO INSTALL THE THRUST ROD PARALLEL TO THE CENTERLINE OF THE PIPE.

CP&Y, INC.
TBPE FIRM REGISTRATION NO. #F-1741

ROUND ROCK TEXAS

STATE OF TEXAS
LINDSAY C. WEBB
110398
LICENSED PROFESSIONAL ENGINEER
6-5-2017

NO.	REVISION	BY	DATE

IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
VERIFY SCALE 0 1"

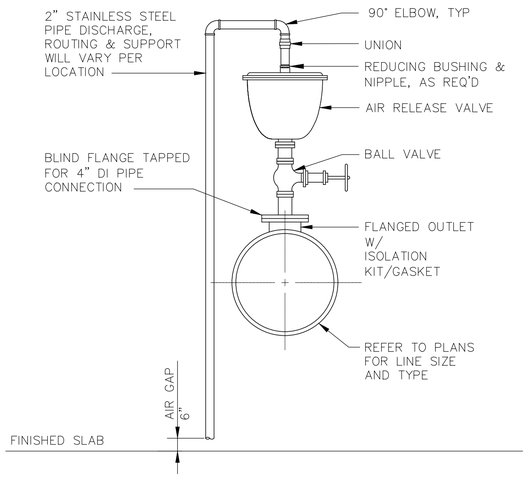
CITY OF ROUND ROCK
SOUTHEAST GST & SOUTH 81 EST
PUMP STATION IMPROVEMENTS

MECHANICAL DETAILS I

Date: JUNE 2017
Designed: K.KNIPPA
Drawn: S.MEDINA
Reviewed: J.PENN
CP&Y Proj. No. RNDR14486

SHEET
MZ–1
SHEET 29 OF 57

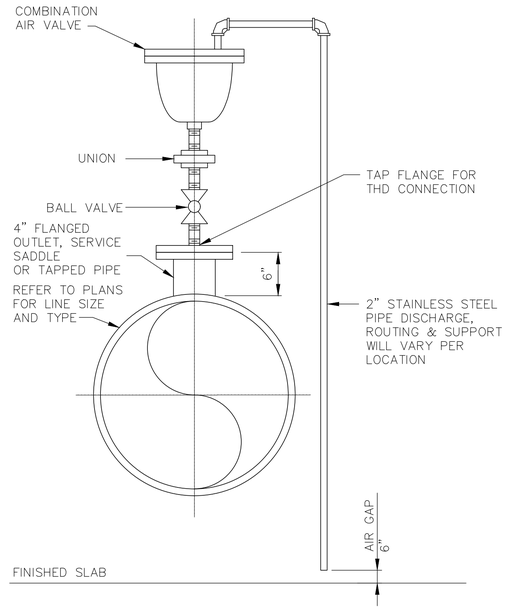
REFERENCES: RNDR14486_Border_Base.dwg _Std ENVIRO SEALS
Jun 01, 2017 – 11:27am C:\pwworking\cpy\cw_cpy\smedina\d0459066\RNDR14486 CPY MZ-1.dwg LAYOUT: MZ-1 USER:



NOTE:

1. REFER TO SPECIAL PROVISION 511 FOR ADDITIONAL INFORMATION ON BALL VALVE AND AIR RELEASE VALVE.

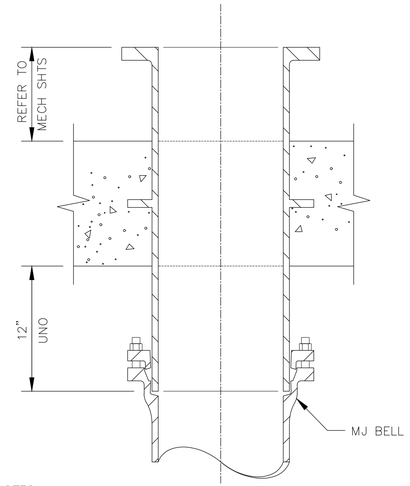
A AIR RELEASE VALVE
NTS



NOTE:

1. REFER TO SPECIAL PROVISION 511 FOR ADDITIONAL INFORMATION ON COMBINATION AIR VALVE.

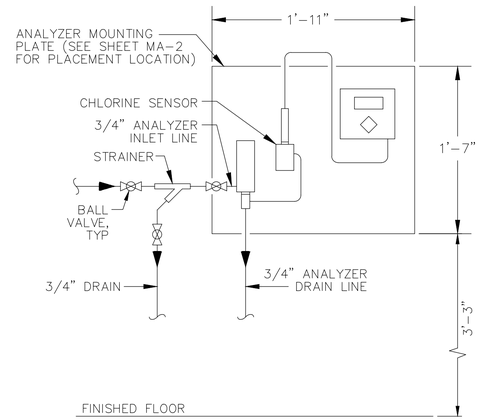
B COMBINATION AIR VALVE
NTS



NOTES:

1. REFER TO SPECIFICATIONS FOR RESTRAINT OF MECHANICAL JOINTS AT CONCRETE STRUCTURES.
2. REFER TO STRUCTURAL DRAWINGS FOR SLAB THICKNESS.
3. FLOOR PIPES SHALL BE IN PLACE PRIOR TO PLACING CONCRETE. COAT FLOOR PIPE WITH SPECIFIED COATING SYSTEM PRIOR TO CONCRETE PLACEMENT.

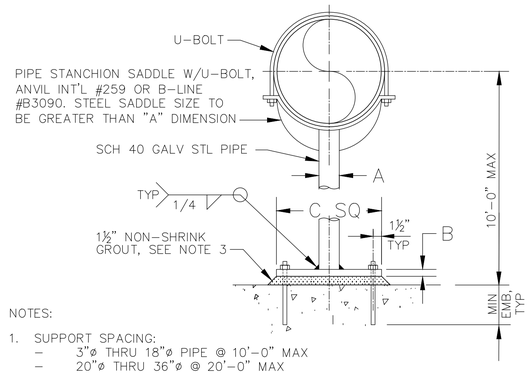
C TYPICAL SLAB PENETRATION
NTS



NOTES:

1. REFER TO CHLORINE ANALYZER DETAIL ON SHEET IZ-2 FOR ADDITIONAL INFORMATION.
2. REFER TO SHEETS MB-3 AND CZ-2 FOR ADDITIONAL DRAIN LINE INFORMATION.

D CHLORINE ANALYZER
NTS

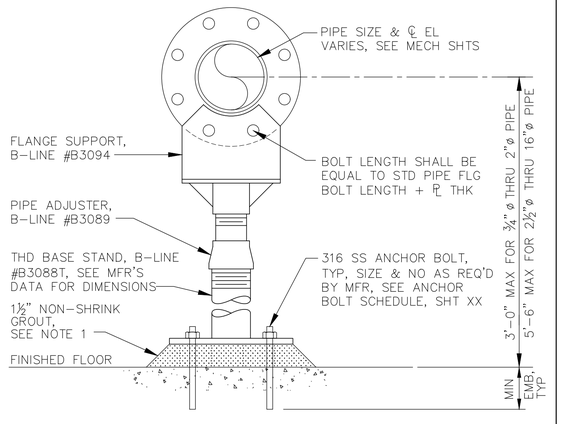


NOTES:

1. SUPPORT SPACING:
   - 3"ø THRU 18"ø PIPE @ 10'-0" MAX
   - 20"ø THRU 36"ø @ 20'-0" MAX
2. PROVIDE HALF ROUND RIGID INSULATION AND INSULATION PROTECTION SHIELD, SIMILAR TO ANVIL INT'L #167, WHERE PIPING IS INSULATED.
3. WHERE PIPING IS ADJACENT TO MECHANICAL EQUIPMENT, REPLACE GROUT WITH NEOPRENE WAFFLE ISOLATION PAD, MASON TYPE "W" OR KORPAD 40.
4. SEE ANCHOR BOLT SCHEDULE, SHT XXX, FOR MINIMUM EMBEDMENT.
5. SUPPORT IS DESIGNED FOR USE IN INDOOR LOCATIONS WITH NO WIND LOAD FACTOR.

DIMENSION TABLE (INCHES)																
PIPE SIZE	3	4	5	6	8	10	12	14	16	18	20	22	24	26	30	36
A	3	3	3	3	3	6	6	6	6	6	8	8	8	8	8	8
B	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	3/4	3/4	3/4	3/4	3/4	3/4
C	9	9	9	9	9	12	12	12	12	12	16	16	16	16	16	16
BOLT DIA.	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	3/4	3/4	3/4	3/4	3/4	3/4

E PIPE SUPPORT
NTS



NOTES:

1. WHERE PIPING IS ADJACENT TO MECHANICAL EQUIPMENT, REPLACE GROUT WITH NEOPRENE WAFFLE ISOLATION PAD, SIMILAR TO MASON TYPE "W" OR KORPAD 40.
2. SUPPORT SPACING:
   - 2½"ø THRU 16"ø PIPE @ 10'-0" MAX
   - ¾"ø THRU 2"ø PIPE @ 5'-0" MAX
3. ALL SUPPORTS SHALL BE 316 SS.

F PIPE FLANGE SUPPORT
NTS

NOTE:
REFER TO SPECIFICATION SECTION 15140 FOR SPACING REQUIREMENTS FOR ALL SUPPORTS AND HANGERS, UNLESS NOTED OTHERWISE.

GENERAL PIPE SUPPORT NOTES:

1. ALL BOLTS AND NUTS SHALL BE TYPE 316 SS.
2. ALL PIPE SUPPORT ASSEMBLIES, INCLUDING FRAMING, SHALL BE GALVANIZED STEEL UNLESS OTHERWISE INDICATED.
   A. SUBMERGED SUPPORTS: ALL SUBMERGED PIPING, AS WELL AS PIPING, CONDUITS AND EQUIPMENT IN HYDRAULIC STRUCTURES, WITHIN 24 INCHES OF WATER LEVEL, SHALL BE SUPPORTED WITH SUPPORT ASSEMBLIES, INCLUDING FRAMING, HARDWARE AND ANCHORS, CONSTRUCTED OF TYPE 316 STAINLESS STEEL UNLESS OTHERWISE INDICATED.
   B. CORROSIVE: ALL PIPING IN CHEMICAL AND CORROSIVE AREAS SHALL BE SUPPORTED WITH SUPPORT ASSEMBLIES, INCLUDING FRAMING, HARDWARE AND ANCHORS, CONSTRUCTED OF TYPE 316 STAINLESS STEEL OR FRP UNLESS OTHERWISE INDICATED.
3. WHEN SUPPORT IS USED WITH COPPER, PVC OR FRP PIPE, WRAP PIPE WITH 1/4" NEOPRENE SHEET. IF PIPE IS SUBMERGED, REPLACE NEOPRENE SHEET WITH 1/4" FLUOROLON PTFE 1000 (TEFLON) BY AP TECHNOLOGIES.
4. WHEN SUPPORT IS USED WITH PVC OR FIBERGLASS PIPE, PROVIDE LOOSE FITTING STEEL SHIELD AROUND PIPE AT U-BOLT/CLIP.
5. ALL SUPPORTS SHOWN ARE FOR USE WITH CONCRETE WALL/FLOOR SLAB CONSTRUCTION. CONTRACTOR SHALL VERIFY THAT WALL/FLOOR SLAB THICKNESS IS ADEQUATE TO ACCOMMODATE MINIMUM ANCHOR BOLT EMBEDMENT.
6. FOR CMU WALLS, USE THE TABLE BELOW WITH HILTI HIT-HY 150 ADHESIVE ANCHOR.
7. WHEN BASE MATERIAL TEMPERATURE DROPS BELOW 40° F, USE HILTI HIT-ICE/HIT-HY 150 ADHESIVE.

ANCHOR BOLT SCHEDULE		
AB (INCHES)	MIN EMB (INCHES)	ANCHOR TYPE
1/4	4	"HILTI" SS KWIK BOLT II
3/8	3 1/2	"HILTI" SS (HAS ROD) W/HVA ADHESIVE ANCHOR
1/2	6 3/8	"HILTI" SS (HAS ROD) W/HVA ADHESIVE ANCHOR
5/8	5	"HILTI" SS (HAS ROD) W/HVA ADHESIVE ANCHOR
3/4	6 5/8	"HILTI" SS (HAS ROD) W/HVA ADHESIVE ANCHOR
7/8	6 5/8	"HILTI" SS (HAS ROD) W/HVA ADHESIVE ANCHOR
1	8 1/4	"HILTI" SS (HAS ROD) W/HVA ADHESIVE ANCHOR

REFERENCES:: RNDR14486_Border_Base.dwg _Std ENVIRO SEALS
Jun 01, 2017 - 11:27am C:\pwworking\cpy\pw_cpy\smedina\d0459006\RNDR14486 CPY MZ-1.dwg LAYOUT: MZ-2 USER:

CP&Y, INC.
TBPE FIRM REGISTRATION NO. #F-1741

ROUND ROCK TEXAS

6-5-2017
STATE OF TEXAS
LINDSAY C. WEBB
110398
LICENSED PROFESSIONAL ENGINEER

NO.	REVISION	BY	DATE

VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE
1"
0

CITY OF ROUND ROCK
SOUTHEAST GST & SOUTH 81 EST
PUMP STATION IMPROVEMENTS

MECHANICAL DETAILS II

Date: JUNE 2017
Designed: K.KNIPPA
Drawn: S.MEDINA
Reviewed: J.PENN
CP&Y Proj. No. RNDR14486

SHEET
MZ-2
SHEET 30 OF 57

ELECTRICAL SYMBOLS

SYMBOL	DESCRIPTION
	BRANCH CIRCUIT PANEL BOARD
	CONTROL PANEL
	TELEPHONE TERMINAL BOARD
TB	TERMINAL BOARD
	CONDUIT WITH WIRE HOT NEUTRAL SWITCH LEG GROUND
	CONCEALED CONDUIT OR UG CONDUIT
	EXPOSED CONDUIT
	GROUND MAT
	CONDUIT – UP
	CONDUIT – DOWN
	CONDUIT – STUBBED AND CAPPED
S	SOUND SYSTEM WIRING RUN
OE	OVERHEAD ELECTRIC LINES
T	CONDUIT FOR TELEPHONE, 3/4" UNLESS OTHERWISE INDICATED
	ABANDON CONDUIT & REMOVE CONDUCTORS
LP–1,3	HOME RUN, LP INDICATES PANEL LP, 1,3 INDICATES CIRCUITS 1 & 3.
DP–1/3 DP–1/3/5	HOME RUN (208/1PH, 480V/1PH OR 3PH), DP INDICATES PANEL DP–1/3 INDICATES (2) POLE BKR, CKTS 1 & 3 DP–1/3/5 INDICATES (3) POLE BKR, CKTS 1, 3, & 5
XXX	CABLE IDENTIFICATION TAG
XXX	INST./CONTROL CABLE IDENTIFICATION TAG
XX XX	NAMEPLATE OR LEGEND PLATE, SEE SCH.
XXXXXXX	INSTRUMENT TAG NUMBER
	NOTE ON SHEET, NO. AS INDICATED
	LUMINAIRE, TYPE AS NOTED
B	LUMINAIRE, TYPE AS NOTED
A	LUMINAIRE FLUORESCENT, TYPE AS NOTED
A	LUMINAIRE AND POLE, TYPE AS NOTED
D	WALL MOUNTED LUMINAIRE, TYPE AS NOTED
	FLOODLIGHTS AIM IN DIRECTION SHOWN
E	EXIT SIGN
D	EXIT/EMERGENCY COMBO
C	EMERGENCY LIGHTING UNIT
$3	LIGHT SWITCH, '3' INDICATES 3–WAY SWITCH
$M	MOTORIZED SWITCH
MSP	MANUFACTURER SUPPLIED PACKAGE INCLUDES LOCAL COMBINATION STARTER, MOTOR AND CONTROL PANEL. NUMBER INDICATES HORSE POWER MOTOR, SQUIRREL CAGE INDUCTION HORSEPOWER INDICATED ON ONE LINE, NUMBER INDICATES HORSEPOWER
10 M	
	CONVENIENCE RECEPTACLE–DUPLEX UNLESS SPECIFIED OTHERWISE C = CLOCK HANGER CR = CORROSION RESISTANT EWC = WATER COOLER TL = TWIST LOCK WP = WEATHERPROOF GFCI = GROUND FAULT CIRCUIT INTERRUPTER
	RECEPTACLE – 240V/1PH OR 208V/1PH
	MULTI–OUTLET ASSEMBLY
	RECEPTACLE – 480V/3PH OR 208V/3PH

SYMBOL	DESCRIPTION
J	JUNCTION BOX
T	THERMOSTAT
	TELEPHONE/DATA OUTLET
	INSTRUMENT
	GROUND TEST WELL, REFER TO STANDARD DETAIL
	COPPERCLAD GROUND ROD
	GROUNDING PAD
	CIRCUIT BREAKER – THERMAL MAGNETIC 3 POLE UNLESS INDICATED OTHERWISE CONTINUOUS AMP TRIP SETTING INDICATED
100A	SWITCH – CURRENT RATING INDICATED. 3 POLE UNLESS INDICATED OTHERWISE
800AF/600AT	DRAWOUT AIR CIRCUIT BREAKER LOW VOLTAGE, FRAME SIZE AND TRIP SETTING INDICATED
1200A 52	DRAWOUT AIR OR VACUUM CIRCUIT BREAKER, (VCB) MEDIUM VOLTAGE, FRAME SIZE INDICATED
	LIGHTNING AND SURGE ARRESTOR
	FUSE, (ONE LINE DIAGRAM OR SCHEMATIC)
10	CAPACITOR – KVAR INDICATED
	GROUND, (ONE LINE DIAGRAM OR SCHEMATIC)
480V 120V	CONTROL POWER TRANSFORMER – VOLTAGES INDICATED
2000KVA 4160/480V	POWER DISTRIBUTION TRANSFORMER VOLTAGES AND RATING INDICATED
	SHIELDED ISOLATED TRANSFORMER VOLTAGES AND RATING INDICATED
3	CURRENT TRANSFORMER – NUMBER INDICATES QUANTITY
1	WINDOW CURRENT TRANSFORMER ENCLOSING ALL CONDUCTORS
24" W	CABLE TRAY, LADDER TYPE, WIDTH AS INDICATED
ATS	AUTOMATIC TRANSFER SWITCH
	ELECTRICAL SERVICE METER
OR	CONTROL STATION
	PUSH–BUTTON SWITCH, MOMENTARY CONTACT, NORMALLY OPEN
	PUSH–BUTTON SWITCH, MOMENTARY CONTACT, NORMALLY CLOSED
	PUSHBUTTON SWITCH, MAINTAINED CONTACTS, WITH MECHANICAL INTERLOCK
OFF LOCAL REMOTE POLE 1 XOO POLE 2 OOX	SELECTOR SWITCH–MAINTAINED CONTACT. CHART DEFINES OPERATION:

	POSITION		
POLE	LOCAL	OFF	REMOTE
1	X	0	0
2	0	0	X

X = CLOSED CONTACT
0 = OPEN CONTACT

	PANELBOARD
	NON FUSED DISCONNECT
	FUSED DISCONNECT
	LOCAL COMBINATION (IN FIELD) MAGNETIC STARTER WITH THERMAL OVERLOAD

SYMBOL	DESCRIPTION
	FLOW SWITCH
	LIMIT SWITCH
	PRESSURE SWITCH
	TEMPERATURE SWITCH OR THERMOSTAT
	VACUUM SWITCH
L.O. STOP	LOCKOUT STOP PUSH–BUTTON
	NORMALLY OPEN DELAY ON MAKE
	NORMALLY CLOSE DELAY ON MAKE
	NORMALLY CLOSE DELAY ON BREAK
	NORMALLY OPEN DELAY ON BREAK
	FLOAT SWITCH
A	INDICATING LIGHT – PUSH TO TEST LETTER INDICATES COLOR.
	MEDIUM VOLTAGE VACUUM INTERRUPTER
	CONTACT – NORMALLY OPEN
	CONTACT – NORMALLY CLOSED
	THERMAL OVERLOAD RELAY
	BASIC RELAY SYMBOL * SOME RELAY FUNCTIONS: ALT = ALTERNATOR CR = CONTROL RELAY TR = TIMING RELAY M = MOTOR CONTACTOR
	TERMINALS FOR FIELD OR REMOTE WIRING CONNECTIONS. DEVICES LOCATED BETWEEN THESES SYMBOLS ARE LOCATED IN THE FIELD OR REMOTELY.
	MOTOR OR STARTER ENCLOSURE SPACE HEATER (ONE LINE DIAGRAM OR SCHEMATIC)
+ –	BATTERY
	SOLID STATE DEVICE SUCH AS RECTIFIER OR SCR DRIVE
	DEVICE LOCATED AT MOTOR OR IN FIELD
	DEVICE LOCATED AT VALVE
	DEVICE LOCATED IN MCC
	DEVICE LOCATED IN SWGR – 5KV
	DEVICE LOCATED IN CONTROL/ INSTRUMENT PANEL
	STROBE/HORN
F	MANUAL PULL STATION
	SILENCE SWITCH
	EMERGENCY STOP
M	MOTOR OPERATED

LEGEND:

	MODIFIED OR DEMOLISHED
	PROPOSED
	EXISTING

SWITCHGEAR / MCC SYMBOLS

SYMBOL	DESCRIPTION
25	SYNCHRONOUS CHECK RELAY
27	UNDERVOLTAGE PROTECTIVE RELAY
32	REVERSE POWER PROTECTIVE RELAY
47	PHASE–SEQUENCE VOLTAGE RELAY
49	OVERLOAD TEMPERATURE RELAY
50/51	TIME OC RELAY WITH INSTANTANEOUS ATTACHMENT
50G	INSTANTANEOUS OC GROUND FAULT RELAY
50N	INSTANTANEOUS NEUTRAL OC RELAY
51	TIME OVERCURRENT RELAY
51G	TIME GROUND OVERCURRENT RELAY
55	POWER FACTOR RELAY
59	OVERVOLTAGE RELAY
63	TRANSFORMER SUDDEN PRESSURE RELAY
67	DIRECTIONAL OVERCURRENT RELAY
74T	TEMPERATURE ALARM RELAY
81	UNDERFREQUENCY RELAY
83	AUTOMATIC TRANSFER RELAY
86	LOCKOUT RELAY
87	DIFFERENTIAL PROTECTIVE RELAY

SYMBOL	DESCRIPTION
87T	TRANSFORMER DIFFERENTIAL PROTECTIVE RELAY
AM	AMMETER
AS	AMMETER SWITCH
CS	BREAKER CONTROL SWITCH
E	ELECTRICAL INTERLOCK
ETM	ELAPSED TIME METER
K	KEY INTERLOCK
PF	POWER FACTOR METER
RPM	RPM METER
SST	SOLID STATE TRIP
T	TACHOMETER (4–20ma)
TDR	TIME DELAY RELAY
VAR	VAR METER
VM	VOLTMETER
VS	VOLTMETER SWITCH
W	WATTMETER
W/WH	WATT/WATT HOUR TRANSDUCER
WH	WATT–HOUR METER
WHD/WH	WATT HOUR DEMAND/WATT HOUR METER

ELECTRICAL ABBREVIATIONS

A	AMPERAGE	IC	INTERRUPTING CAPACITY	PR	PRESETTING RELAY (TIMER)
AC	ALTERNATING CURRENT	IGV	INLET GUIDE VANE	PSI	POUNDS PER SQUARE INCH
ACU	AIR CONDITIONING UNIT	INCAND	INCANDESCENT	PT	POTENTIAL TRANSFORMER
AIT	ANALYZER INDICATING TRANSMITTER	INST	INSTANTANEOUS	PTT	PUSH TO TEST
AJB	ANALOG JUNCTION BOX	INB	INBOARD	PVC	POLYVINYL CHLORIDE
AM	AMMETER			PWR	POWER
ANN	ANNUNCIATOR	JB	JUNCTION BOX		
ANSI	AMERICAN NATIONAL STANDARD INSTITUTE			R	RELAY
ATS	AUTOMATIC TRANSFER SWITCH	K	KEY INTERLOCK	REV	REVERSE
AUTO	AUTOMATIC	KS	INTERLOCK KEY SWITCH	REQD	REQUIRED
AUX	AUXILIARY	KVA	KILOVOLT–AMPERE	RGS	RIGID GALVANIZED STEEL
		KW	KILOWATT	RLY	RELAY
B	BELL			RS	RIGID STEEL
BFM	BLOWER FILTER MOTOR	L, LP	LIGHTING PANEL	RVNR	REDUCED VOLTAGE NON–REVERSING
BYZ	WINDOW CURRENT TRANSFORMER	LA	LIGHTNING ARRESTOR	RVR	REDUCE VOLTAGE REVERSING
C,COND	CONDUIT	LC	LIGHTING CONTACTOR	RVSS	REDUCE VOLTAGE SOLID STATE
CB	CIRCUIT BREAKER	LCP	LOCAL CONTROL PANEL	RTD	RESISTANCE TEMP DETECTORS
CC	CONTROL CABLE	LE	LEVEL ELEMENT	RTU	REMOTE TERMINAL UNIT
C/C	CENTER TO CENTER	LIT	LEVEL INDICATING TRANSMITTER		
CHH	COMMUNICATIONS HAND HOLE	LLO	LOW LEVEL LOCKOUT	S, SV	SOLENOID VALVE
CJB	CONTROL JUNCTION BOX	LO	LOCKOUT	SC	SHORT CIRCUIT
CKT	CIRCUIT	LPU	LOCAL PROCESSING UNIT	SCADA	CONTROL AND DATA ACQUISITION
CS	CONTROL SWITCH	LR	LATCH RELAY	SCU	SPEED CONTROL UNIT SUPPLY
CT	CURRENT TRANSFORMER	LRC	LOCKED ROTOR CURRENT	SF	FAN
CTRL	CONTROL	LMS	LIMIT SWITCH	SPD	SURGE PROTECTIVE DEVICE
CU	CONDENSING UNIT	LS	LEVEL SWITCH	SRV	SURGE RELIEF VALVE
		LSC	LIMIT SWITCH VALVE CLOSE	SS	STAINLESS STEEL
DC	DIRECT CURRENT	LSH	LEVEL HIGH SWITCH	SW	NETWORK SWITCH
DF	DRINKING FOUNTAIN	LSL	LEVEL LOW SWITCH	SWG	SWITCHGEAR
DFR	DIFFERENTIAL RELAY	LSO	LIMIT SWITCH VALVE OPEN	SWT	SWITCH
DS	DISCONNECT SWITCH	LTG	LIGHTING		
DTL	DETAIL	LV	LOW VOLTAGE	T	THERMOSTAT
		MCC	MOTOR CONTROL CENTER	TB	TERMINAL BOX
EC	EMPTY CONDUIT	MGB	MASTER GROUND BAR	TD	TIME DELAY
EF	EXHAUST FAN	MJB	MOTOR JUNCTION BOX	TDC	TIME DELAY CLOSING
EHH	ELECTRIC HAND HOLE	MOV	MOTOR OPERATED VALVE	TDE	TIME DELAY ENERGIZED
EXIST.	EXISTING	MRP	MOTOR RELAY PROTECTION	TDO	TIME DELAY OPENING
EP	EXPLOSION PROOF	MAINT.	MAINTAINED	TJB	TERMINAL JUNCTION BOX
ETM	ELAPSED TIME METER	MCP	MOTOR CIRCUIT PROTECTOR	TP	TWISTED PAIR
E–STOP	EMERGENCY STOP	MCB	MAIN CIRCUIT BREAKER	TSP	TWISTED SHIELDED PAIR
				TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
F	FORWARD	N	NEUTRAL GROUNDED CONDUCTOR		
FCV	FLOW CONTROL VALVE	NA	NON–AUTOMATIC	UG	UNDERGROUND
FIT	FLOW INDICATING TRANSMITTER	NC	NORMALLY CLOSED	UH	UNIT HEATER
FT	FLOW TRANSMITTER	NF	NON–FUSED	UPS	UNINTERRUPTIBLE POWER SUPPLY
FLA	FULL LOAD AMPERE	NO	NORMALLY OPEN	UV	UNDERVOLTAGE
FLUO	FLUORESCENT				
FMR	FEEDER MANAGEMENT RELAY	OB	OUTBOARD	V	VOLT
FO	FIBER OPTIC	OC	OVERCURRENT	VCR	VALVE CLOSE RELAY
FQI	FLOW INTEGRATED TOTALIZER	OHD	OVERHEAD DOOR	VFD	VARIABLE FREQUENCY DRIVE
FU	FUSE	OL	OVERLOAD	VM	VOLTMETER
FVNR	FULL VOLTAGE NON–REVERSING	OPDU	OVERALL POWER DISTRIBUTION UNIT	VP	VAPOR PROOF
FVR	FULL VOLTAGE REVERSING	OV	OVERVOLTAGE	VOR	VALVE OPEN RELAY
GALV	GALVANIZED	PB	PUSHBUTTON	W	WIRE
GEN	GENERATOR	PB	PULLBOX	WHD	WATT HOUR DEMAND METER
GFCI	GROUND FAULT CIRCUIT INTERRUPTER	PBR	PUMP–BEARING RELAY	WP	WEATHER PROOF
G,GND	GROUND	PC	PHOTOCELL		
		PC	PERSONAL COMPUTER	XFMR	TRANSFORMER
HH	HAND HOLE	PFCC	POWER FACTOR CORRECTION CAPACITOR		
HOA	HAND OFF AUTOMATIC	PH	PHASE		
HS	HAND SWITCH	PLC	PROGRAMMABLE LOGIC CONTROLLER		
HV	HIGH VOLTAGE	PMT	PAD MOUNTED TRANSFORMER		
		PMGR	PAD MOUNTED SWITCHGEAR		
		PP	POWER PANEL		

TEXAS REGISTERED ENGINEERING FIRM F–13910

LKC–ES ENGINEERING SERVICE

CP&Y, INC.
TBPE FIRM REGISTRATION NO. #F–1741

ROUND ROCK TEXAS

STATE OF TEXAS
TIM E. CAMPBELL
81011
REGISTERED PROFESSIONAL ENGINEER
06/01/17

NO.	REVISION	BY	DATE

VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE
0 1"

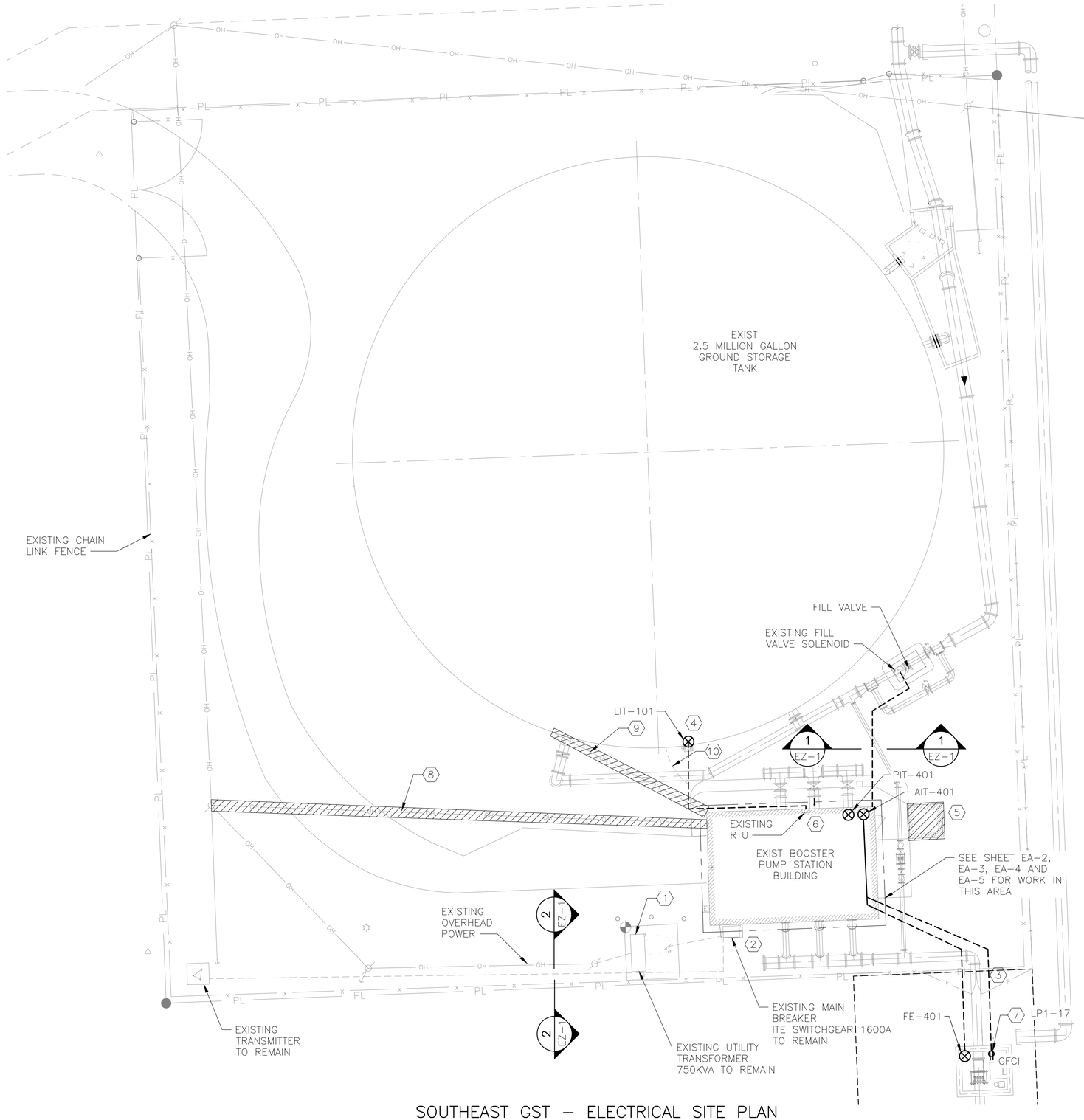
CITY OF ROUND ROCK
SOUTHEAST GST & SOUTH 81 EST
PUMP STATION IMPROVEMENTS

ELECTRICAL LEGEND & ABBREVIATIONS

Date: JUNE 2017
Designed: J. GONZALEZ
Drawn: T. FORNEY
Reviewed: T. CAMPBELL
CP&Y Proj. No. RNDR14486

SHEET
E–1
SHEET 31 OF 57

REFERENCES: RNDR14486_Border_Base.1
Jun 01, 2017 – 3:05pm \\ke-es\projects\rndr14486 round rock evaluation southeast gst & south 81 est pump station improvements per\Drawings\Electrical\E–1 ELECTRICAL LEGEND.dwg LAYOUT: Layout1 USER:



SOUTHEAST GST – ELECTRICAL SITE PLAN

0 10 20
SCALE IN FEET

NOTES BY SYMBOL ⟨X⟩

1. EXISTING UTILITY TRANSFORMER TO REMAIN. COORDINATE W/ ONCOR ELECTRIC DELIVERY FOR ANY SHUTDOWNS.
2. EXISTING UNIT CIRCUIT BREAKER TO REMAIN. PROVIDE NEW CONDUCTORS FROM CIRCUIT BREAKER TO MCC.
3. PROVIDE MANUFACTURER SUPPLIED CABLES FROM FIT TO FLOW ELEMENT.
4. LIT TO REMAIN. MAINTAIN CONDUCTORS TO RTU.
5. CHLORINE STORAGE BUILDING TO BE DEMOLISHED. REMOVE ALL CONDUCTORS FOR LIGHTS BACK TO SOURCE. REMOVE CONDUIT FLUSH TO SLAB AND FILL WITH GROUT.
6. EXISTING RTU TO REMAIN.
7. MOUNT IN ACCESSIBLE SIMPLEX WP/GFCI RECEPTACLE BELOW HATCH INACCESSIBLE LOCATION.
8. DEMOLISH TELEPHONE CABLE. COORDINATE WITH TELEPHONE COMPANY.
9. DEMOLISH CABLE FROM BUILDING TO ABANDONED ANTENNA.
10. DEMOLISH CONDUCTOR ABOVE GRADE TO LEVEL ELEMENT.

LKC-ES ENGINEERING SERVICE
TEXAS REGISTERED ENGINEERING FIRM F-13910

CP&Y, INC.
TBPE FIRM REGISTRATION NO. #F-1741

ROUND ROCK TEXAS

STATE OF TEXAS
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06/01/17

NO.	REVISION	BY	DATE

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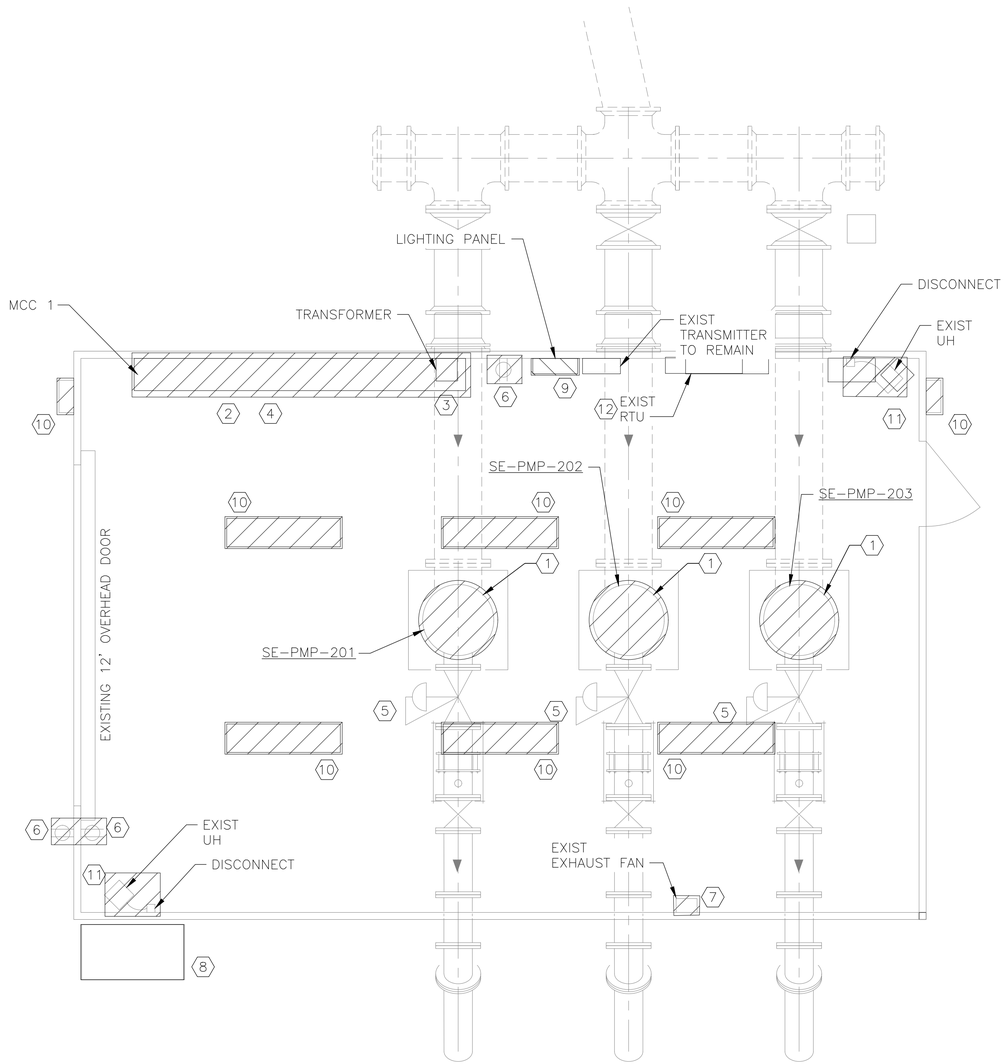
CITY OF ROUND ROCK
SOUTHEAST GST & SOUTH 81 EST
PUMP STATION IMPROVEMENTS
ELECTRICAL SITE PLAN – SOUTHEAST GST

Date: JUNE 2017
Designed: J. GONZALEZ
Drawn: T. FORNEY
Reviewed: T. CAMPBELL
CP&Y Proj. No. RNDR14486

SHEET
EA-1
SHEET 32 OF 57

REFERENCES: RNDR14486 SE-E-Cbase.dwg RNDR14486_Border_Base.1
Jun 01, 2017 - 3:06pm \\kc-es\projects\rndr14486 round rock evaluation southeast gst & south 81 est pump station improvements pe\Drawings\Electrical\EA-1 SOUTHEAST SITE PLAN.dwg LAYOUT: Layout1 USER:



SOUTHEAST GST – DEMOLITION PLAN

SCALE IN FEET

N

NOTES BY SYMBOL ⟨X⟩

1. DEMOLISH 300 HP MOTORS. MAINTAIN COUPLING AND PROTECT PUMPS.
2. DEMOLISH MCC. PROTECT CONDUITS BELOW SLAB FOR INSTALLATION OF NEW CONDUCTORS.
3. DEMOLISH TRANSFORMER ABOVE MCC 1 AND CONDUCTORS TO MCC.
4. REMOVE CONDUCTORS FROM MCC TO MOTOR. PROTECT CONDUITS FOR USE FOR NEW CONDUCTORS.
5. DEMOLISH CONDUCTORS FROM MCC TO VALVES. MAINTAIN CONDUIT FOR NEW CONDUCTORS.
6. DEMOLISH RECEPTACLE AND CONDUCTORS FROM RECEPTACLES TO PANEL.
7. DEMOLISH EXHAUST FAN AND CONDUCTORS TO PANEL.
8. UNIT CIRCUIT BREAKER TO REMAIN. PROTECT CONDUCTORS FROM CIRCUIT BREAKER TO UTILITY TRANSFORMER.
9. DEMOLISH LIGHTING PANEL AND ALL CONDUCTORS.
10. DEMOLISH ALL LIGHTING FIXTURES AND CONDUCTORS BACK TO PANEL.
11. DEMOLISH UNIT HEATERS AND CONDUCTORS TO MCC.
12. RTU TO REMAIN. PROTECT CONDUCTORS.

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STATE OF TEXAS
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REGISTERED PROFESSIONAL ENGINEER
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CITY OF ROUND ROCK
SOUTHEAST GST & SOUTH 81 EST
PUMP STATION IMPROVEMENTS

ELECTRICAL DEMOLITION PLAN – SOUTHEAST GST

Date: JUNE 2017
Designed: J. GONZALEZ
Drawn: T. FORNEY
Reviewed: T. CAMPBELL
CP&Y Proj. No. RNDR14486

SHEET
EA–2
SHEET 33 OF 57

REFERENCES: RNDR14486 PDR SE EMbase.dwg RNDR14486 PDR SE ESbase.dwg RNDR14486_Border_Base.1
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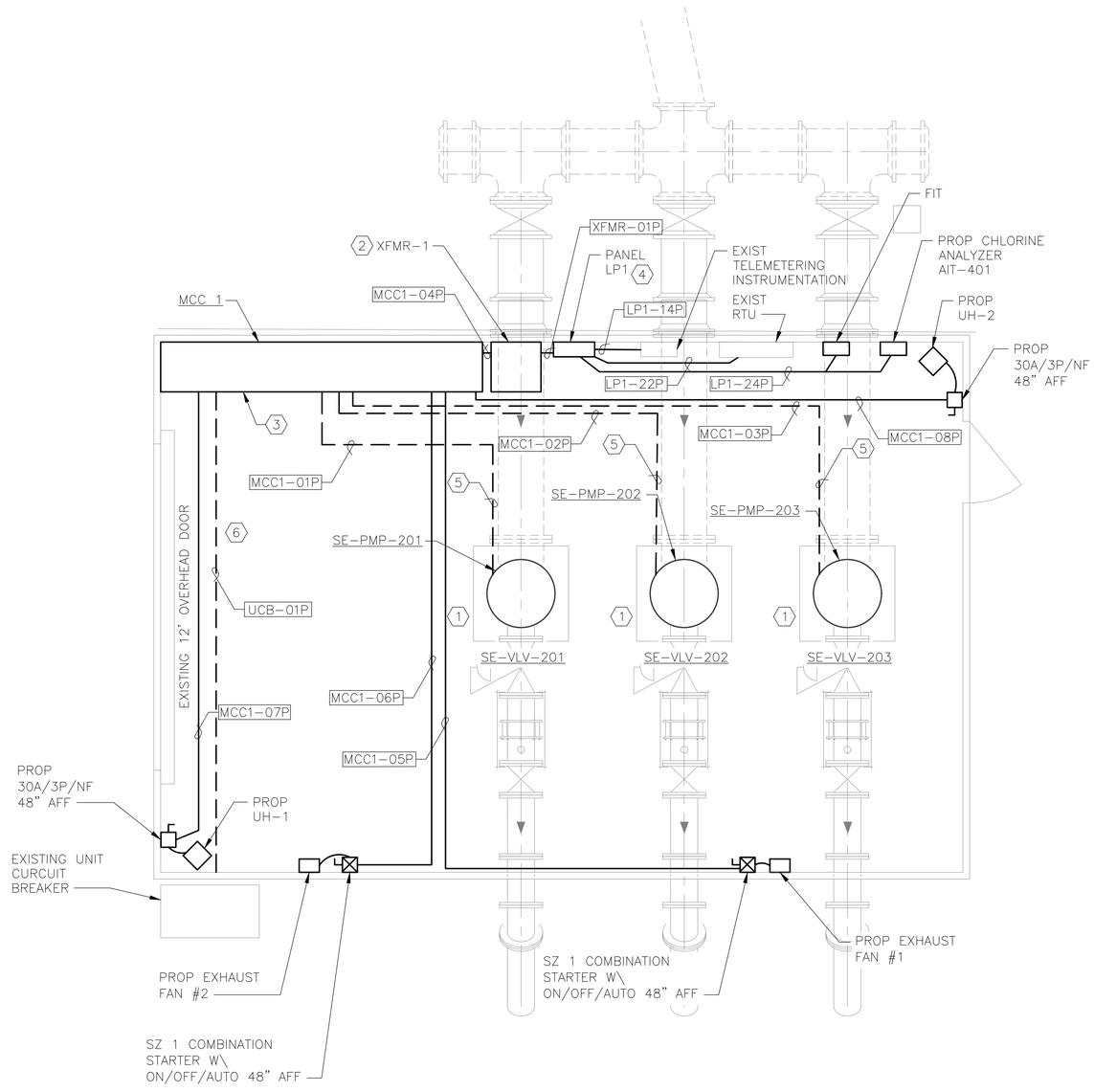

SOUTHEAST GST – POWER PLAN

2 1 0 4
SCALE IN FEET

N

NOTES BY SYMBOL (X)

1. PROVIDE 300HP VERTICAL MOTOR AND FIELD VERIFY COUPLING AND MOTOR SUPPORTS.
2. PROVIDE 30KVA 480–208/120V Δ–Y TRANSFORMER.
3. PROVIDE MCC 1. RE: EA–6 FOR ONE LINE DIAGRAM.
4. PROVIDE PANEL LP1 RE: EZ–2 FOR PANEL SCHEDULE.
5. ROUTE CONDUCTORS FROM MCC TO MOTOR IN EXISTING CONDUITS.
6. PROVIDE CONDUCTORS IN EXISTING CONDUIT.

NOTES:

1. ROUTE ALL CONDUITS SUCH THAT THEY DO NOT INTERFERE WITH CRANE OPERATION.

TEXAS REGISTERED ENGINEERING FIRM F-13810
LKC-ES ENGINEERING SERVICE
CP&Y, INC.
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ROUND ROCK TEXAS

6/01/17
TIM E. CAMPBELL 81011 REGISTERED PROFESSIONAL ENGINEER STATE OF TEXAS

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1"
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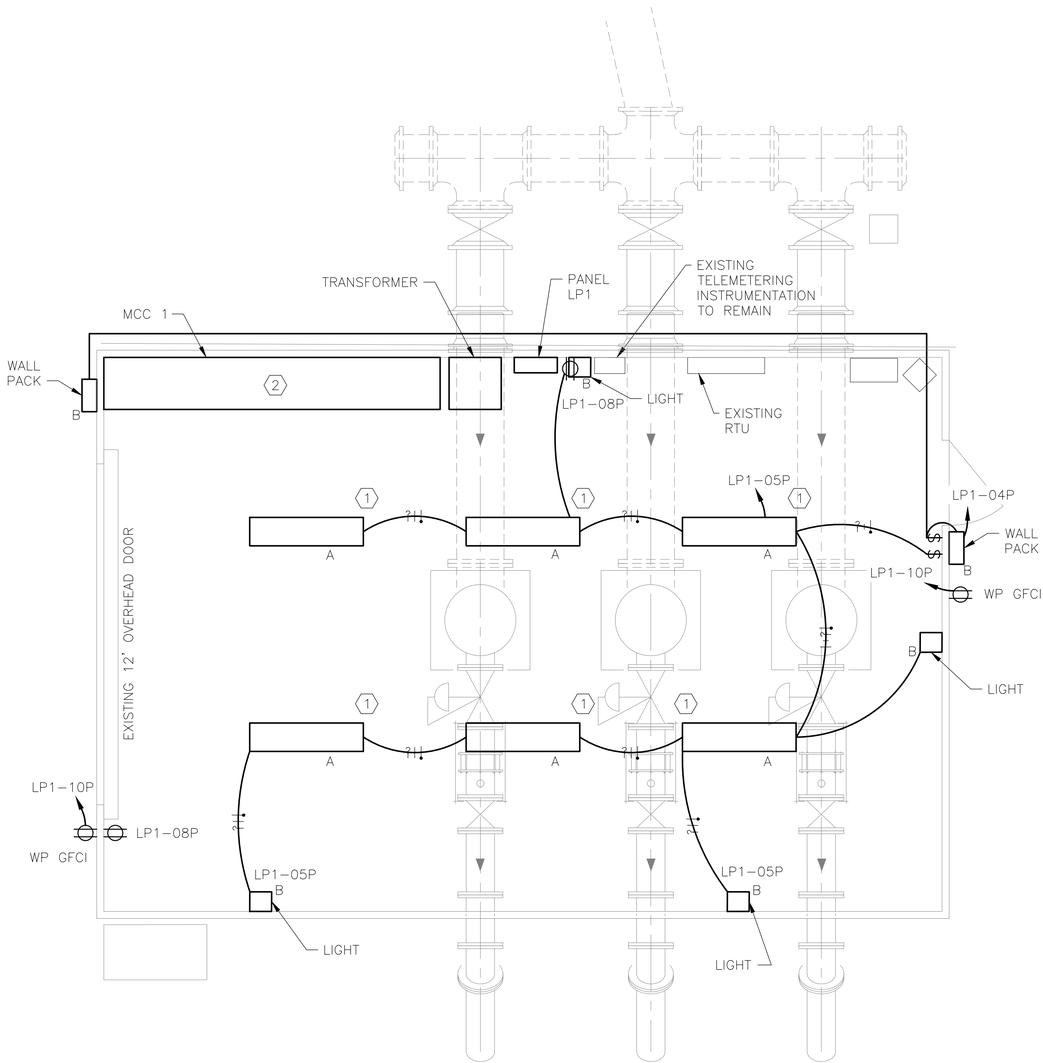
CITY OF ROUND ROCK
SOUTHEAST GST & SOUTH 81 EST
PUMP STATION IMPROVEMENTS

ELECTRICAL POWER PLAN – SOUTHEAST GST

Date: JUNE 2017
Designed: J. GONZALEZ
Drawn: T. FORNEY
Reviewed: T. CAMPBELL
CP&Y Proj. No. RNDR14486

SHEET
EA–3
SHEET 34 OF 57

REFERENCES: RNDR14486 PDR SE EMbase.dwg RNDR14486 PDR SE ESbase.dwg RNDR14486_Border_Base.1
Jun 01, 2017 - 3:10pm \\kc-es\projects\rndr14486 round rock evaluation southeast gst & south 81 est pump station improvements per\Drawings\Electrical\EA-3 SOUTHEAST POWER PLAN.dwg LAYOUT: Layout1 USER:



N

NOTES BY SYMBOL ⟨X⟩

1.	MOUNT LIGHTS SO THAT THEY DO NOT INTERFERE WITH CRANE OPERATION.
2.	BOND TO EXISTING GROUNDING.

NOTES:

1. RE: EZ-2 FOR FIXTURE SCHEDULE.

SOUTHEAST GST – LIGHTING AND RECEPTACLE PLAN

2 1 0 4
SCALE IN FEET

TEXAS REGISTERED ENGINEERING FIRM F-13910
LKC-ES ENGINEERING SERVICE

CP&Y, INC.
TBPE FIRM REGISTRATION NO. #F-1741

ROUND ROCK TEXAS

STATE OF TEXAS
TIM E. CAMPBELL
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ENGINEER
6/01/17

NO.	REVISION	BY	DATE

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0 1"

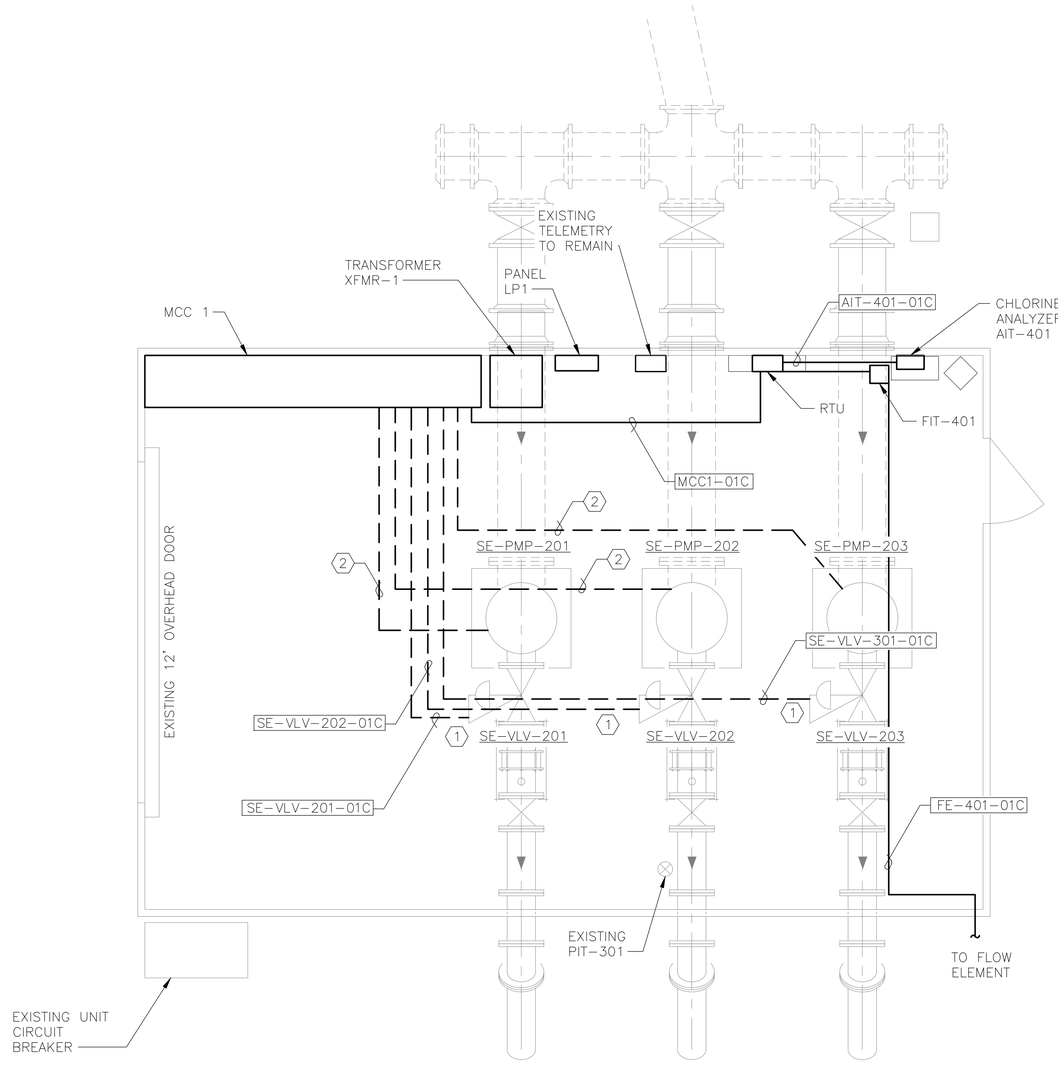
CITY OF ROUND ROCK
SOUTHEAST GST & SOUTH 81 EST
PUMP STATION IMPROVEMENTS

LIGHTING & RECEPTACLE
PLAN – SOUTHEAST GST

Date: JUNE 2017
Designed: J. GONZALEZ
Drawn: T. FORNEY
Reviewed: T. CAMPBELL
CP&Y Proj. No. RNDR14486

SHEET
EA-4
SHEET 35 OF 57

REFERENCES: RNDR14486 PDR SE EMbase.dwg RNDR14486 PDR SE ESbase.dwg RNDR14486_Border_Base.1
Jun 01, 2017 - 3:11pm \\lkc-es\projects\rndr14486 round rock evaluation southeast gst & south 81 est pump station improvements per\Drawings\Electrical\EA-4 SOUTHEAST LIGHTING,GRND AND RECP PLAN.dwg LAYOUT: Layout1 USER:



SOUTHEAST GST – CONTROL PLAN

2 1 0 4

SCALE IN FEET

N

NOTES BY SYMBOL (X)	
1.	PROVIDE CABLES IN EXISTING CONDUIT.
2.	PROVIDE CONDUCTOR TO MOTOR SPACE HEATER IN EXISTING CONDUIT.
3.	EXISTING PRESSURE TRANSMITTER TO REMAIN.

NOTES:

1. RE: EA-8 FOR INTERCONNECTION DIAGRAM.

TEXAS REGISTERED ENGINEERING FIRM F-13810

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CP&Y, INC.

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STATE OF TEXAS TIM E. CAMPBELL 81011 REGISTERED PROFESSIONAL ENGINEER 6/01/17

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1"
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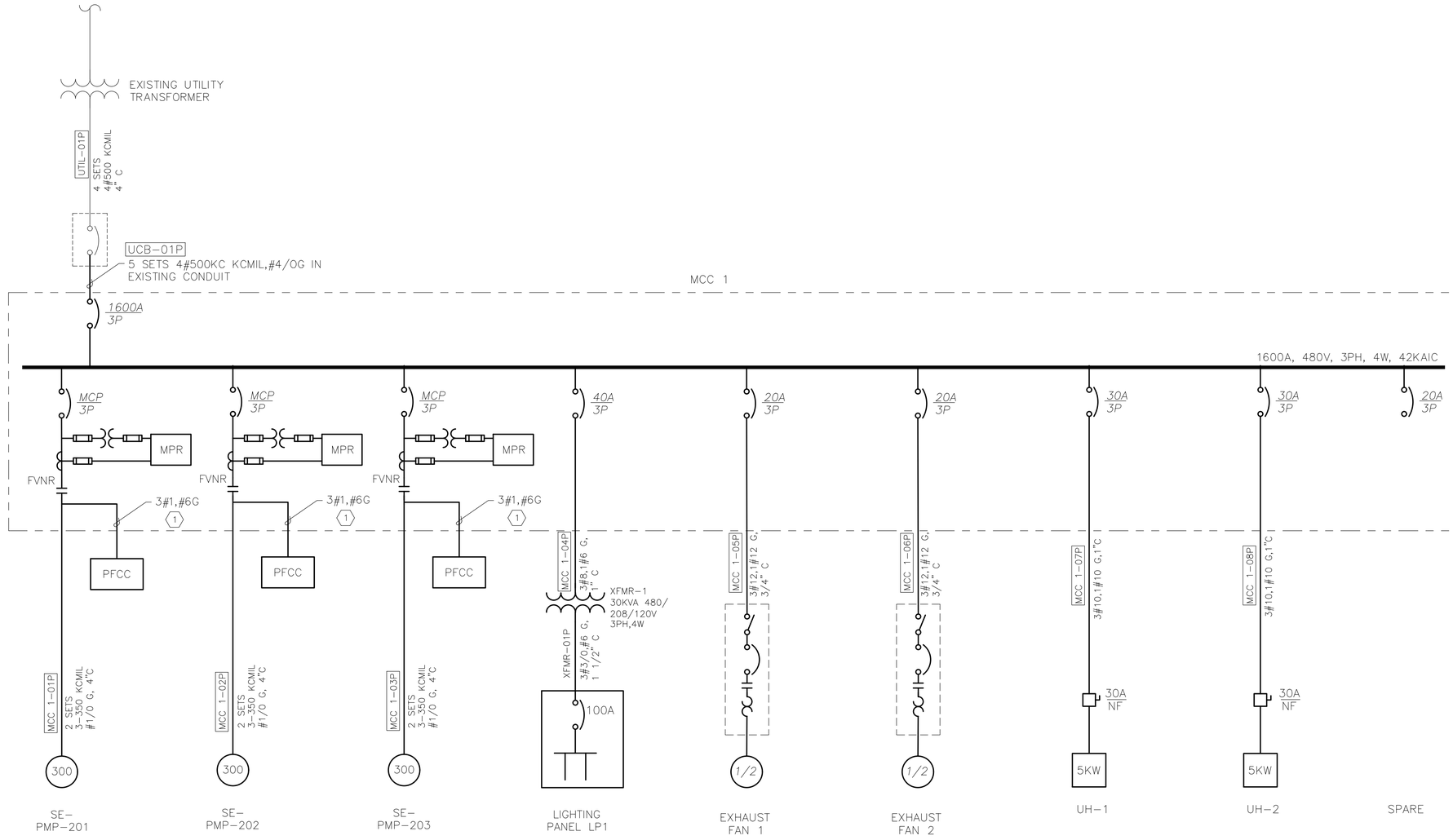
CITY OF ROUND ROCK
SOUTHEAST GST & SOUTH 81 EST
PUMP STATION IMPROVEMENTS

ELECTRICAL CONTROL
PLAN – SOUTHEAST GST

Date: JUNE 2017
Designed: J. GONZALEZ
Drawn: T. FORNEY
Reviewed: T. CAMPBELL
CP&Y Proj. No. RNDR14486

SHEET
EA-5
SHEET 36 OF 57

REFERENCES: RNDR14486 PDR SE EMbase.dwg RNDR14486 PDR SE ESbase.dwg RNDR14486_Border_Base.1
Jun 01, 2017 – 3:13pm \\lkc-es\projects\rndr14486 round rock evaluation southeast gst & south 81 est pump station improvements per\Drawings\Electrical\EA-5 SOUTHEAST CONTROL PLAN.dwg LAYOUT: Layout1 USER:



SOUTHEAST GST – ELECTRICAL ONE-LINE DIAGRAM

NTS

NOTES BY SYMBOL (X)

1. CONDUCTOR SIZE MUST BE ADJUSTED TO ACTUAL PFCC PROVIDED.

TEXAS REGISTERED ENGINEERING FIRM F-13910
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CP&Y, INC.
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ROUND ROCK TEXAS

STATE OF TEXAS TIM E. CAMPBELL 81011 REGISTERED PROFESSIONAL ENGINEER 06/01/17

NO.	REVISION	BY	DATE

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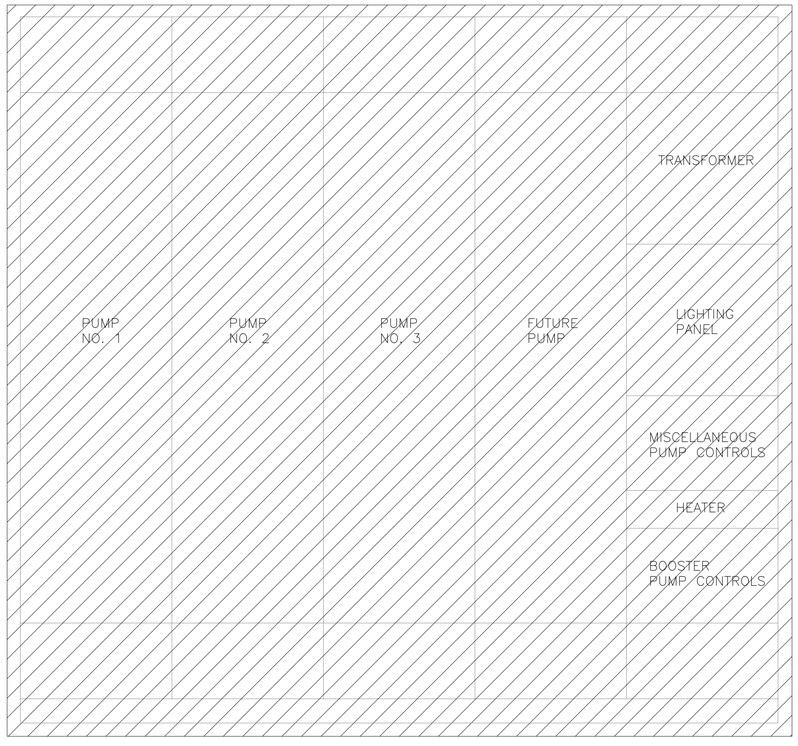
CITY OF ROUND ROCK
SOUTHEAST GST & SOUTH 81 EST
PUMP STATION IMPROVEMENTS
ELECTRICAL ONE-LINE DIAGRAM – SOUTHEAST GST

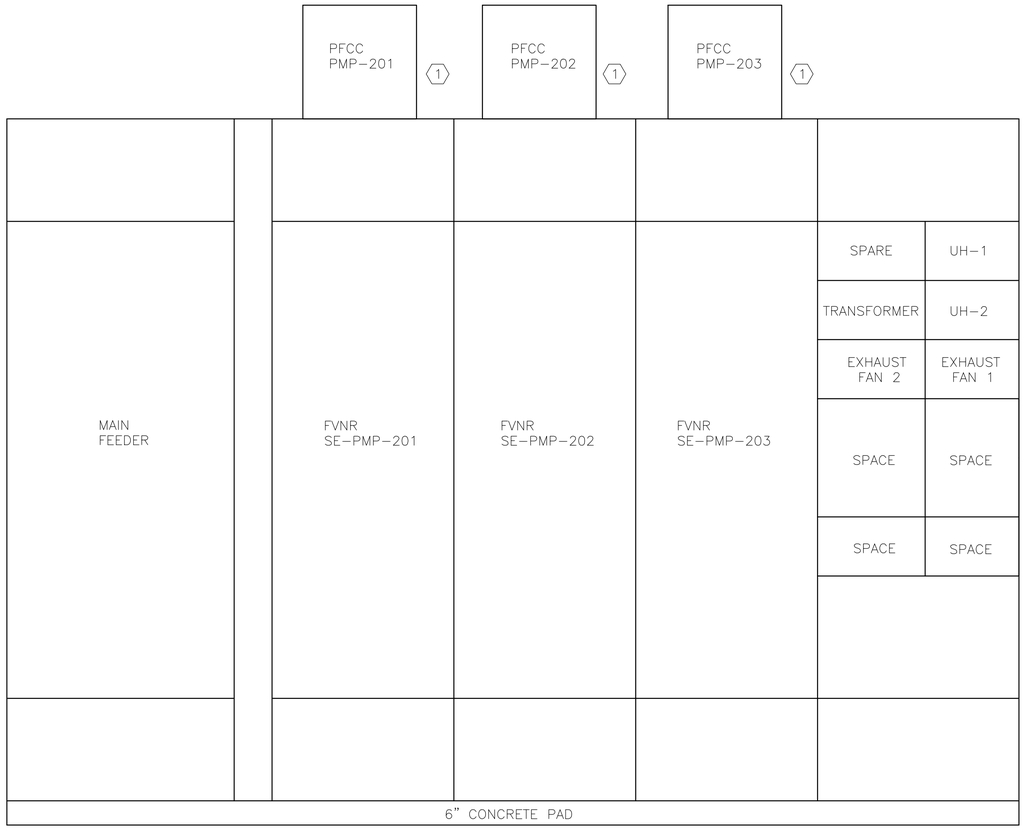
Date: JUNE 2017
Designed: J. GONZALEZ
Drawn: T. FORNEY
Reviewed: T. CAMPBELL
CP&Y Proj. No. RNDR14486

SHEET
EA-6
SHEET 37 OF 57

REFERENCES:: RNDR14486_Border_Base.1
Jun 01, 2017 - 3:14pm \\lkc-es\projects\rndr14486 round rock evaluation southeast gst & south 81 est pump station improvements per\Drawings\Electrical\EA-6 SOUTHEAST ONE-LINE DIAGRAM.dwg LAYOUT: Layout1 USER:



MCC 1 DEMOLITION ELEVATION



MCC 1 MODIFIED ELEVATION

NOTES BY SYMBOL ⟨X⟩

1. PFCC TO BE MOUNTED ON TOP OF MCC.

TEXAS REGISTERED ENGINEERING FIRM F-13910

LKC-ES ENGINEERING SERVICE

CP&Y, INC.
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ROUND ROCK TEXAS

STATE OF TEXAS
TIM E. CAMPBELL
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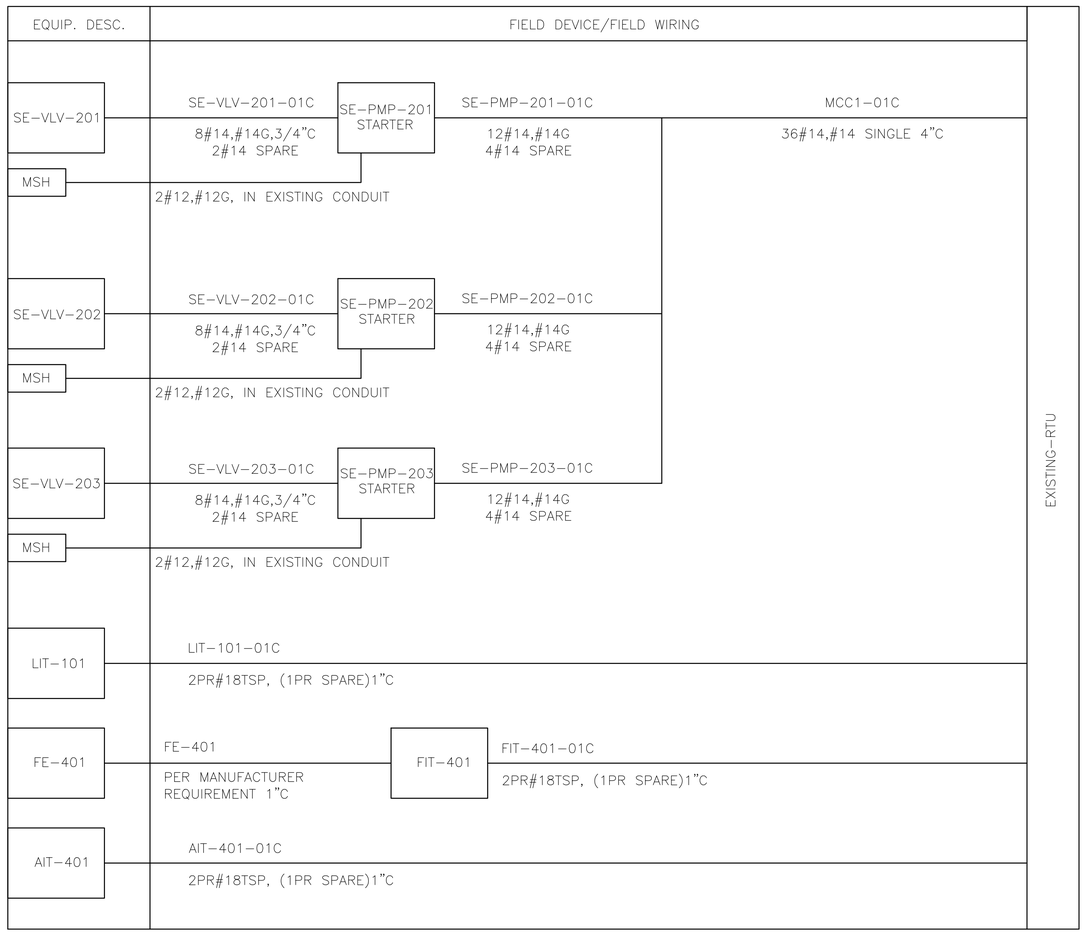
CITY OF ROUND ROCK
SOUTHEAST GST & SOUTH 81 EST
PUMP STATION IMPROVEMENTS

MCC ELEVATION – SOUTHEAST GST

Date: JUNE 2017
Designed: J. GONZALEZ
Drawn: T. FORNEY
Reviewed: T. CAMPBELL
CP&Y Proj. No. RNDR14486

SHEET
EA–7
SHEET 38 OF 57

REFERENCES: RNDR14486_Border_Base.1
Jun 01, 2017 – 3:14pm \\lkc-es\projects\rndr14486 round rock evaluation southeast gst & south 81 est pump station improvements per\Drawings\Electrical\EA-7 SOUTHEAST MCC ELEVATION.dwg LAYOUT: Layout1 USER:



SOUTHEAST GST – INTERCONNECT DIAGRAM

REFERENCES: RNDR14486_Border_Base.1
Jun 01, 2017 - 3:15pm \\lkc-es\projects\rndr14486 round rock evaluation southeast gst & south 81 est pump station improvements pe\Drawings\Electrical\EA-8 SOUTHEAST INTERCONNECT DIAGRAM.dwg LAYOUT: Layout1 USER:

TEXAS REGISTERED ENGINEERING FIRM F-13910

LKC-ES ENGINEERING SERVICE

CP&Y, INC.
TBPE FIRM REGISTRATION NO. #F-1741

ROUND ROCK TEXAS

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06/01/17

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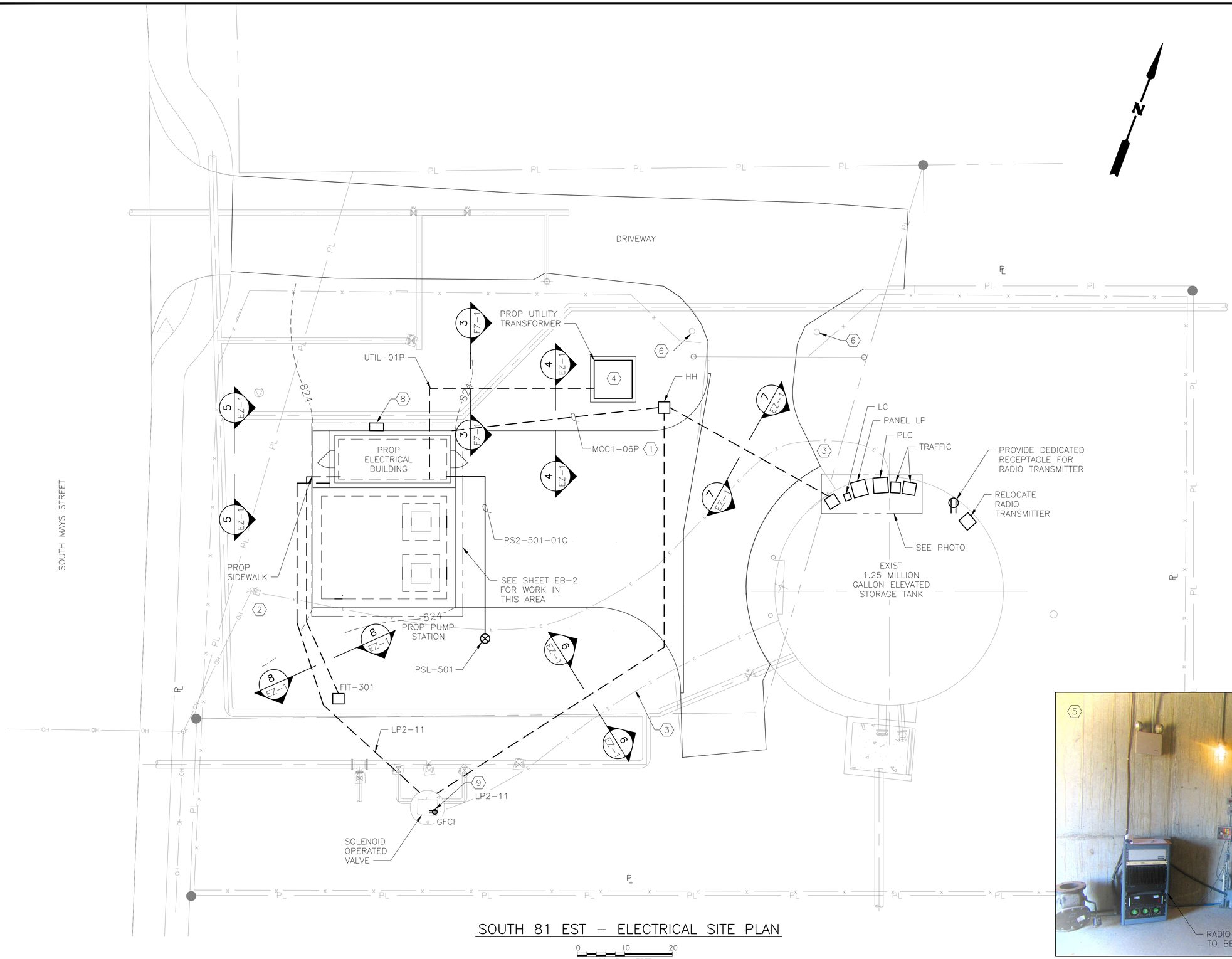
CITY OF ROUND ROCK
SOUTHEAST GST & SOUTH 81 EST
PUMP STATION IMPROVEMENTS
INTERCONNECT DIAGRAM – SOUTHEAST GST

Date: JUNE 2017
Designed: J. GONZALEZ
Drawn: T. FORNEY
Reviewed: T. CAMPBELL
CP&Y Proj. No. RNDR14486

SHEET
EA-8
SHEET 39 OF 57



SOUTH 81 EST – ELECTRICAL SITE PLAN

0 10 20
SCALE IN FEET

NOTES BY SYMBOL (X)

1. PROVIDED TRANSFORMER AND CONDUCTORS TO EXISTING LIGHTING PANEL.
2. DEMOLISH EXISTING SERVICE TO LIGHTING PANEL IN ELEVATED STORAGE TANK. COORDINATE WITH ONCOR FOR REMOVAL OF METER AND TRANSFORMER. DEMOLISH CONDUCTORS FROM METER TO PANEL. PROVIDE TEMPORARY POWER FOR PANEL DURING CONSTRUCTION.
3. DEMOLISH ABOVE GRADE CONDUIT TO PANEL. SAW OFF CONDUIT FLUSH WITH FLOOR AND FILL WITH GROUT.
4. PROVIDE CONDUITS TO AERIAL GROUND POLE. COORDINATE WITH ONCOR.
5. RELOCATE RADIO TRANSCEIVER.
6. REMOVE CONDUCTORS AND CAP PEDESTALS.
7. EXISTING VALVE VAULT. REMOVE CONDUCTORS FROM VAULT TO ELEVATED STORAGE TANK. REMOVE CONDUIT ABOVE GRADE.
8. GENERATOR TERMINATION CABINET 3ø 600A.
9. MOUNTED SIMPLEX WP/GFCI RECEPTACLE BELOW HATCH INACCESSIBLE LOCATION.

TEXAS REGISTERED ENGINEERING FIRM F-13910
LKC-ES ENGINEERING SERVICE

CP&Y, INC.
TBPE FIRM REGISTRATION NO. #F-1741

ROUND ROCK TEXAS

STATE OF TEXAS
TIM E. CAMPBELL
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LICENSED PROFESSIONAL ENGINEER
6/01/17

NO.	REVISION	BY	DATE

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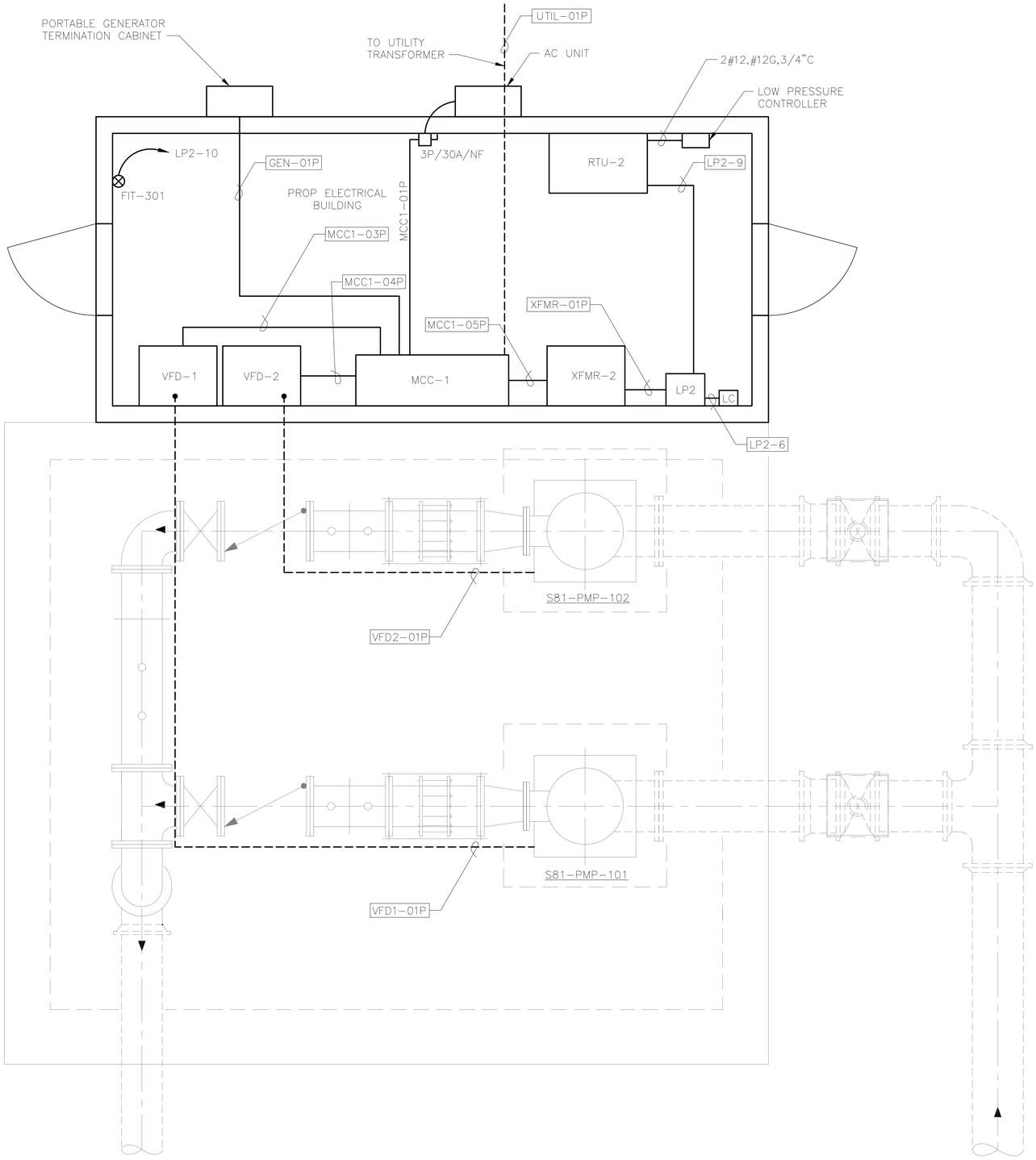
CITY OF ROUND ROCK
SOUTHEAST GST & SOUTH 81 EST
PUMP STATION IMPROVEMENTS
ELECTRICAL SITE PLAN – SOUTH 81 EST

Date: JUNE 2017
Designed: J. GONZALEZ
Drawn: T. FORNEY
Reviewed: T. CAMPBELL
CP&Y Proj. No. RNDR14486

SHEET
EB-1
SHEET 40 OF 57

REFERENCES: RNDR14486_Border_Base1.dwg RNDR14486 S81-E-Cbase.dwg RNDR14486 S81-P-Cbase.dwg RNDR14486 S81-P-Mbase.dwg RNDR14486 S81-P-Sbase
Jun 01, 2017 - 3:17pm \\lkc-es\projects\rndr14486 round rock evaluation southeast gst & south 81 est pump station improvements per\Drawings\Electrical\EB-1 SOUTH 81 SITE PLAN.dwg LAYOUT: Layout1 USER:



SOUTH 81 EST – POWER PLAN

2 1 0 2
SCALE IN FEET

NOTES:

1. PROVIDE POWER TO LOW PRESSURE CONTROLLER FROM RTU-2 UPS.

TEXAS REGISTERED ENGINEERING FIRM F-13810

LKC-ES ENGINEERING SERVICE

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ROUND ROCK TEXAS

6/01/17
TIM E. CAMPBELL 81011 LICENSED PROFESSIONAL ENGINEER STATE OF TEXAS

NO.	REVISION	BY	DATE

BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE

VERIFY SCALE 0 1"

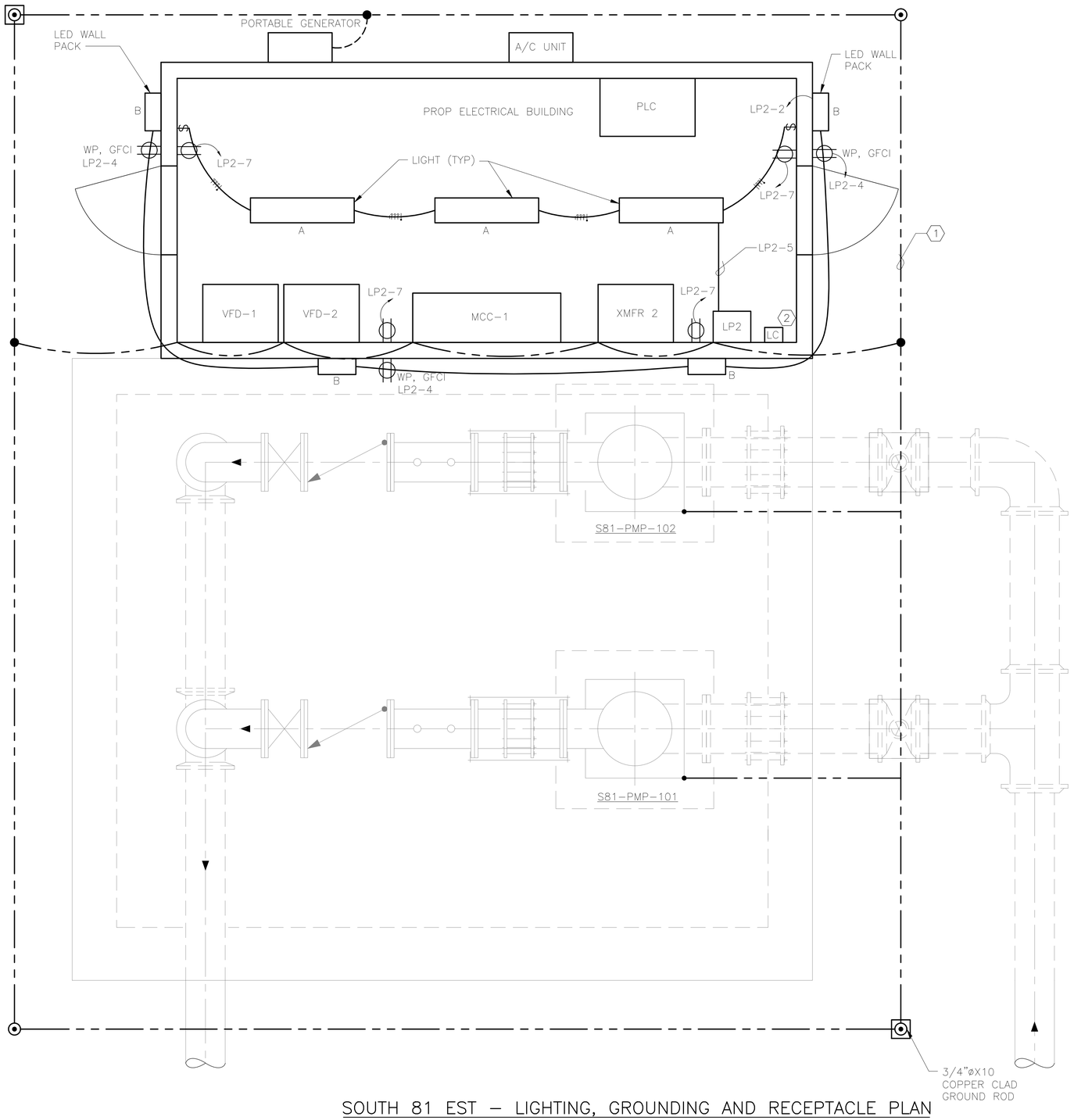
CITY OF ROUND ROCK
SOUTHEAST GST & SOUTH 81 EST
PUMP STATION IMPROVEMENTS

ELECTRICAL POWER
PLAN – SOUTH 81 EST

Date: JUNE 2017
Designed: J. GONZALEZ
Drawn: T. FORNEY
Reviewed: T. CAMPBELL
CP&Y Proj. No. RNDR14486

SHEET
EB-2
SHEET 41 OF 57

REFERENCES: RNDR14486 PDR S81 PSbase.dwg RNDR14486 PDR S81 PCbase.dwg RNDR14486 PDR S81 PMbase.dwg RNDR14486 S81-E-EBase.dwg RNDR14486 S81-P-Sbase.dwg
Jun 01, 2017 - 3:18pm \\lkc-es\projects\rndr14486 round rock evaluation southeast gst & south 81 est pump station improvements per\Drawings\Electrical\EB-2 SOUTH 81 POWER PLAN.dwg LAYOUT: Layout1 USER:



SOUTH 81 EST – LIGHTING, GROUNDING AND RECEPTACLE PLAN

2 1 0 2
SCALE IN FEET

N

TEXAS REGISTERED ENGINEERING FIRM F-13910

LKC-ES ENGINEERING SERVICE

CP&Y, INC.
TBPE FIRM REGISTRATION NO. #F-1741

ROUND ROCK TEXAS

6/01/17
TIM E. CAMPBELL 81011 REGISTERED PROFESSIONAL ENGINEER STATE OF TEXAS

NOTES BY SYMBOL (X)

1.	4/0 AWG TINNED COPPER CONDUCTOR.
2.	LIGHTING CONTRACTOR PROVIDE PHOTOCELL ON EXTERIOR.

NOTES:
1. PROVIDE GROUNDING IN ACCORDANCE WITH THE NEC. BOND REBAR ENCLOSURE MOTORS ETC.

NO.	REVISION	BY	DATE

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0 1"

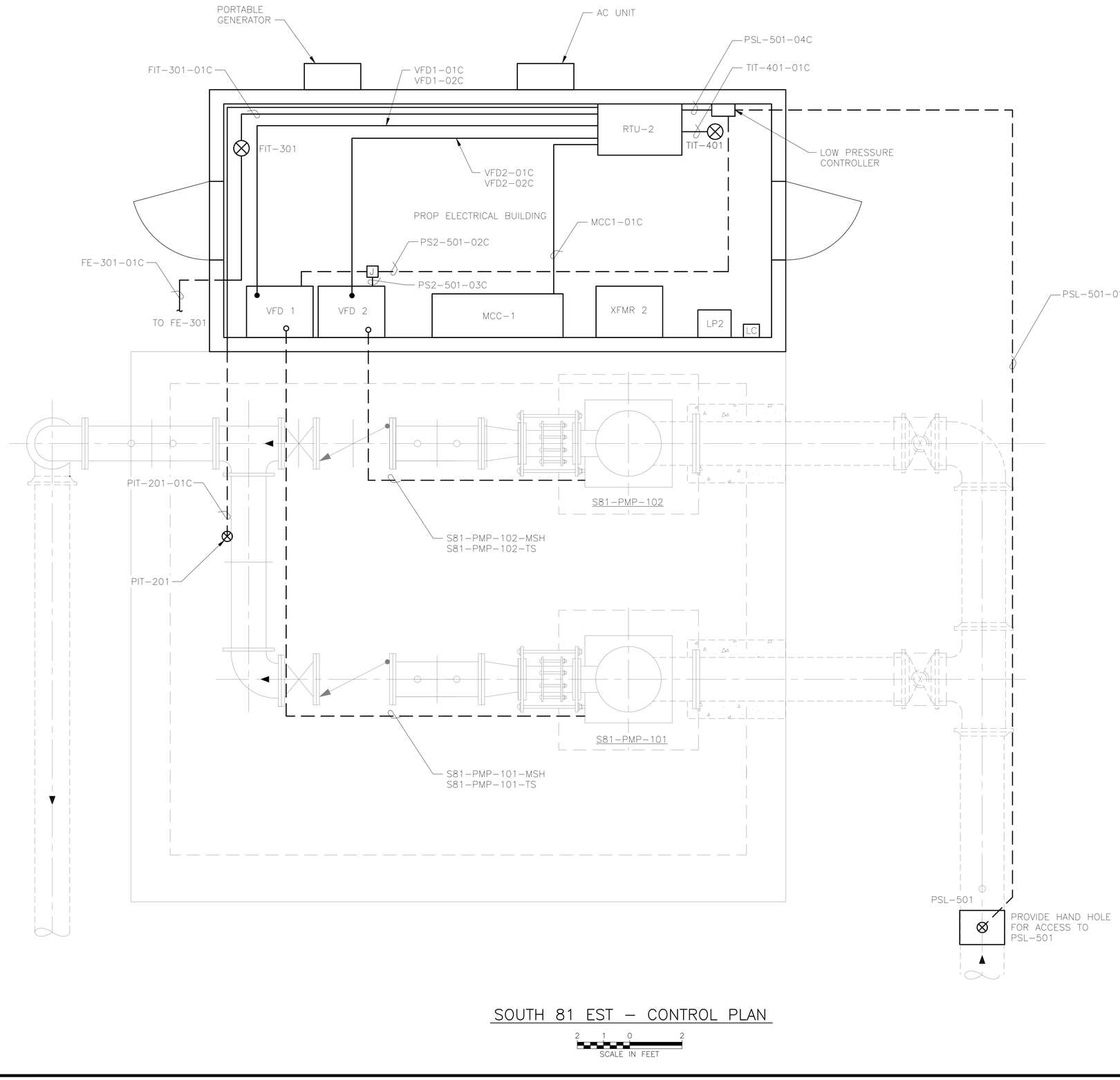
CITY OF ROUND ROCK
SOUTHEAST GST & SOUTH 81 EST
PUMP STATION IMPROVEMENTS

LIGHTING, GROUNDING AND RECEPTACLE PLAN – SOUTH 81 EST

Date: JUNE 2017
Designed: J. GONZALEZ
Drawn: T. FORNEY
Reviewed: T. CAMPBELL
CP&Y Proj. No. RNDR14486

SHEET
EB–3
SHEET 42 OF 57

REFERENCES: RNDR14486 PDR S81 PSbase.dwg RNDR14486 PDR S81 PCbase.dwg RNDR14486 PDR S81 PMbase.dwg RNDR14486 S81-E-EBase.dwg RNDR14486 S81-P-Sbase.dwg
Jun 01, 2017 - 3:22pm \\lkc-es\projects\rndr14486 round rock evaluation southeast gst & south 81 est pump station improvements per\Drawings\Electrical\EB-3 SOUTH 81 LIGHTING,GRND AND RECP PLAN.dwg LAYOUT: Layout1 USER:



SOUTH 81 EST – CONTROL PLAN

2 1 0 2
SCALE IN FEET

N

TEXAS REGISTERED ENGINEERING FIRM F-13910

LKC-ES ENGINEERING SERVICE

CP&Y, INC.
TBPE FIRM REGISTRATION NO. #F-1741

ROUND ROCK TEXAS

STATE OF TEXAS
TIM E. CAMPBELL
81011
REGISTERED PROFESSIONAL ENGINEER
6/01/17

NO.	REVISION	BY	DATE

VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE
0 1"

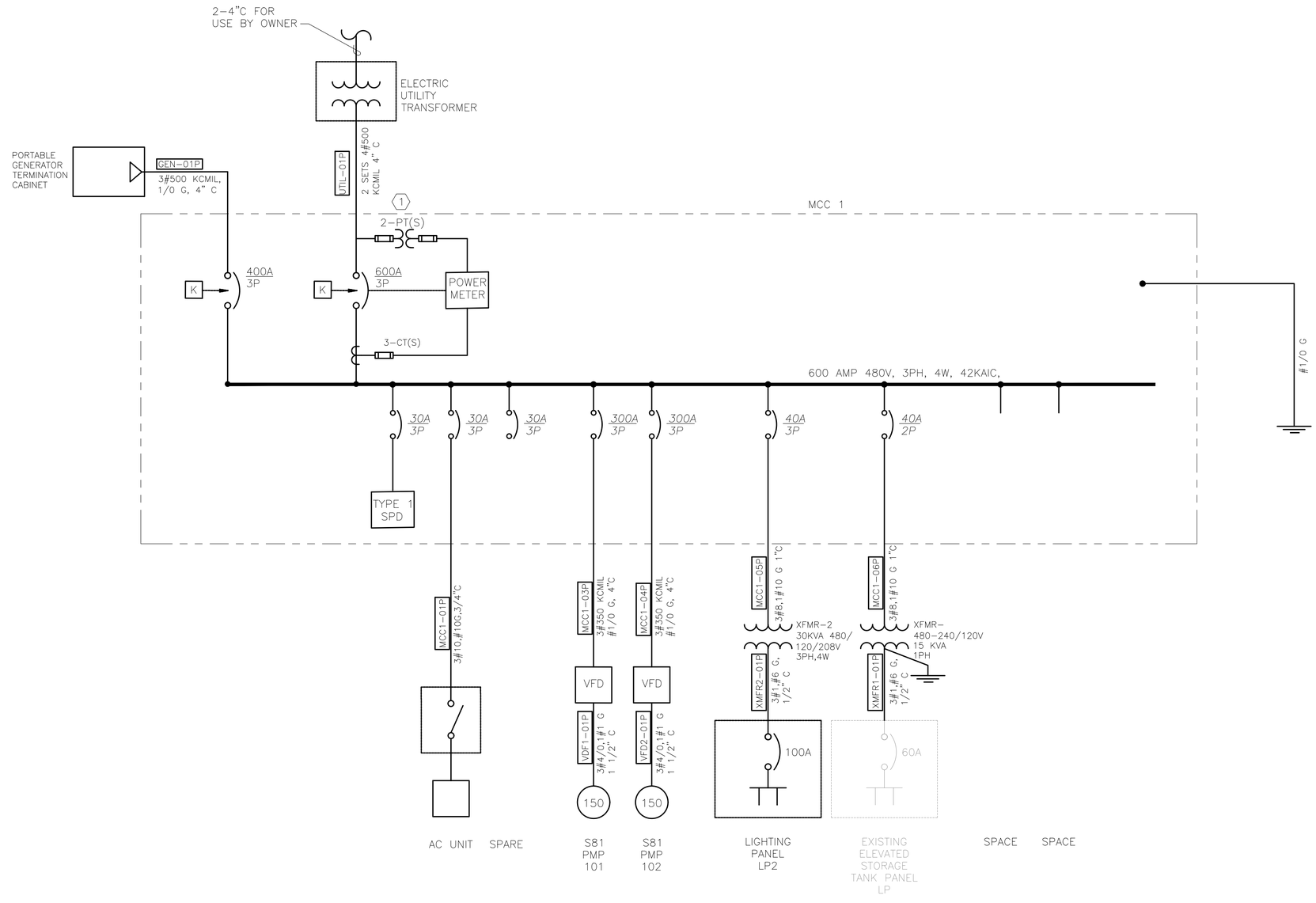
CITY OF ROUND ROCK
SOUTHEAST GST & SOUTH 81 EST
PUMP STATION IMPROVEMENTS

ELECTRICAL CONTROL PLAN – SOUTH 81 EST

Date: JUNE 2017
Designed: J. GONZALEZ
Drawn: T. FORNEY
Reviewed: T. CAMPBELL
CP&Y Proj. No. RNDR14486

SHEET
EB-4
SHEET 43 OF 57

REFERENCES: RNDR14486 PDR S81 PSbase.dwg RNDR14486 PDR S81 PCbase.dwg RNDR14486 PDR S81 PMbase.dwg RNDR14486 S81-E-EBase.dwg RNDR14486 S81-P-Sbase.dwg
Jun 01, 2017 - 3:26pm \\lkc-es\projects\rndr14486 round rock evaluation southeast gst & south 81 est pump station improvements per\Drawings\Electrical\EB-4 SOUTH 81 CONTROL PLAN.dwg LAYOUT: Layout1 USER:



SOUTH 81 EST – ONE-LINE DIAGRAM

NOT TO SCALE

NOTES BY SYMBOL (X)	
1.	BOND NEUTRAL TO GROUND.

TEXAS REGISTERED ENGINEERING FIRM F-13910

LKC-ES ENGINEERING SERVICE

CP&Y, INC.
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ROUND ROCK TEXAS

STATE OF TEXAS
TIM E. CAMPBELL
81011
REGISTERED PROFESSIONAL ENGINEER
6/01/17

NO.	REVISION	BY	DATE

VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE
0 1"

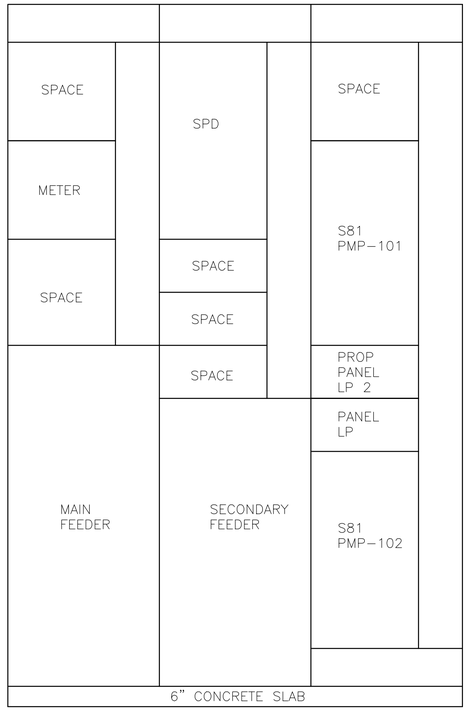
CITY OF ROUND ROCK
SOUTHEAST GST & SOUTH 81 EST
PUMP STATION IMPROVEMENTS

ELECTRICAL ONE-LINE DIAGRAM – SOUTH 81 EST

Date: JUNE 2017
Designed: J. GONZALEZ
Drawn: T. FORNEY
Reviewed: T. CAMPBELL
CP&Y Proj. No. RNDR14486

SHEET
EB-5
SHEET 44 OF 57

REFERENCES: RNDR14486 PDR S81 PSbase.dwg RNDR14486_Border_Base.1
Jun 01, 2017 - 3:27pm \\lkc-es\projects\rndr14486 round rock evaluation southeast gst & south 81 est pump station improvements per\Drawings\Electrical\EB-5 SOUTH 81 ONE-LINE DIAGRAM.dwg LAYOUT: Layout1 USER:



SOUTH 81 – MCC ELEVATION

NTS

REFERENCES: RNDR14486_Border_Base1
Jun 01, 2017 – 3:29pm \\lkc-es\projects\rndr14486 round rock evaluation southeast gst & south 81 est pump station improvements per\Drawings\Electrical\EB-6 SOUTH 81 MCC ELEVATIONa.dwg LAYOUT: Layout1 USER:

TEXAS REGISTERED ENGINEERING FIRM F-13910

LKC-ES ENGINEERING SERVICE

CP&Y, INC.
TBPE FIRM REGISTRATION NO. #F-1741

ROUND ROCK TEXAS

STATE OF TEXAS
TIM E. CAMPBELL
81011
REGISTERED PROFESSIONAL ENGINEER
06/01/17

NO.	REVISION	BY	DATE

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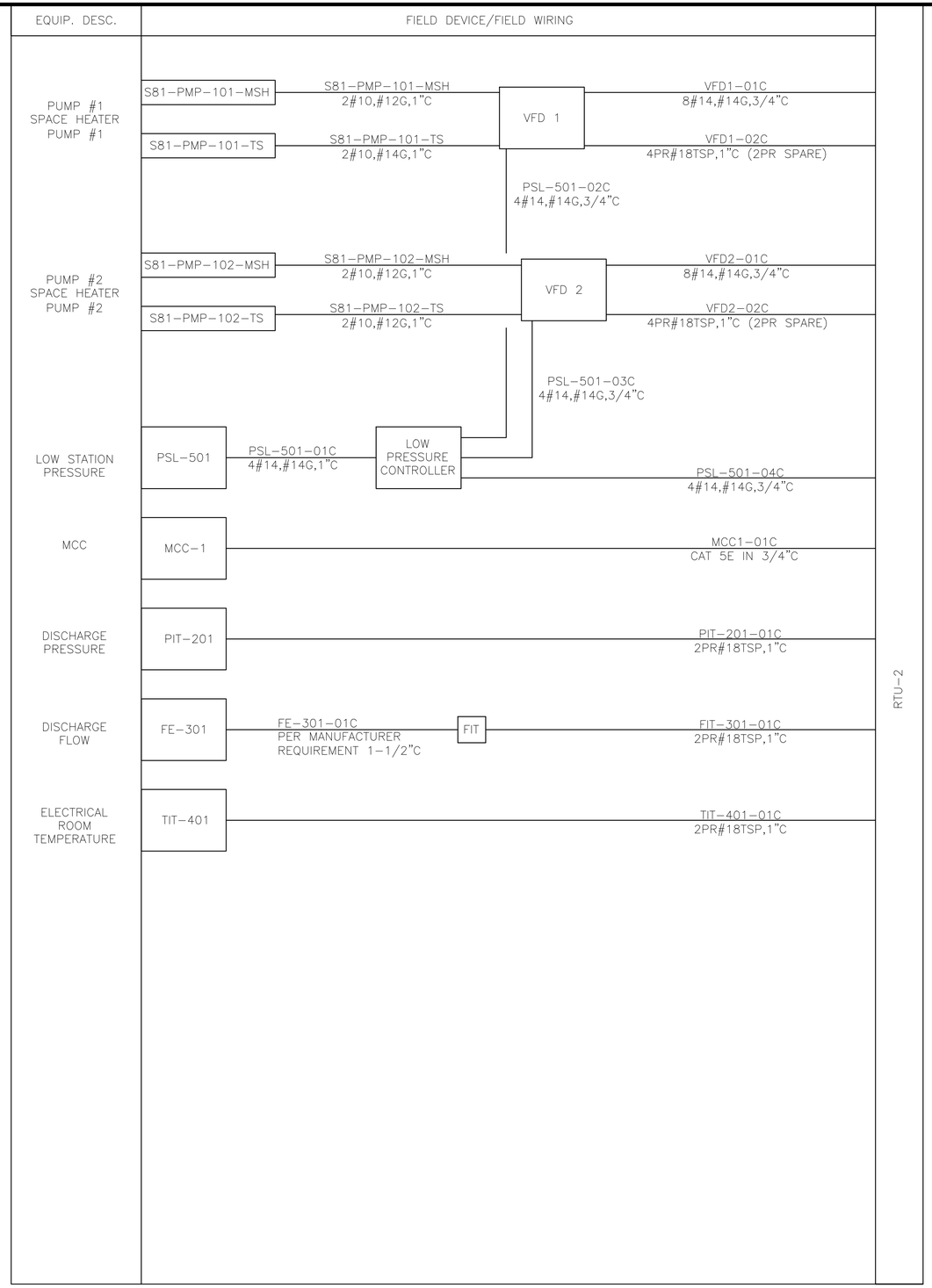
0 1"

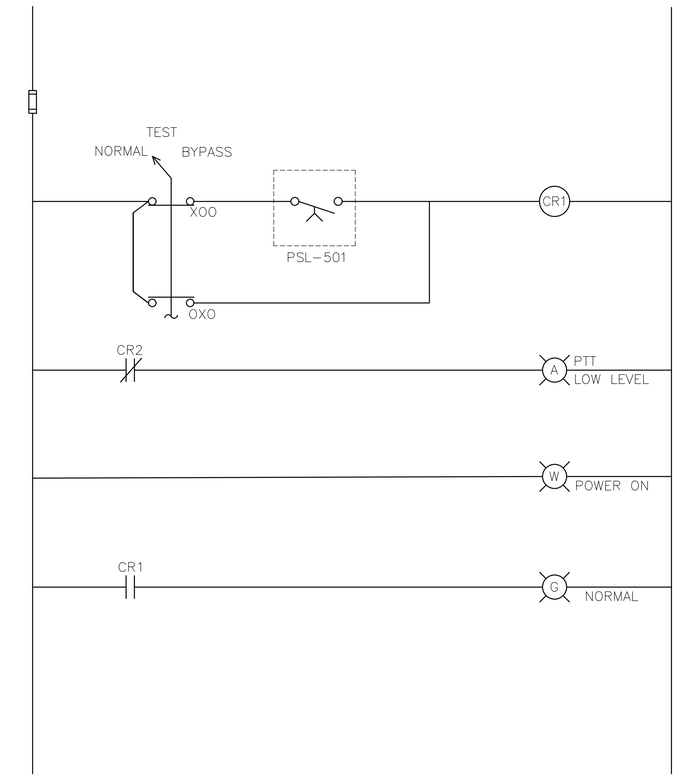
CITY OF ROUND ROCK
SOUTHEAST GST & SOUTH 81 EST
PUMP STATION IMPROVEMENTS

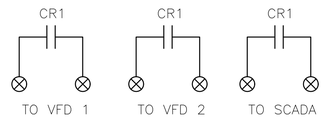
MCC ELEVATION – SOUTH 81 EST

Date: JUNE 2017
Designed: J. GONZALEZ
Drawn: T. FORNEY
Reviewed: T. CAMPBELL
CP&Y Proj. No. RNDR14486

SHEET
EB–6
SHEET 45 OF 57







SOUTH 81 – INTERCONNECT DIAGRAM

NTS

TEXAS REGISTERED ENGINEERING FIRM F-13910

LKC-ES ENGINEERING SERVICE

CP&Y, INC.
TBPE FIRM REGISTRATION NO. #F-1741

ROUND ROCK TEXAS

6/01/17
TIM E. CAMPBELL 81011 REGISTERED PROFESSIONAL ENGINEER STATE OF TEXAS

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CITY OF ROUND ROCK
SOUTHEAST GST & SOUTH 81 EST
PUMP STATION IMPROVEMENTS
INTERCONNECT DIAGRAM – SOUTH 81 EST

Date: JUNE 2017
Designed: J. GONZALEZ
Drawn: T. FORNEY
Reviewed: T. CAMPBELL
CP&Y Proj. No. RNDR14486

SHEET
EB-7
SHEET 46 OF 57

REFERENCES: RNDR14486_Border_Base1
Jun 01, 2017 – 3:30pm \\lkc-es\projects\rndr14486 round rock evaluation southeast gst & south 81 est pump station improvements per\Drawings\Electrical\EB-7 SOUTH 81 INTERCONNECT DIAGRAM.dwg LAYOUT: Layout1 USER:

3 MCC1-0IP
4 2 1/2" SPARE
5 FIBER OPTIC CABLE IN 2 1/2"C
6 2 1/2" SPARE

1 SE-01

1 LP2-01 2#12,#12G,1"C
2 FE-301-01C IN 1"C

2 SE-02

1 UTIL-01P
2 UTIL-02P

3 S81-01

1 MCC1-0IP
2 2 1/2" SPARE
3 FIBER OPTIC CABLE IN 2 1/2"C
4 2 1/2" SPARE

4 S81-02

1 4"C FOR ONCOR
2 4"C SPARE

5 S81-03

1 2"C 6#14,#14G
2 2"C 2PR#18TSP

6 S81-04

3 MCC1-0IP
4 2 1/2" SPARE
5 FIBER OPTIC CABLE IN 2 1/2"C
6 2 1/2" SPARE

7 S81-05

1 LP2-11-2#12,#12G,1"C
2 FE-301-01C IN 1"C

8 S81-06

SOUTHEAST GST & SOUTH 81 – DUCTBANK SECTIONS

NTS

TEXAS REGISTERED ENGINEERING FIRM F-13910
LKC-ES ENGINEERING SERVICE
CP&Y, INC.
TBPE FIRM REGISTRATION NO. #F-1741

ROUND ROCK TEXAS

6/01/17
TIM E. CAMPBELL 81011 REGISTERED PROFESSIONAL ENGINEER STATE OF TEXAS

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CITY OF ROUND ROCK
SOUTHEAST GST & SOUTH 81 EST
PUMP STATION IMPROVEMENTS

ELECTRICAL DUCTBANK SECTIONS

Date: JUNE 2017
Designed: J. GONZALEZ
Drawn: T. FORNEY
Reviewed: T. CAMPBELL
CP&Y Proj. No. RNDR14486

SHEET
EZ-1
SHEET 47 OF 57

REFERENCES: RNDR14486_Border_Base.1
Jun 01, 2017 - 3:35pm \\lkc-es\projects\rndr14486 round rock evaluation southeast gst & south 81 est pump station improvements per\Drawings\Electrical\EZ-1 DUCTBANK SECTIONS.dwg LAYOUT: Layout1 USER:

LIGHTING PANEL LP1 (NEMA 12 ENCLOSURE)

LOCATION SOUTHEAST GST PUMP STATION
MOUNTING WALL MOUNTED

120/208 VOLTS 3 PH 4 WIRE 225 AMP
MAIN 100A SHORTCKT 22000 RMS SYM AMPS

CKT	LOAD SERVED	BRKR	VOLT AMPS A	VOLT AMPS B	VOLT AMPS C	VOLT AMPS A	VOLT AMPS B	VOLT AMPS C	BRKR	LOAD SERVED	CKT
1	SPARE	20/1				1200			20/1	FLOOD LIGHTS	2
3	SPARE	20/1					500		20/1	EXTERIOR LIGHTS	4
5	INTERIOR LIGHTS	20/1			600				20/1	SPARE	6
7	SPARE	20/1				540			20/1	DUPLEX OUTLETS INTERIOR	8
9	SPARE	20/1					360		20/1	DUPLEX OUTLETS EXTERIOR	10
11	CONTROLS	20/1			500				20/1	SPARE	12
13	SUMP PUMP	20/1	750			500			20/1	TELEMETRY	14
15	LIGHTS- GROUND TANK	20/1		500					20/1	SPARE	16
17	RECEPT. FOR SUMP PUMP	20/1			700				20/1	SPARE	18
19	SPARE	20/1				500			20/1	TOTALIZER	20
21	SPARE	20/1					1000		20/1	RTU POWER	22
23	SPARE	20/1						500	20/1	CHLORINE ANALYZER	24
25	SPARE	20/1							20/1	SPARE	26
27	SPARE	20/1							20/1	SPARE	28
27	SPARE	20/1							20/1	SPARE	30
	TOTAL		750	500	800	2740	1860	500		TOTAL	

SOUTHEAST GST – PANEL LP1 SCHEDULE

LIGHTING PANEL LP2 (NEMA 12 ENCLOSURE)

LOCATION SOUTH 81 ELECTRICAL ROOM
MOUNTING WALL MOUNTED

120/208 VOLTS 3 PH 4 WIRE 100 AMP
MAIN 100A SHORTCKT 22000 RMS SYM AMPS

CKT	LOAD SERVED	BRKR	VOLT AMPS A	VOLT AMPS B	VOLT AMPS C	VOLT AMPS A	VOLT AMPS B	VOLT AMPS C	BRKR	LOAD SERVED	CKT
1	FIT-301	20/1	500			500			20/1	EXTERIOR LIGHTS	2
3	SPARE	20/1					500		20/1	EXTERIOR RECEPTACLES	4
5	INTERIOR LIGHTS	20/1			150			500	20/1	LIGHTING CONTACTOR	6
7	INTERIOR RECEPTACLES	20/1	720						20/1	SPARE	8
9	RTU-2	20/1		1000					20/1	SPARE	10
11	RECEPT. FOR SUMP PUMP	20/1			750				20/1	SPARE	12
13	SPARE	20/1							20/1	SPARE	14
15	SPARE	20/1							20/1	SPARE	16
17	SPARE	20/1							20/1	SPARE	18
19	SPACE	20/1								SPACE	20
21	SPACE									SPACE	22
23	SPACE									SPACE	24
	TOTAL		1220	1000	900	500	500	500		TOTAL	

SOUTH 81 – PANEL LP2 SCHEDULE

EXISTING LIGHTING PANEL LP EXISTING PANEL (NEMA 12 ENCLOSURE)

LOCATION ELEVATED STORAGE TANK
MOUNTING WALL MOUNTED

120/240 VOLTS 2 PH 3 WIRE 125 AMP
MAIN 60A SHORTCKT 22000 RMS SYM AMPS

CKT	LOAD SERVED	BRKR	VOLT AMPS A	VOLT AMPS B	VOLT AMPS C	VOLT AMPS A	VOLT AMPS B	VOLT AMPS C	BRKR	LOAD SERVED	CKT
1	MAIN	60/2							20/1	INSIDE LIGHTS	2
3									20/1	GFCI OUTLET @ DOOR	4
5	TUBE LIGHTS	20/1							20/1	OBSTRUCTION LIGHT	6
7	UPPER GFCI OUTLETS	20/1							20/1	LADDER LIGHT	8
9	CATHODIC PROTECTION	20/1							20/1	CONTROL PANEL	10
11	GFCI OUTLET @ PANEL	20/1							20/1	RTU	12
13	OUTSIDE LIGHTS	20/1							20/1	EMERGENCY LIGHT	14
15	DEDICATED RECP. FOR RADIO	20/1							20/1	SPARE	16
17	SPARE	20/1							20/1	SPARE	18
19	SPACE								20/1	ANALYZER	20
21	SPACE									SPACE	22
23	SPACE									SPACE	24
25	SPACE									SPACE	26
27	SPACE									SPACE	28
29	SPACE									SPACE	30
	TOTAL		3270	7115	9775	13675	18348	12968		TOTAL	

SOUTH 81 – PANEL LP SCHEDULE

TYPE	DESCRIPTION	CAT. NO.	VOLT	WATTAGE
A	LED LOW BAY FIXTURE	LITHONIA MSL8000LML/LVMVOLTGZ1040K80CRIWH	MULTI	75W
B	TWH LED WALL LUMINAIRE	LITHONIA TWHLED20C100050KT3MMVOLTPESFDWHXD	MULTI	72W

LIGHT FIXTURE SCHEDULE

TEXAS REGISTERED ENGINEERING FIRM F-13910
LKC-ES ENGINEERING SERVICE

CP&Y, INC.
TBPE FIRM REGISTRATION NO. #F-1741

ROUND ROCK TEXAS

STATE OF TEXAS TIM E. CAMPBELL 81011 REGISTERED PROFESSIONAL ENGINEER 6/01/17

NO.	REVISION	BY	DATE

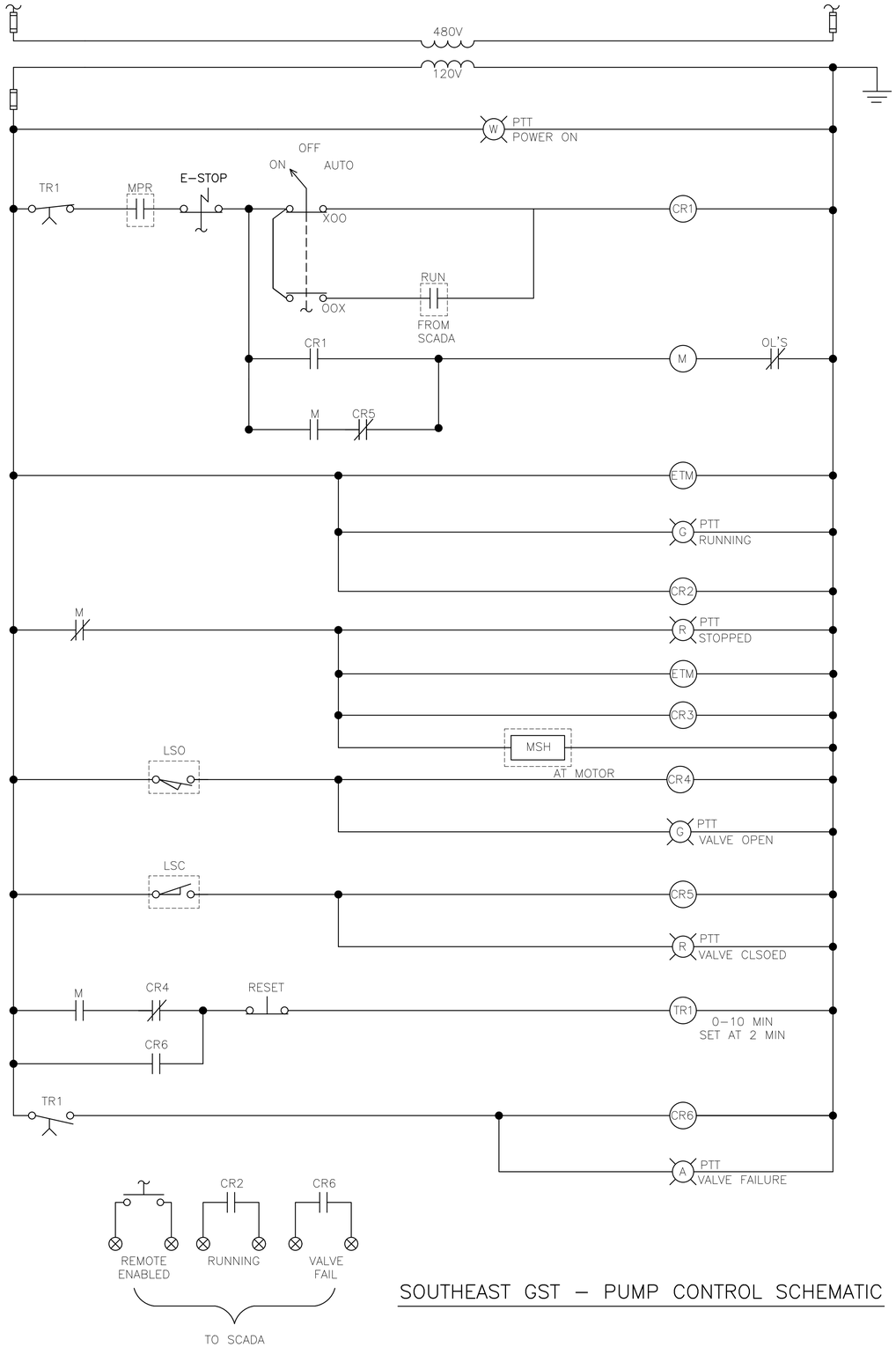
VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE 0 1"

CITY OF ROUND ROCK
SOUTHEAST GST & SOUTH 81 EST
PUMP STATION IMPROVEMENTS
ELECTRICAL
PANEL AND LIGHTING SCHEDULES

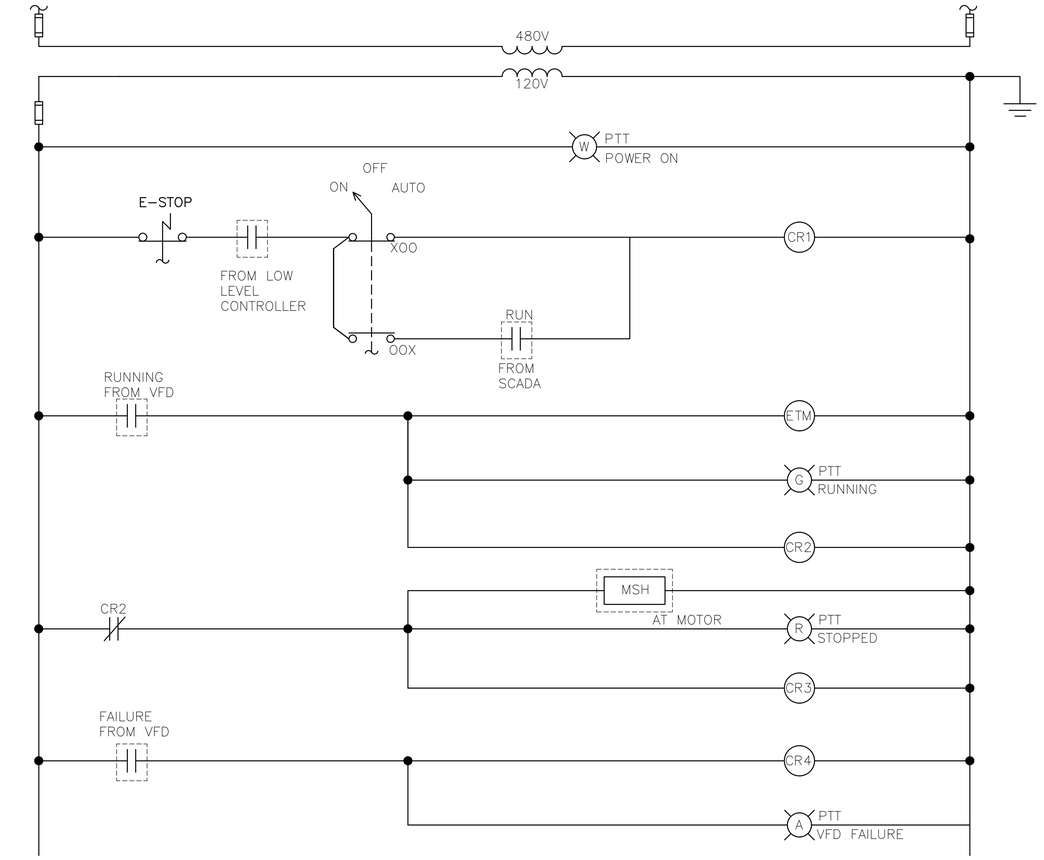
Date: JUNE 2017
Designed: J. GONZALEZ
Drawn: T. FORNEY
Reviewed: T. CAMPBELL
CP&Y Proj. No. RNDR14486

SHEET
EZ-2
SHEET 48 OF 57

REFERENCES: RNDR14486_Border_Base.t
Jun 01, 2017 - 3:31pm \\lkc-es\projects\rndr14486 round rock evaluation southeast gst & south 81 est pump station improvements pe\Drawings\Electrical\EZ-2 PANEL AND LIGHTING SCHEDULES.dwg LAYOUT: Layout1 USER:

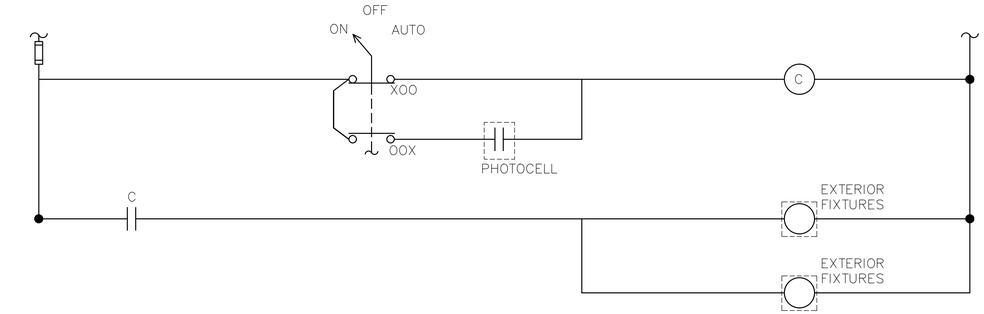


SOUTHEAST GST – PUMP CONTROL SCHEMATIC



SOUTH 81 – PUMP CONTROL SCHEMATIC

NTS



LIGHTING CONTACTOR

NTS

TEXAS REGISTERED ENGINEERING FIRM F-13910
LKC-ES ENGINEERING SERVICE
CP&Y, INC.
TBPE FIRM REGISTRATION NO. #F-1741
ROUND ROCK TEXAS
STATE OF TEXAS TIM E. CAMPBELL 81011 REGISTERED PROFESSIONAL ENGINEER
06/01/17

NO.	REVISION	BY	DATE

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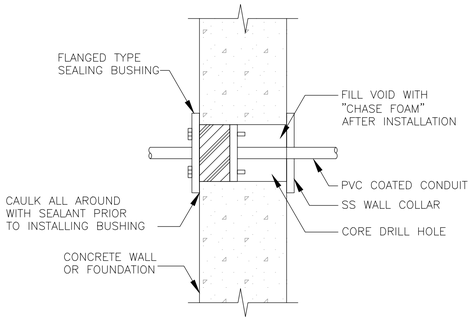
0 1"

CITY OF ROUND ROCK
SOUTHEAST GST & SOUTH 81 EST
PUMP STATION IMPROVEMENTS
ELECTRICAL
CONTROL SCHEMATICS

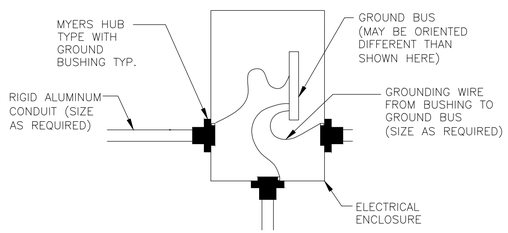
Date: JUNE 2017
Designed: J. GONZALEZ
Drawn: T. FORNEY
Reviewed: T. CAMPBELL
CP&Y Proj. No. RNDR14486

SHEET
EZ-3
SHEET 49 OF 57

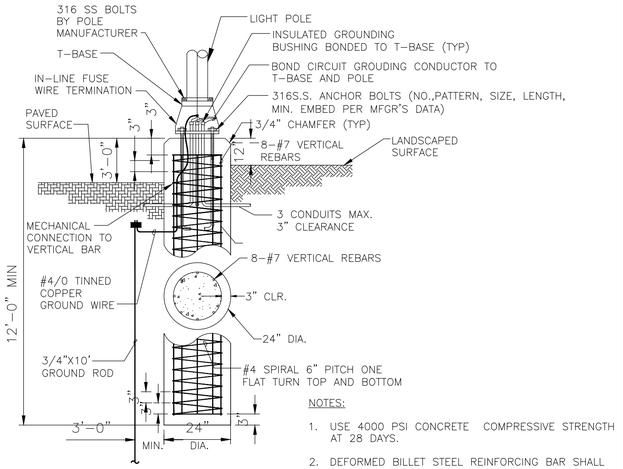
REFERENCES: RNDR14486_Border_Base.1
Jun 01, 2017 - 3:32pm \\lkc-es\projects\rndr14486 round rock evaluation southeast gst & south 81 est pump station improvements per\Drawings\Electrical\EZ-3 CONTROL SCHEMATIC.dwg LAYOUT: Layout1 USER:



A WATERTIGHT CONDUIT PENETRATION
NTS



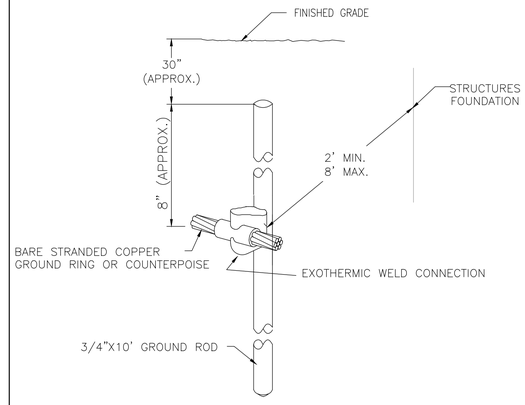
B ENCLOSURE/CONDUIT DETAIL
NTS



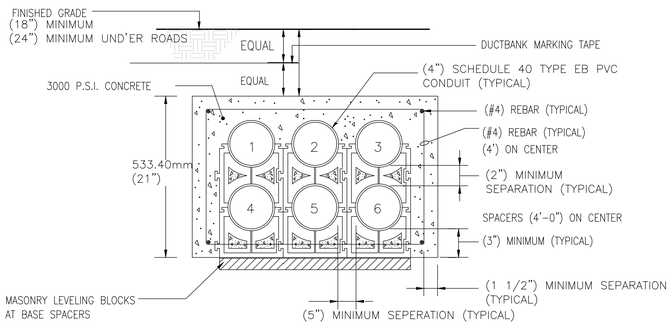
NOTES:

1. USE 4000 PSI CONCRETE COMPRESSIVE STRENGTH AT 28 DAYS.
2. DEFORMED BILLET STEEL REINFORCING BAR SHALL CONFORM TO ASTM A615 GRADE 60.
3. ALL BOLTS, WASHERS, NUTS AND OTHER FASTENERS ARE STAINLESS STEEL 316.

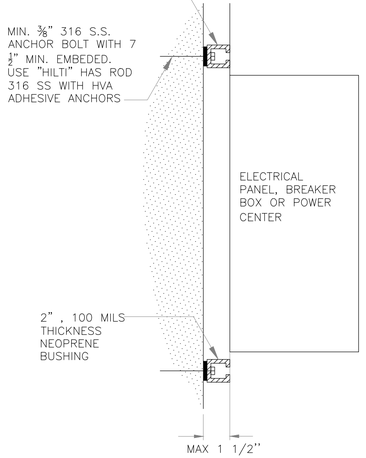
C LIGHT POLE BASE DETAIL
NTS



D GROUND ROD DETAIL
NTS



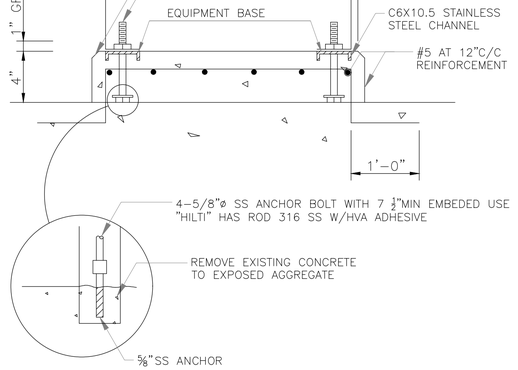
E ELECTRICAL CONDUIT SPACE FOR UNDERGROUND DUCTBANK
NTS



NOTES:

1. CONTRACTOR SHALL VERIFY THE EXISTING WALL THICKNESS IS ADEQUATE TO ACCOMODATE MIN. EMBED LENGTH PRIOR TO DRILLING

F EQUIPMENT WALL MOUNTING DETAIL
NTS

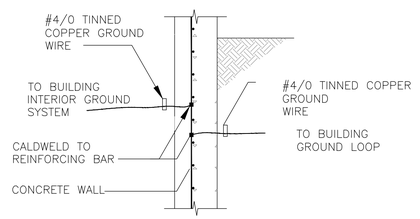


NOTES:

1. CONTRACTOR SHALL VERIFY THE EXISTING FLOOR SLAB THICKNESS IS ADEQUATE TO ACCOMODATE MIN. EMBED LENGTH PRIOR TO DRILLING

G TYPICAL EQUIPMENT BASE DETAIL
NTS

THIS DETAIL IS APPLICABLE FOR ALL GROUND CONDUCTORS ENTERING BUILDING THROUGH WALLS AND/OR FLOORS



H GROUNDING STEEL GROUND
NTS

LKC-ES ENGINEERING SERVICE
TEXAS REGISTERED ENGINEERING FIRM F-13910

CP&Y, INC.
TBPE FIRM REGISTRATION NO. #F-1741

ROUND ROCK TEXAS

STATE OF TEXAS
TIM E. CAMPBELL
81011
REGISTERED PROFESSIONAL ENGINEER
6/01/17

NO.	REVISION	BY	DATE

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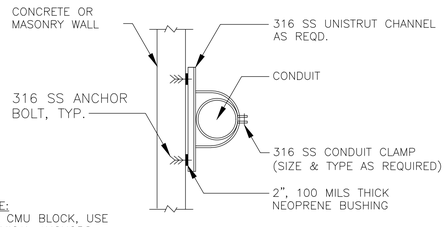
CITY OF ROUND ROCK
SOUTHEAST GST & SOUTH 81 EST
PUMP STATION IMPROVEMENTS

ELECTRICAL DETAILS I

Date: JUNE 2017
Designed: J. GONZALEZ
Drawn: T. FORNEY
Reviewed: T. CAMPBELL
CP&Y Proj. No.RNDR14486

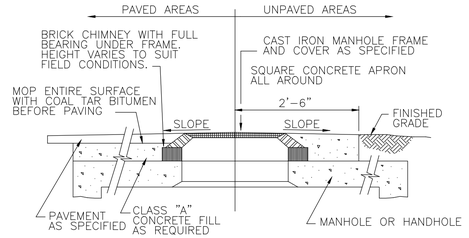
SHEET
EZ-4
SHEET 50 OF 57

REFERENCES: RNDR14486_Border_Base.1
Jun 01, 2017 - 3:33pm \\lkc-es\projects\rndr14486 round rock evaluation southeast gst & south 81 est pump station improvements per\Drawings\Electrical\EZ-4 ELECTRICAL DETAILS 1a.dwg LAYOUT: Layout1 USER:



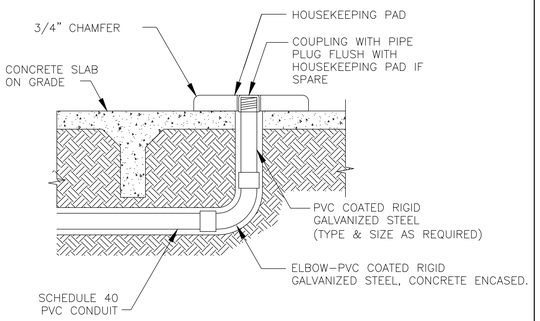
NOTE:
FOR CMU BLOCK, USE CHEMICAL ANCHORS

I CONDUIT SUPPORT
NTS



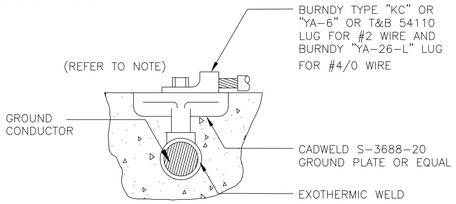
NOTE:
FINAL GRADING SHALL PROVIDE ADEQUATE DRAINAGE AWAY FROM MANHOLE COVER IN ALL DIRECTIONS.

J MANHOLE OR HANDHOLE FRAME AND COVER
NTS

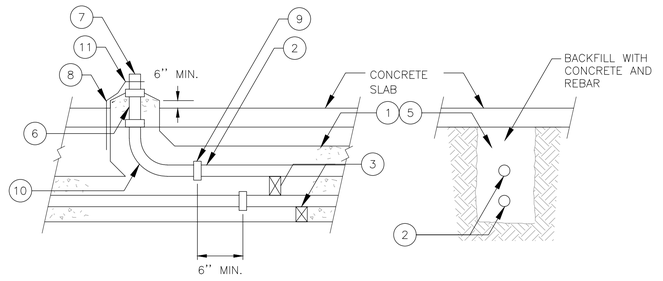


K UNDERGROUND CONDUIT AND CONDUIT STUB UP DETAIL
NTS

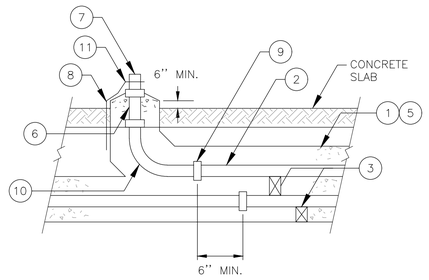
NOTE:
PROVIDE PROTECTION SHIELD DURING CONCRETE PLACEMENT.



L GROUNDING PAD IN SLAB
NTS



TRANSITION UNDER CONCRETE SLAB



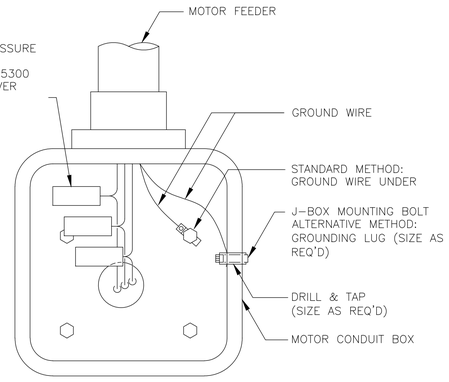
TRANSITION UNDER EARTH COVER

NOTES:
1. CONCRETE.
2. SEE DESIGN DRAWINGS FOR NUMBER AND SIZE OF CONDUITS. ALL UNDERGROUND CONDUITS SHALL BE PVC SCHEDULE 40 UNLESS OTHERWISE SPECIFIED.
3. SPACERS SHALL BE CARLON PLASTIC SPACERS OR EQUIVALENT, SPACED 3" SIDE TO SIDE OR A MINIMUM OF ONE SUPPORT PER JOINT.
4. NOT USED.
5. UNDERGROUND CONDUIT SHALL BE ENCASED IN AN ENVELOPE OF CONCRETE SPRINKLED WITH RED DYE WHEN CONCRETE WET.
6. PVC COATED GALVANIZED STEEL RISER WITH PVC COATED COUPLINGS.
7. PROTECT EXPOSED CONDUIT ENDS DURING CONSTRUCTION WITH PIPE PLUG OR CAPS. FUTURE AND SPARE CONDUIT ENDS SHALL HAVE PIPE PLUGS OR CAPS.
8. CONNECT TINNED GROUND WIRE TO GROUND ROD OR PLANT GROUND BUS. FOR GROUND WIRE SIZE, USE #2 TO REBAR IN DUCTBANK AND #4/0 LONGITUDINALLY.
9. ADAPTER FROM NON-METALLIC CONDUIT AS REQUIRED.
10. PVC COATED RIGID GALVANIZED STEEL CONDUIT ELBOW AND COUPLING WITH LONG RADIUS ELBOWS SHALL BE USED AS REQUIRED.
11. CONDUIT GROUND STRAP AND CONDUIT COUPLING WITH "OZ" OR T & B GROUNDED TYPE INSULATED BUSHING.

WITH CONCRETE ENCASEMENT UNDER SLAB

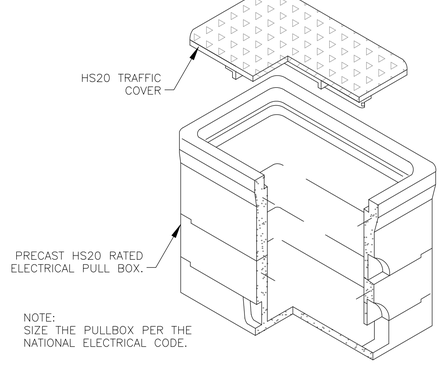
M UNDERGROUND CONDUIT INSTALLATION
NTS

SPLICE WIRES USING PRESSURE TYPE LUGS, BOLTS AND LOCKWASHER 3M SERIES 5300 HEAT SHRINK SLEEVES OVER SPLICES SIZED TO FIT



NOTES:
1. STANDARD GROUNDING METHOD IS TO USE A PRESSURE TYPE LUG (SIZE AS REQUIRED) ON GROUND WIRE INSTALLED UNDER JUNCTION
2. ALTERNATIVE GROUNDING METHOD FOR NON-EXPLOSION PROOF MOTORS WITHOUT JUNCTION BOX MOUNTING BOLTS IS TO DRILL AND TAP THE SIDE WALL OF THE MOTOR JUNCTION BOX AND INSTALL A GROUNDING LUG (SIZE AS REQUIRED).

N MOTOR CONDUIT BOX CONNECTION DETAIL
NTS



NOTE:
SIZE THE PULLBOX PER THE NATIONAL ELECTRICAL CODE.

O HAND HOLE FOR FIBER OPTIC CABLES
NTS

TEXAS REGISTERED ENGINEERING FIRM F-13910
LKC-ES ENGINEERING SERVICE

CP&Y, INC.
TBPE FIRM REGISTRATION NO. #F-1741

ROUND ROCK TEXAS

STATE OF TEXAS
TIM E. CAMPBELL
81011
REGISTERED PROFESSIONAL ENGINEER
6/01/17

NO.	REVISION	BY	DATE

VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE
0 1"

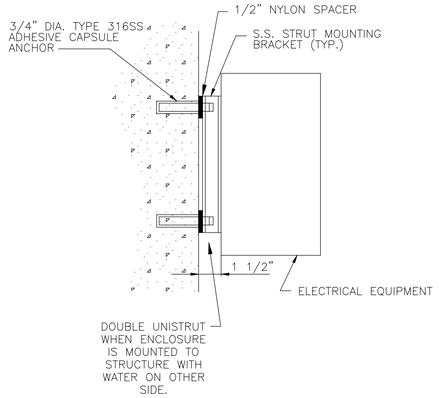
CITY OF ROUND ROCK
SOUTHEAST GST & SOUTH 81 EST
PUMP STATION IMPROVEMENTS

ELECTRICAL DETAILS II

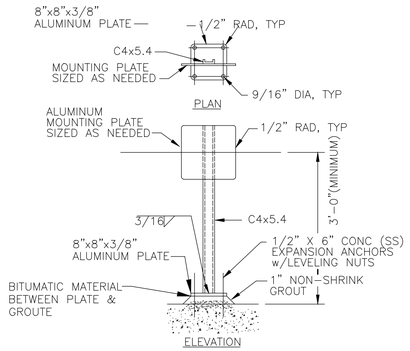
Date: JUNE 2017
Designed: J. GONZALEZ
Drawn: T. FORNEY
Reviewed: T. CAMPBELL
CP&Y Proj. No. RNDR14486

SHEET
EZ-5
SHEET 51 OF 57

REFERENCES: RNDR14486_Border_Base.1
Jun 01, 2017 - 3:34pm \\lkc-es\projects\rndr14486 round rock evaluation southeast gst & south 81 est pump station improvements per\Drawings\Electrical\EZ-5 ELECTRICAL DETAILS II.dwg LAYOUT: Layout1 USER:

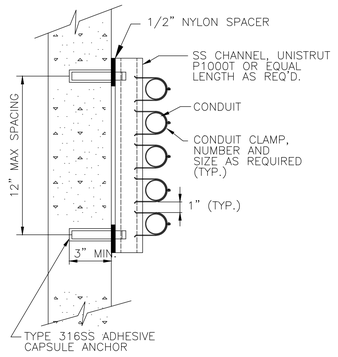


U ELECTRICAL EQUIPMENT MOUNTING DETAIL
NTS

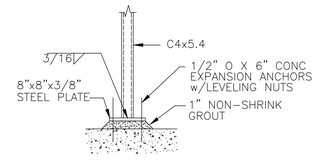


NOTES:
1. HOT-DIP GALVANIZE ASSEMBLY AFTER FABRICATION.
2. USE 316 STAINLESS STEEL HARDWARE. USE WASHERS AND SPLIT-LOCK WASHERS UNDER ALL NUTS AND BOLTS.

V ELECTRICAL EQUIPMENT PEDESTAL DETAIL
NTS

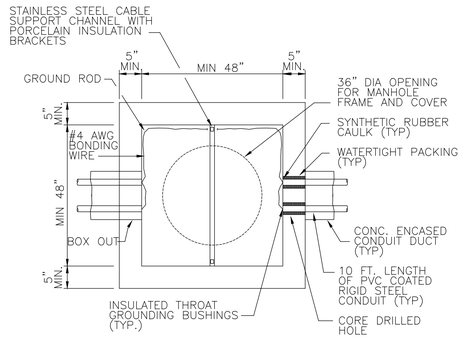


W CONDUIT RACK
NTS



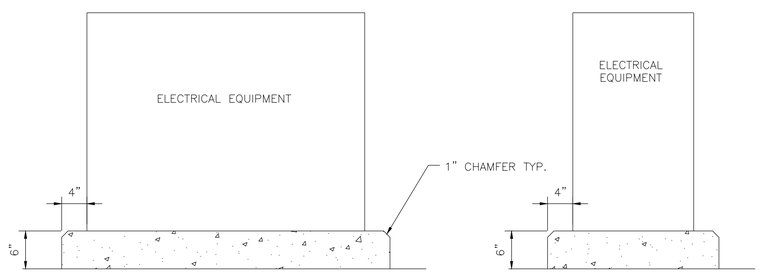
NOTES:
1. HOT-DIP GALVANIZE ASSEMBLY AFTER FABRICATION.
2. USE 316 STAINLESS STEEL HARDWARE. USE WASHERS AND SPLIT-LOCK WASHERS UNDER ALL NUTS AND BOLTS.

Y TYPICAL LEG MOUNTING
NTS



NOTES:
1. HANDHOLE SHALL BE REINFORCED FOR H20 WHEEL LOAD.
2. DUCT BANK ENTRANCE SHALL SUIT PARTICULAR APPLICATION.
3. DIMENSIONS SHALL BE AS SHOWN UNLESS OTHERWISE INDICATED ON DRAWINGS.

Z ELECTRICAL HANDHOLE (PRE-CAST IN PLACE)
NTS



NOTES:
1. PROVIDE 4" EXTENSION AROUND EQUIPMENT WITH 1" CHAMFER EDGE.

ZA INTERIOR ELECTRICAL EQUIPMENT PAD
NTS

TEXAS REGISTERED ENGINEERING FIRM F-13910
LKC-ES ENGINEERING SERVICE

CP&Y, INC.
TBPE FIRM REGISTRATION NO. #F-1741

ROUND ROCK TEXAS

6/01/17
TIM E. CAMPBELL 81011 LICENSED PROFESSIONAL ENGINEER STATE OF TEXAS

NO.	REVISION	BY	DATE

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CITY OF ROUND ROCK
SOUTHEAST GST & SOUTH 81 EST
PUMP STATION IMPROVEMENTS

ELECTRICAL DETAILS III

Date: JUNE 2017
Designed: J. GONZALEZ
Drawn: T. FORNEY
Reviewed: T. CAMPBELL
CP&Y Proj. No. RNDR14486

SHEET
EZ-6
SHEET 52 OF 57

REFERENCES: RNDR14486_Border_Base.1
Jun 01, 2017 - 3:35pm \\kc-es\projects\rndr14486 round rock evaluation southeast gst & south 81 est pump station improvements per\Drawings\Electrical\EZ-6 ELECTRICAL DETAILS III.dwg LAYOUT: Layout1 USER:

INSTRUMENT SOCIETY OF AMERICA TABLE

FIRST LETTER (S)			SUCCEEDING LETTERS		
	PROCESS OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS (+)		ALARM		
B	BURNER, COMBUSTION		USERS CHOICE (+)	USERS CHOICE (+)	USERS CHOICE (+)
C	USER'S CHOICE (+)			CONTROL	
D	USER'S CHOICE (+)	DIFFERENTIAL			
E	VOLTAGE		SENSOR (PRIMARY ELEMENT)		
F	FLOW RATE	RATIO (FRACTION)			
G	USER'S CHOICE (+)		GLASS, VIEWING DEVICE		
H	HAND				HIGH
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER	SCAN			
K	TIME, TIME SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT		LOW
M	MOTOR	MOMENTARY			MIDDLE, INTERMEDIATE
N	USERS CHOICE (+)		USERS CHOICE (+)	USERS CHOICE (+)	USERS CHOICE (+)
O	USERS CHOICE (+)		ORIFICE, RESTRICTION		
P	PRESSURE, VACUUM		POINT (TEST) CONNECTION		
Q	QUANTITY	INTEGRATE, TOTALIZE			
R	RADIATION		RECORD		
S	SPEED, FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION (+)
V	VIBRATION MECH. ANALYSIS			VALVE, DAMPER, LOUVER	
W	WEIGHT, FORCE		WELL		
X	UNCLASSIFIED (+)	X AXIS	UNCLASSIFIED	UNCLASSIFIED (+)	UNCLASSIFIED (+)
Y	EVENT, STATE OR PRESENCE	Y AXIS		RELAY, COMPUTE, CONVERT	
Z	POSITION, DIMENSION	Z AXIS		DRIVER, ACTUATOR, UNCLASSIFIED FINAL CONTROL ELEMENT	

WHEN USED, EXPLANATION IS SHOWN ADJACENT TO INSTRUMENT SYMBOL. SEE ABBREVIATIONS AND LETTER SYMBOLS.

INSTRUMENT IDENTIFICATION

	PRIMARY LOCATION NORMALLY ACCESSIBLE TO OPERATOR (2)	FIELD MOUNTED	AUXILIARY LOCATION NORMALLY ACCESSIBLE TO OPERATOR (2)
DISCRETE INSTRUMENTS			
SHARED DISPLAY SHARED CONTROL			
COMPUTER FUNCTION			
PROGRAMMABLE LOGIC CONTROL			
		INSTRUMENT WITH LONG TAG NUMBERS	INSTRUMENTS SHARING COMMON HOUSING
	PILOT LIGHT	C 12 PANEL MOUNTED PATCHBOARD POINT 12	P PURGE OR FLUSHING DEVICE
	R RESET FOR LATCH-TYPE ACTUATOR	DIAPHRAGM SEAL	I UNDEFINED INTERLOCK LOGIC

(1) ABBREVIATIONS OF THE USER'S CHOICE SUCH AS IP1 (INSTRUMENT PANEL #1), IC2 (INSTRUMENT CONSOLE #2), CC3 (COMPUTER CONSOLE #3), ETC., MAY BE USED WHEN IT IS NECESSARY TO SPECIFY INSTRUMENT OR FUNCTION LOCATION.

(2) NORMALLY INACCESSIBLE OR BEHIND-THE-PANEL DEVICES OR FUNCTIONS MAY BE DEPICTED BY USING THE SAME SYMBOLS BUT WITH DASHED HORIZONTAL BARS, I.E.

HAND SWITCH ABBREVIATIONS

H/O/A	HAND/OFF/AUTO
L/O/C	LOCAL/OFF/COMPUTER
L/O/R	LOCAL/OFF/REMOTE
O/C/S	OPEN/CLOSE/STOP
L/C	LOCAL/COMPUTER
L/R	LOCAL/REMOTE
O/C	OPEN/CLOSE
A/H	AUTO/HAND
L/A	LOCAL/AUTO
O/O/C	ON/OFF/COMPUTER
N/B	NORMAL/BYPASS

GENERAL ABBREVIATIONS

AS	AIR SUPPLY
AIT	ANALYTICAL INDICATING TRANSMITTER
COM	COMMUNICATION
CPU	CENTRAL CPUPROCESSOR UNIT
DC	DIRECT CURRENT
DCU	DISTRIBUTED CONTROL UNIT
ES	ELECTRIC SUPPLY
ETM	ELAPSED TIME METER
FIT	FLOW INDICATOR TRANSMITTER
FOC	FIBER OPTIC CABLE
FOM	FIBER OPTIC MODEM
FLP	FAIL LAST POSITION
FO	FAIL OPEN
FREQ	FREQUENCY
FS	FLOW SWITCH
HDC	HISTORICAL DATA COLLECTION
HMI	HUMAN MACHINE INTERFACE
IO	INPUT OUTPUT
LAH	LEVEL HIGH ALARM
LAHH	LEVEL HIGH HIGH ALARM
LCP	LOCAL CONTROL PANEL
LE	LEVEL ELEMENT
LI	LEVEL INDICATOR
LIT	LEVEL INDICATOR TRANSMITTER
LS	LEVEL SWITCH
LSH	LEVEL SWITCH HIGH
LSL	LEVEL SWITCH LOW
MC	MOTOR CONTROLLER
MCP	MASTER CONTROL PANEL
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
OEM	ORIGINAL EQUIPMENT MANFACTURER
ORP	OXYGEN REDUCTION POTENTIAL
OWS	OPERATOR WORK STATION
PE	PRESSURE SENSOR
PI	PRESSURE INDICATOR
PIT	PRESSURE INDICATOR TRANSMITTER
PLC	PROGRAMMABLE LOGIC CONTROLLER
PS	POWER SUPPLY
PSH	PRESSURE SWITCH HIGH
PSL	PRESSURE SWITCH LOW
RE	REFERENCE
RIO	REMOTE INPUT OUTPUT
RTU	REMOTE TERMINAL UNIT
SE	SPEED SENSOR
SC	SPEED / POSITION CONTROL
STPT	SETPOINT
SIK	SPEED INDICATE CONTROL STATION
SI	SPEED/POSITION INDICATION
SL	SLUDGE
TE	TEMPERATURE ELEMENT
TIT	TEMPERATURE INDICATOR TRANSMITTER
UPS	UNINTERRUPTIBLE POWER SUPPLY
UV	ULTRAVIOLET
VFD	VARIABLE FREQUENCY DRIVE
YA	EVENT ALARM
YL	EVENT INDICATION
YS	EVENT SWITCH
ZSC	CLOSE LIMIT SWITCH
ZSO	OPEN LIMIT SWITCH

PROCESS SYMBOLS

- S — SOLENOID OPERATED VALVE
- M — MOTOR OPERATED VALVE
- K — KNIFE GATE
- SLIDE GATE
- GATE VALVE
- PINCH VALVE
- BALL VALVE
- PLUG VALVE
- CHECK VALVE
- BUTTERFLY VALVE
- PUMP
- HOSE BIB
- PRIMARY ELEMENT
- M — MOTOR-ARROW DENOTES MODULATED
- M — MIXER
- A — AIR RELEASE VALVE
- TRANSIT TIME OR DOPPLER SONIC FLOW METER
- M — MAGNETIC FLOW METER
- T — THERMAL DISPERSION FLOW METER
- MICROWAVE SOLIDS SENSOR

LINE SYMBOLS

- (1) INSTRUMENT SUPPLY OR SOLENOID OPERATED VALVE (1)
- (2) UNDEFINED SIGNAL
- (3) PNEUMATIC SIGNAL (2)
- (4) ELECTRIC SIGNAL
- (5) HYDRAULIC SIGNAL
- (6) CAPILLARY TUBE
- (7) ELECTROMAGNETIC OR SONIC SIGNAL (GUIDED) (3)
- (8) ELECTROMAGNETIC OR SONIC SIGNAL (NOT GUIDED) (3)
- (9) INTERNAL SYSTEM LINK (SOFTWARE OR DATA LINK)
- (10) MECHANICAL LINK
- (11) PNEUMATIC BINARY SIGNAL (ON-OFF)
- (12) ELECTRIC BINARY SIGNAL (ON-OFF)
- (13) ELECTRIC ANALOG SIGNAL
- CONNECTING LINES
- NON-CONNECTING LINES

GENERAL NOTES

(1) THE FOLLOWING ABBREVIATIONS ARE SUGGESTED TO DENOTE THE TYPES OF POWER SUPPLY. THESE DESIGNATIONS MAY ALSO BE APPLIED TO PURGE FLUID SUPPLIES.

AS – AIR SUPPLY
IA – INSTRUMENT AIR } OPTIONS
PA – PLANT AIR
ES – ELECTRIC SUPPLY
GS – GAS SUPPLY
HS – HYDRAULIC SUPPLY
NS – NITROGEN SUPPLY
SS – STEAM SUPPLY
WS – WATER SUPPLY

THE SUPPLY LEVEL MAY BE ADDED TO THE INSTRUMENT SUPPLY LINE, E.G, AS-100, 100-PSIG AIR SUPPLY: ES-24DC, A 24-VOLT DIRECT CURRENT POWER SUPPLY.

(2) THE PNEUMATIC SIGNAL SYMBOL APPLIES TO A SIGNAL USING ANY GAS AS THE SIGNAL MEDIUM. IF A GAS OTHER THAN AIR IS USED, THE GAS MAY BE IDENTIFIED BY A NOTE ON THE SIGNAL SYMBOL OR OTHERWISE.

ELECTROMAGNETIC PHENOMENA INCLUDE HEAT, RADIO WAVES, NUCLEAR RADIATION AND LIGHT.

DIGITAL SYSTEM I/O INTERFACE. DIRECTION OF TRIANGLE DENOTES WHETHER INPUT OR OUTPUT.

LETTER DENOTES SIGNAL TYPE. THE LETTER "A" DENOTES AN ANALOG SIGNAL. THE LETTER "D" DENOTES A DISCRETE SIGNAL. THE LETTER "FO" DENOTES FIBER OPTIC CONNECTION.

CP&Y, INC.
TBPE FIRM REGISTRATION NO. #F-1741

ROUND ROCK TEXAS

STATE OF TEXAS · LIANG LI · 96735 · LICENSED PROFESSIONAL ENGINEER

DATE | BY | REVISION | NO.

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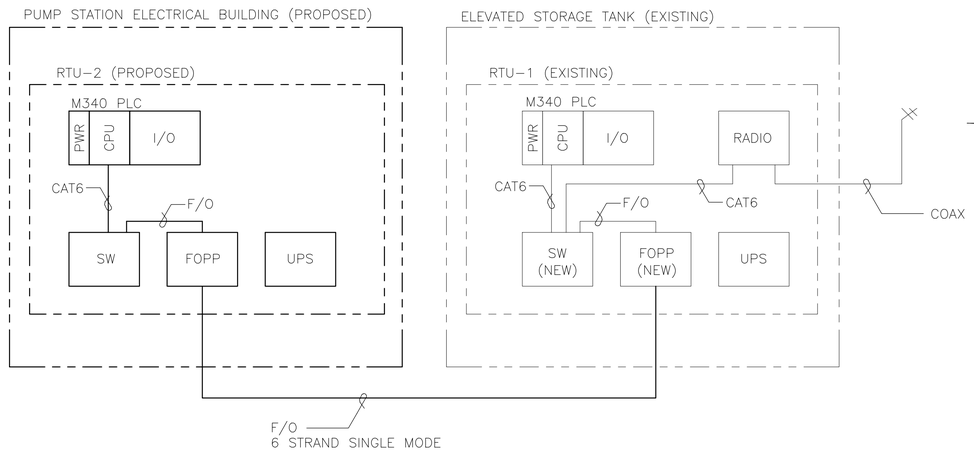
CITY OF ROUND ROCK
SOUTHEAST GST & SOUTH 81 EST
PUMP STATION IMPROVEMENTS

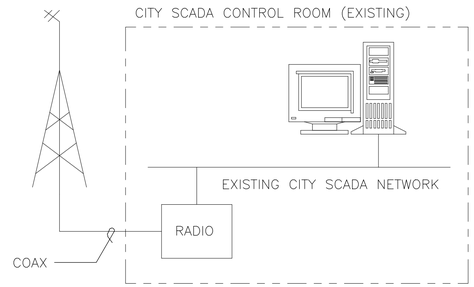
INSTRUMENTATION SYMBOLS & LEGENDS

Date: JUNE 2017
Designed: L.LI
Drawn: S.MEDINA
Reviewed: A.RISTOW
CP&Y Proj. No. RNDR14486

SHEET
I-1
SHEET 53 OF 57

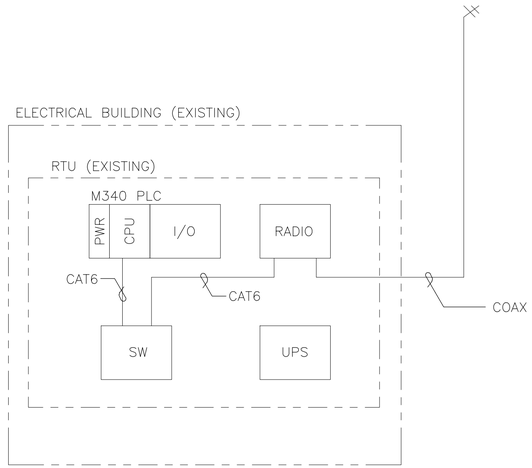
REFERENCES:: RNDR14486_Border_Base.dwg _Std ENVIRO SEALS
Jun 01, 2017 - 11:34am C:\pwworking\cpy\pw_cpy\smedina\d0459006\RNDR14486 CPY I-1.dwg LAYOUT: Inst Abb & Legend USER:





SOUTH 81 PUMP STATION – SCADA ONE-LINE DIAGRAM

SCALE: NTS



SOUTHEAST GROUND STORAGE TANK – SCADA ONE-LINE DIAGRAM

SCALE: NTS

LEGEND

CAT6 = CATEGORY 6 CABLE
SW = ETHERNET SWITCH
UPS = UNINTERRUPTIBLE POWER SUPPLY
FOPP = FIBER OPTIC PATCH PANEL
F/O = FIBER OPTIC CABLE
CPU = PLC PROCESSOR MODULE
PWR = PLC POWER MODULE
I/O = PLC INPUT/OUTPUT MODULE

CP&Y, INC.
TBPE FIRM REGISTRATION NO. #F-1741

ROUND ROCK TEXAS

STATE OF TEXAS
LIANG LI
96735
LICENSED PROFESSIONAL ENGINEER

6/5/2017

NO.	REVISION	BY	DATE

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0 1"

CITY OF ROUND ROCK
SOUTHEAST GST & SOUTH 81 EST
PUMP STATION IMPROVEMENTS

SCADA
ONE-LINE DIAGRAMS

Date: JUNE 2017
Designed: L.LI
Drawn: S.MEDINA
Reviewed: A.RISTOW
CP&Y Proj. No. RNDR14486

SHEET
I-2
SHEET 54 OF 57

REFERENCES: RNDR14486_Border_Base.dwg _Std ENVIRO SEALS
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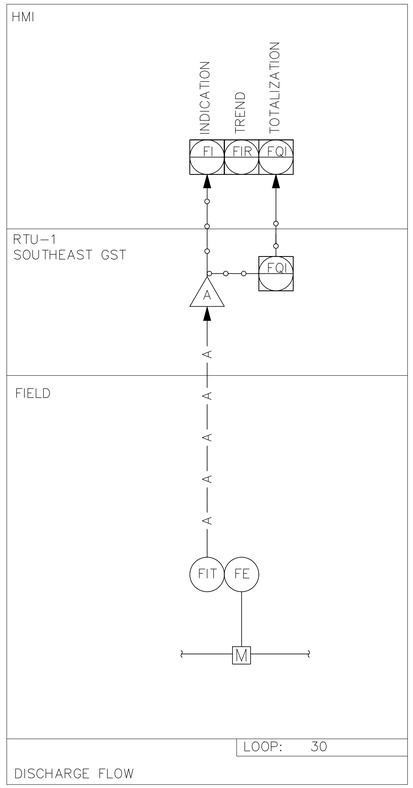
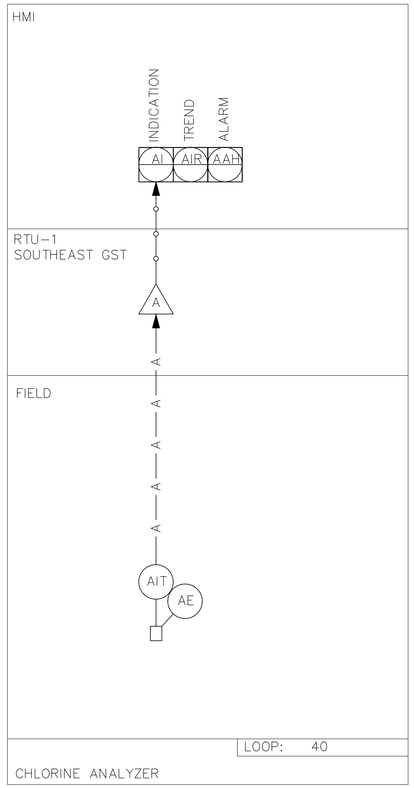
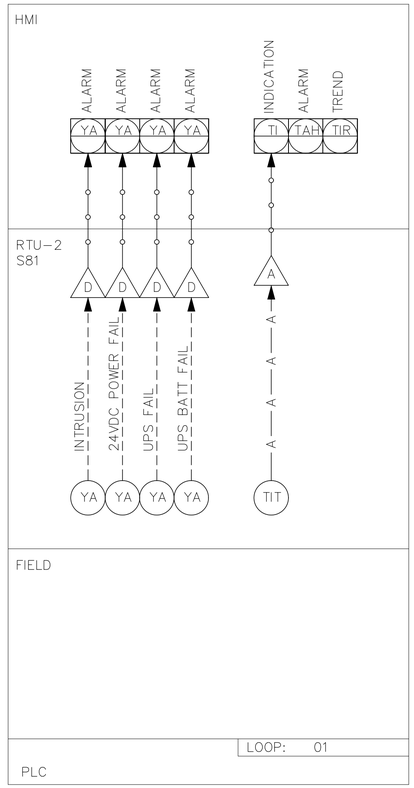


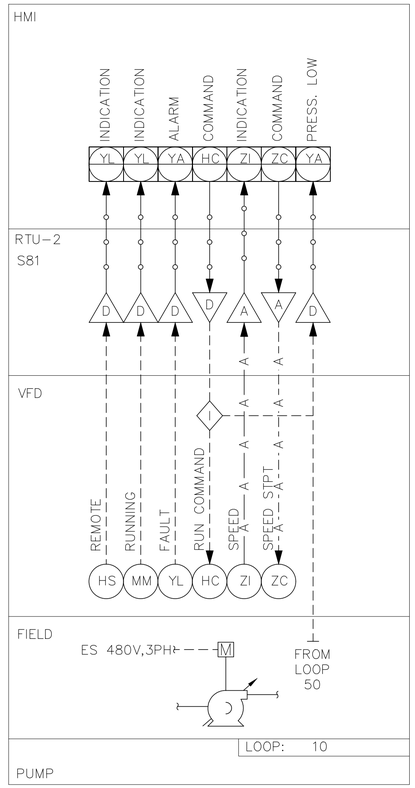


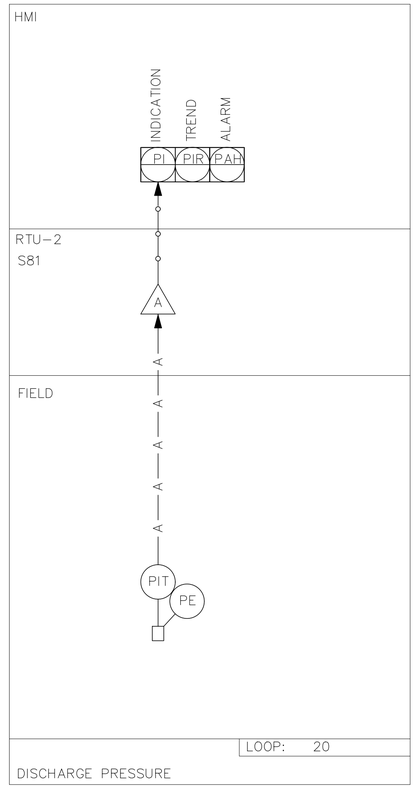
NOTES:
1. THE EXISTING PLC PROGRAM SHALL BE REUSED AND MODIFICATIONS MADE ONLY FOR NEW EQUIPMENT AND INSTRUMENTS. ONLY NEW EQUIPMENT POINTS AND INSTRUMENT CONFIGURATION ARE SHOWN ON THIS SHEET.

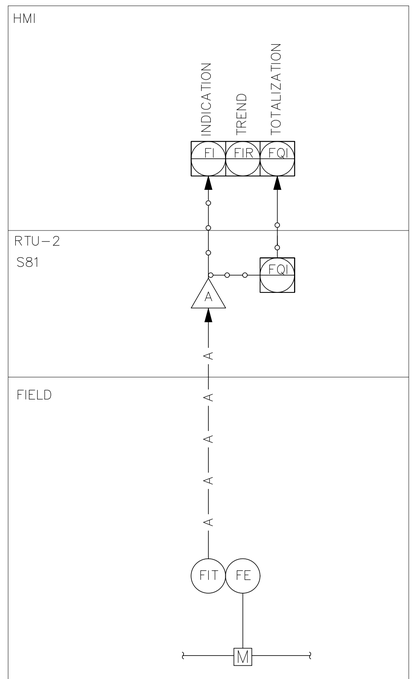
SOUTHEAST GROUND STORAGE TANK INSTRUMENTATION LOOP DIAGRAMS

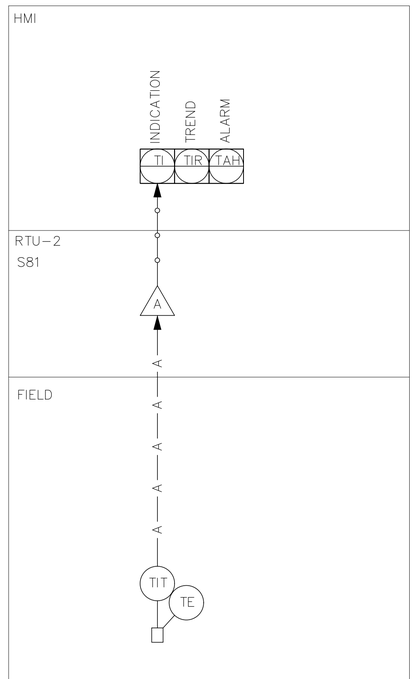
SOUTH 81 PUMP STATION INSTRUMENTATION LOOP DIAGRAMS

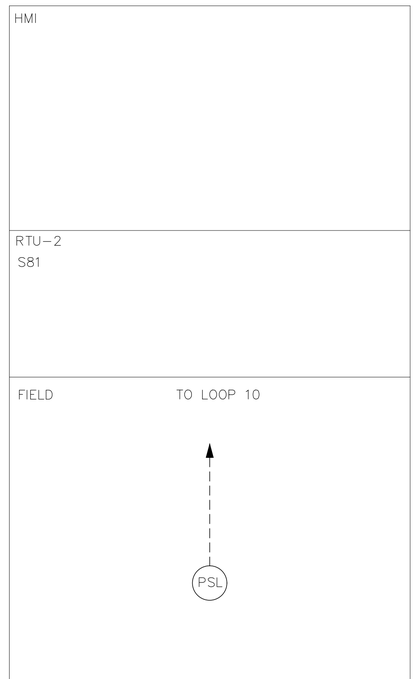












CP&Y, INC.
TBPE FIRM REGISTRATION NO. #F-1741

ROUND ROCK TEXAS

STATE OF TEXAS
LIANG LI
96735
LICENSED PROFESSIONAL ENGINEER
6/5/2017

NO.	REVISION	BY	DATE

SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE
VERIFY SCALE 0 1"

CITY OF ROUND ROCK
SOUTHEAST GST & SOUTH 81 EST
PUMP STATION IMPROVEMENTS

INSTRUMENTATION LOOP DIAGRAMS

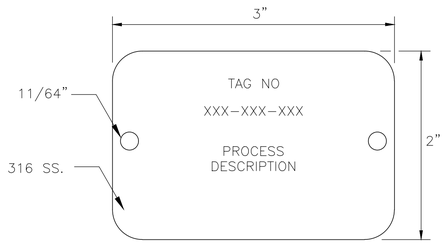
Date: JUNE 2017
Designed: L.LI
Drawn: S.MEDINA
Reviewed: A.RISTOW
CP&Y Proj. No. RNDR14486

SHEET
I–3
SHEET 55 OF 57

REFERENCES: RNDR14486_Border_Base.dwg –Std ENVIRO SEALS
Jun 01, 2017 – 11:36am C:\pwworking\cpy\pw_cpy\smedina\d0459006\RNDR14486 CPY I–3.dwg LAYOUT: I–3 USER:

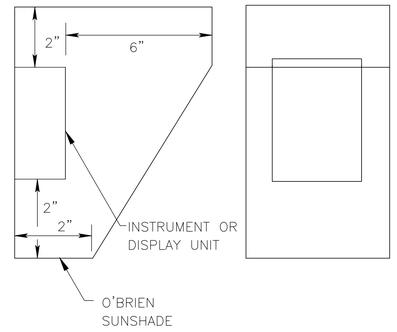
1. ALL INSTALLATIONS WILL ADHERE TO ALL LOCAL, STATE AND NATIONAL CODES. PROVIDE CONDUIT SEAL AS REQUIRED BY THE NEC IN THE CLASSIFIED AREA.
2. ALL DETAILS ARE FOR GENERAL INSTALLATION. VERIFY ALL SITE CONDITIONS AT THE TIME OF INSTALLATION. SEE MANUFACTURER'S PRODUCT DATA FOR ADDITIONAL DETAILS.
3. PROVIDE 316 SS FITTINGS FOR ALL PROCESS CONNECTIONS.
4. PROVIDE LIQUID TYPE FLEXIBLE CONDUIT FOR ALL CONNECTIONS TO ALL TRANSMITTERS AND ASSOCIATED SENSORS. LIQUID TYPE FLEXIBLE CONDUIT SHALL BE LIMITED TO LENGTHS OF 6 FEET PER NEC REQUIREMENTS.
5. PROVIDE EPOXY TYPE ANCHORS WHERE APPLICABLE. EXPANSION OR WEDGE TYPE ANCHORS ARE NOT ACCEPTABLE FOR MASONRY OR CONCRETE.
6. INSTRUMENT TAG TO BE AFFIXED IN A LOCATION ADJACENT TO THE INSTRUMENT WITH EITHER SELF TAPPING STAINLESS STEEL SCREWS OR STAINLESS STEEL WIRE OR CHAIN.
7. ALL OUTSIDE INSTALLED ELECTRONIC DISPLAY UNIT AND INDICATION GAUGE SHALL BE INSTALLED FACING TOWARD NORTH TO AVOID DIRECT SUN LIGHT. THE ELECTRONIC DISPLAY UNIT SHALL BE INSTALLED WITH SUN SHIELD.

A GENERAL NOTES
NTS



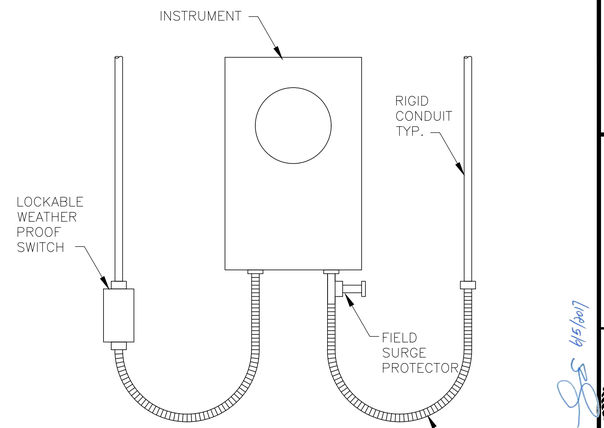
1. THE INSTRUMENT TAG IS TO HAVE THE PROCESS AREA, INSTRUMENT NUMBER, AND PROCESS DESCRIPTION LISTED ON THE TAG.
2. ALL TAG INFORMATION IS TO BE IN STANDARD ISA FORMAT.
3. THE INSTRUMENT TAG WILL BE SIZED IN A 3 X 2 RATIO. THE EXAMPLE IS 3 INCHES BY 2 INCHES. ALL LETTERING WILL BE 3/16" IN HEIGHT.
4. INSTRUMENT TAG TO BE AFFIXED IN A LOCATION ADJACENT TO THE INSTRUMENT WITH EITHER SELF TAPPING STAINLESS STEEL SCREWS OR STAINLESS STEEL WIRE OR CHAIN.

B INSTRUMENT TAG
NTS



1. PROVIDE SUNSHADE FOR ALL INSTRUMENTS EXPOSED TO THE WEATHER.
2. THE DISPLAY SHALL BE MOUNTED FACING TOWARD NORTH.

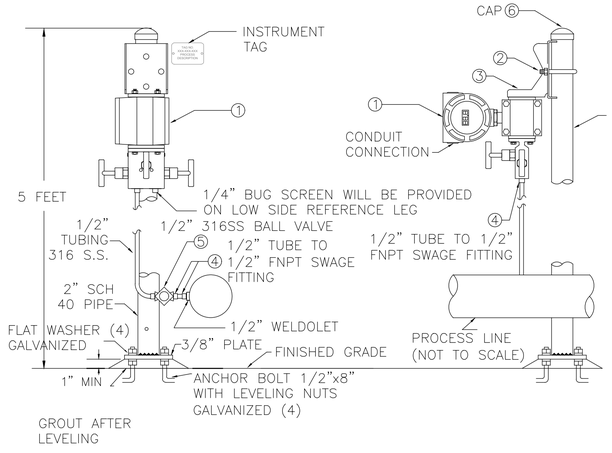
C INSTRUMENT SHADE
NTS



CLARIFICATION:
POWER IS SHOWN ON LEFT SIDE OF INSTRUMENT WITH A DISCONNECT AND ANALOG ON RIGHT SIDE WITH SURGE PROTECTOR.
FIELD SURGE PROTECTOR – PHOENIX CONTACT SURGETRAP EX OR APPROVED EQUAL.

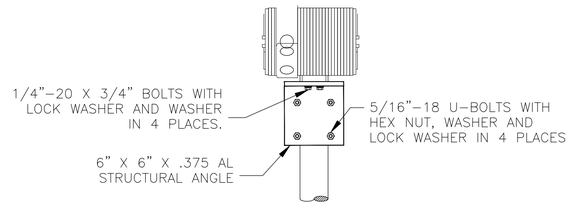
D INSTRUMENT WIRING DIAGRAM
NTS

ITEM	QTY	DESCRIPTION	MANUFACTURER	MODEL NUMBER
①	1	GP TRANSMITTER	–	
②	1	U–BOLT & NUTS SUPPLIED W/XMTR ①	–	SUPPLIED WITH
③	1	PIPE MOUNTING BRACKET SUPPLIED W/XMTR①	–	SUPPLIED WITH
④	4	1/2" TUBE TO 1/2" FNPT SWAGE FITTING	N/A	N/A
⑤	1	1/2" 316SS BALL VALVE	N/A	N/A
⑥	1	CAP	N/A	N/A

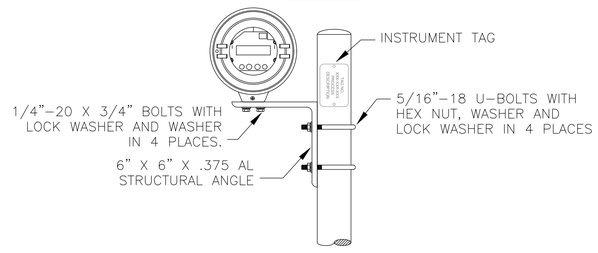


NOTES
1. ALL DETAILS ARE FOR GENERAL INSTALLATION. VERIFY ALL SITE CONDITIONS AT THE TIME OF INSTALLATION. SEE MANUFACTURER' PRODUCT DATA FOR ADDITIONAL DETAILS.
2. USE 316 SS FITTINGS FOR ALL PROCESS CONNECTIONS.
3. USE LIQUID TIGHT FLEXIBLE CONDUIT FOR ALL CONNECTIONS TO ALL TRANSMITTERS AND ASSOCIATED SENSORS. LIQUID TIGHT FLEXIBLE CONDUIT SHALL BE LIMITED TO LENGTHS OF 6 FEET.
4. USE EPOXY TYPE ANCHORS WHERE APPLICABLE. EXPANSION OR WEDGE TYPE ANCHORS ARE NOT ACCEPTABLE IN MASONRY OR CONCRETE.
5. ALL INSTALLATIONS WILL ADHERE TO ALL LOCAL, STATE AND NATIONAL CODES.
6. INSTRUMENT TAG TO BE AFFIXED IN A LOCATION ADJACENT TO THE INSTRUMENT WITH EITHER SELF TAPPING STAINLESS STEEL SCREWS OR STAINLESS STEEL WIRE OR CHAIN.

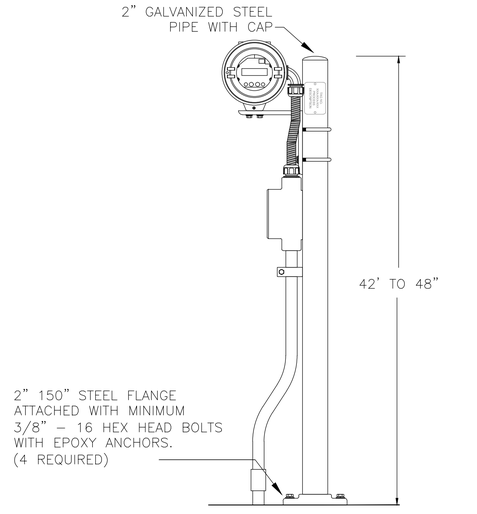
E PRESSURE TRANSMITTER DETAIL
NTS



ULTRASONIC FLOW TRANSMITTER PIPE MOUNTING
SIDE VIEW DETAIL "D"
SCALE: NTS



ULTRASONIC FLOW TRANSMITTER PIPE MOUNTING
DETAIL "B"
SCALE: NTS



ULTRASONIC FLOW TRANSMITTER PIPE MOUNTING
DETAIL "A"
SCALE: NTS

NOTES
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F TRANSIT TIME FLOW METER DETAIL
NTS

CP&Y, INC.
TBPE FIRM REGISTRATION NO. #F-1741

ROUND ROCK TEXAS

STATE OF TEXAS · LIANG LI · 96735 · LICENSED PROFESSIONAL ENGINEER

NO.	REVISION	BY	DATE

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0 1"

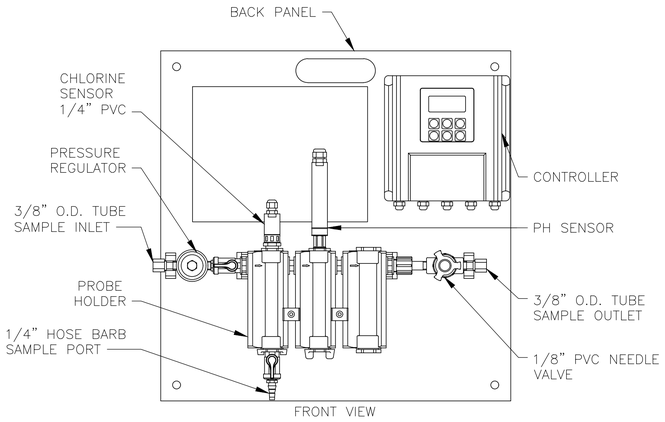
CITY OF ROUND ROCK
SOUTHEAST GST & SOUTH 81 EST
PUMP STATION IMPROVEMENTS

INSTRUMENTATION DETAILS I

Date: JUNE 2017
Designed: L.LI
Drawn: S.MEDINA
Reviewed: A.RISTOW
CP&Y Proj. No. RNDR14486

SHEET
IZ–1
SHEET 56 OF 57

REFERENCES: RNDR14486_Border_Base.dwg –Std ENVRO SEALS
Jun 01, 2017 – 11:37am c:\pwworking\cpy\pw_cpy\smedina\d0459006\RNDR14486 CPY IZ-1.dwg LAYOUT: Instrumentation Details I USER:

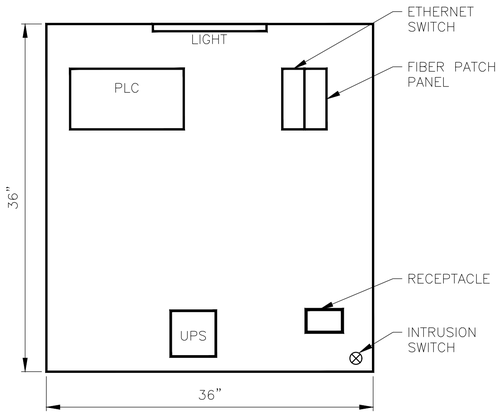


A CHLORINE ANALYZER
NTS

B SOUTH 81 RTU-1 MODIFICATION
NTS

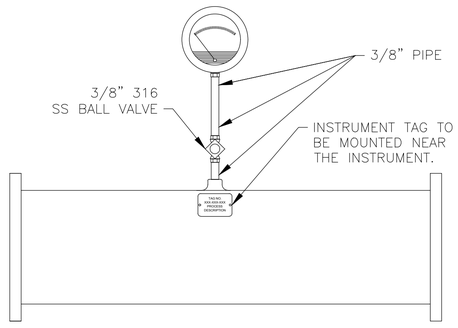
NOTES BY SYMBOL (X)	
1.	PROVIDE DIN-MOUNTED ETHERNET SWITCH. REFER TO SPECIFICATOIN 17315 FOR MODEL NUMBER.
2.	PROVIDE DIN-MOUNTED FIBER OPTIC PATCH PANEL. REFER TO SPECIFICATION 17315 FOR MODEL NUMBER.

NOTES:
1. PROVIDE ALL REQUIRED FIBER AND CAT6 PATCH CABLES TO PROVIDE PLC PEER COMMUNCATION BETWEEN RTU-1 AND NEW RTU-2.
2. RECONFIGURE RTU-1 TO COMMUNICATE WITH RTU-2 VIA IOSCAN. PROGRAM RTU-1 TO PROVIDE RTU-2 DATA CONCENTRATION FOR SCADA HMI NEW PUMP STATION MONITORING AND CONTROL.



NOTE:
PANEL SIZE: 36"x36"(WxH) MINIMUM.

C SOUTH 81 RTU-2 PLAN (NEW)
NTS



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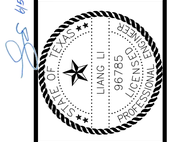
7. FACTORY INSTALLED DIAPHRAGM SEAL WHERE REQUIRED BY PROCESS.

D PRESSURE GAUGE
NTS

CP&Y, INC.
TBPE FIRM REGISTRATION NO. #F-1741

ROUND ROCK TEXAS



NO.	REVISION	BY	DATE

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CITY OF ROUND ROCK
SOUTHEAST GST & SOUTH 81 EST
PUMP STATION IMPROVEMENTS

INSTRUMENTATION DETAILS II

Date: JUNE 2017
Designed: L.LI
Drawn: S.MEDINA
Reviewed: A.RISTOW
CP&Y Proj. No. RNDR14486

SHEET
IZ-2
SHEET 57 OF 57

REFERENCES: RNDR14486_Border_Base.dwg _Std ENVIRO SEALS
Jun 05, 2017 - 9:54am C:\pwworking\cpy\pw_cpy\smedina\d0459006\RNDR14486 CPY IZ-2.dwg LAYOUT: Instrumentation Details II USER: