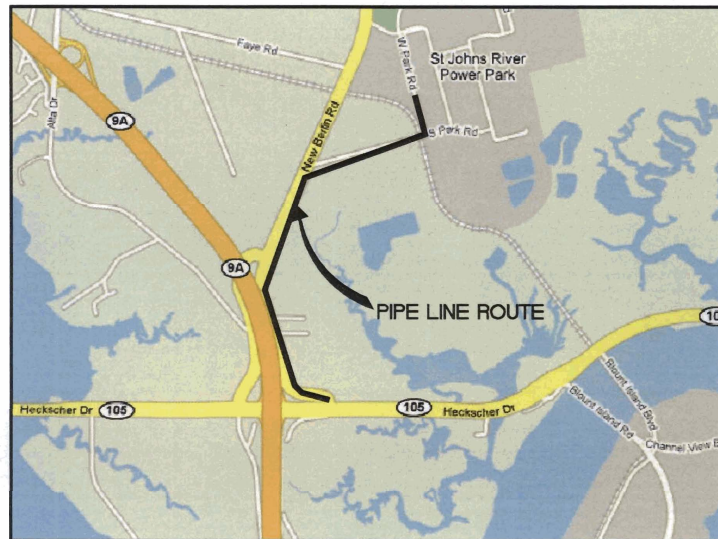


TECO PEOPLES GAS

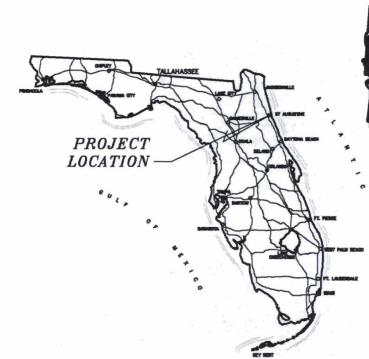
CONSTRUCTION PLANS PROPOSED GAS MAIN ON WILLIAM OSTNER ROAD DUVAL COUNTY, FLORIDA

GENERAL NOTES

1. THE LOCATIONS AND SIZE OF EXISTING UTILITIES AS SHOWN ON THE PLANS ARE APPROXIMATE ONLY. HOWEVER, THERE IS NO GUARANTEE THAT ALL EXISTING FACILITIES HAVE BEEN FOUND OR SHOWN. THE CONTRACTOR IS FOREWARNED TO ASCERTAIN AND DETERMINE PRECISE LOCATIONS PREPARATORY TO EXCAVATING AND ALSO FAMILIARIZE HIMSELF WITH ALL VOLTAGES CARRIED IN OVERHEAD OR UNDERGROUND UTILITY SERVICES. NO CLAIM FOR EXTRA COST SHALL BE MADE AGAINST THE OWNER OR ENGINEER AS A RESULT OF THE AFOREMENTIONED APPROXIMATIONS. THE CONTRACTOR SHALL LOCATE EXACTLY ALL UTILITIES THAT CROSS THE PROPOSED UTILITIES PRIOR TO CONSTRUCTION. ALL ROW LINES, PROPERTY LINES AND EASEMENT LINES ARE APPROXIMATE ONLY AND ARE TO BE CONFIRMED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
2. THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES AT LEAST 48 HOURS BEFORE BEGINNING CONSTRUCTION.
- CONTRACTOR SHALL "CALL SUNSHINE" 1-800-432-4770 A MINIMUM OF 2-DAYS AND A MAXIMUM OF 5-DAYS PRIOR TO START OF CONSTRUCTION.
3. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO USE WHATEVER MEANS NECESSARY TO CONTROL AND PREVENT EROSION AND TRANSPORT OF SEDIMENT TO SURFACE DRAINS AND TO DITCHES DURING CONSTRUCTION.
4. THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY.
5. CONTRACTOR IS SOLELY RESPONSIBLE FOR CONSTRUCTION SAFETY. SPECIAL PRECAUTIONS MAY BE REQUIRED IN THE VICINITY OF POWER LINES AND OTHER UTILITIES.
6. ALL FEATURES ARE NOT SHOWN. THE FEATURES NOT SHOWN INCLUDE, BUT ARE NOT LIMITED TO, OVERHEAD UTILITIES, TRAFFIC CONTROL WIRING AND APPURTENANCES, EXISTING UTILITY SERVICE LINES AND ROAD SIGNS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE AND PROTECT THESE FACILITIES DURING CONSTRUCTION. ANY DAMAGE CAUSED BY THE CONSTRUCTION SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO OWNER.



KEY MAP



SHEET INDEX:

1. COVER
2. GENERAL NOTES
3. GENERAL NOTES
- 4-13 SITE PLAN
14. GENERAL DETAILS/PROFILE
15. GENERAL DETAILS
16. EROSION CONTROL DETAILS
17. EROSION CONTROL DETAILS
18. SAMPLE FRAC-OUT PLAN
19. MCT PLAN

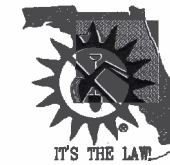
ATTENTION IS DIRECTED TO THE FACT THAT THESE PLANS MAY HAVE BEEN ALTERED IN SIZE BY REPRODUCTION. THIS MUST BE CONSIDERED WHEN OBTAINING SCALED DATA

GOVERNING SPECIFICATIONS: STATE OF FLORIDA, DEPARTMENT OF TRANSPORTATION; STANDARD SPECIFICATIONS, DATED 1999, SUPPLEMENTS AND SPECIAL PROVISIONS THERTO IF NOTED IN THE CONTRACT SPECIFICATIONS FOR THIS PROJECT

FOR
TECO-Peoples Gas System, Inc.

702 N. FRANKLIN STREET
TAMPA FLORIDA 33602

CALL 48 HOURS BEFORE YOU DIG IN FLORIDA



1-800-432-4770
SUNSHINE STATE ONE CALL OF FLORIDA, INC.

CONSULTING ENGINEERS, INC.

P&A

Civil Engineering & Environmental Services
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2808 North Fifth Street, Suite 501 • St. Augustine, FL 32084

LIQUID ENGINEER
QUOC H. MA
FL #0000, CA#0001

REVISIONS	
NO.	DATE

COVER SHEET

PROPOSED GAS MAIN EXTENSION
DUVAL COUNTY, FLORIDA

TECO - P&A GAS SYSTEM, INC.

DATE BY	DATE BY
DATE BY	DATE BY
DATE BY	DATE BY
DATE BY	DATE BY
DATE BY	DATE BY

1 OF 19

1. ALL WORK SHALL BE COMPLETED IN CONFORMANCE AS APPLICABLE WITH FLORIDA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION," LATEST EDITION, AND PER DUVAL COUNTY ENGINEERING DEPARTMENT.

- GEODETTIC INFORMATION CENTER
ATTN: MARK MAINTENANCE SECTION ATTN: N/DG-162
6001 EXECUTIVE BOULEVARD
ROCKVILLE, MARYLAND 20852
TELEPHONE No. (301) 443-8319

- EROSION CONTROL NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR EROSION CONTROL WITHIN BEST MANAGEMENT PRACTICES FOR THE DURATION OF THE PROJECT UNTIL SUCH TIME AS THE PROJECT HAS BEEN CERTIFIED AS COMPLETE.
2. THE CONTRACTOR SHALL SEED & MULCH OR SOO ALL OPEN SPACE AREAS TO BE GRASSED IMMEDIATELY FOLLOWING FINAL GRADING AND COMPLETION OF ALL UNDERGROUND UTILITIES.
3. SILT FENCES SHALL BE INSTALLED ALONG LINES OF CONSTRUCTION.
4. SILT FENCES SHALL BE INSPECTED AFTER EACH RAINFALL AND REPAIRED IMMEDIATELY IF DAMAGED.
5. ALL SIDE SLOPES OF STORM WATER MANAGEMENT AREAS SHALL BE SOODED UPON COMPLETION OF FINAL GRADING.
6. ALL INLETS SHALL BE PROTECTED FROM COLLECTION OF SPOILED MATERIALS BY INSTALLATION OF TEMPORARY FILTER FABRIC AND/OR HAYBALS.
7. FLOATING TURBIDITY BARRIERS SHALL BE INSTALLED WITHIN ALL WATER BODIES DOWNSTREAM OF CONSTRUCTION ACTIVITIES WHERE PROTECTION AGAINST TURBED WATERS DISCHARGE MAY OCCUR.
8. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE NPDES PERMIT PRIOR TO THE START OF CONSTRUCTION.

1. ALL BACKFILL OVER UTILITIES LOCATED UNDER PROPOSED PAVEMENT AREAS SHALL BE COMPACTED PER F.O.D.T. STANDARD SPECIFICATIONS, SECTION 125.8.3., TO 98% OF THE MAXIMUM DENSITY PER AASHTO T-99.
2. ADJUSTMENT OF INLET SLOPS SHALL BE INCLUDED IN THE CONTRACTOR'S BID. NO CLAIM SHALL BE MADE AGAINST THE OWNER AND/OR ENGINEER IN THE EVENT ADJUSTMENTS ARE NECESSARY.
3. CONTRACTOR SHALL COORDINATE CONNECTIONS TO EXISTING STORM DRAINAGE FACILITIES AND SHALL VERIFY LOCATION AND ELEVATION OF SAID FACILITIES PRIOR TO THE START OF CONSTRUCTION. ANY FACILITIES DISTURBED SHALL BE REPAIRED TO EQUAL OR BETTER THAN EXISTING CONDITIONS.
4. THE OWNER RESERVES THE RIGHT TO REQUEST FROM THE CONTRACTOR APPLICABLE CONCRETE SURFACE COURSE MAY CERTIFICATIONS TO ASSURE COMPLIANCE WITH F.O.D.T. SPECIFICATIONS.
5. EXTRA BASE MATERIAL SHALL BE REQUIRED AT CROSS CURBS WHEN COVER DEPTH IS LESS THAN 17" BELOW BOTTOM OF BASE (F.O.D.T. INDEX NO. 205).

1. CONTRACTOR SHALL CLEAN UP ALL DEBRIS AND DISPOSE OF PROPERLY AND MEETING ALL AGENCIES STANDARDS.
2. CONTRACTOR SHALL RESTORE ALL ITEMS TO THE EXISTING CONDITIONS OR BETTER, THESE INCLUDE, BUT NOT LIMITED TO CONCRETE DRIVEWAY, DRIVEWAY APART, MAIL BOXES, DITCH, CONCRETE SIDEWALKS, TREES, LANDSCAPING, UNDERGROUND UTILITIES, ABOVEGROUND UTILITIES, AND GRASS.
3. NO OPEN HOLES SHALL REMAIN OPEN OVERNIGHT WITHOUT PRIOR APPROVAL FROM DAVALL COUNTY.
4. NO PAYMENT IS PROPOSED TO BE PAID. CONTRACTOR IS RESPONSIBLE TO OBTAIN APPROVAL FROM DAVALL COUNTY FOR ANY ROAD CUT DUE TO CONSTRUCTION.
5. CONTRACTOR SHALL PROVIDE TEMPORARY OR ALTERNATIVE MEANS IN PLACE OF EXISTING SIDEWALK TO MAINTAIN PEDESTRIAN TRAFFIC ALONG LINES SPEED WAY DURING CONSTRUCTION.
6. THE DIRECTIONAL DRILL ALONG LINES SHALL CONTAIN THE DRILLING MUD, BENTONITE CLAY, AND OTHER MATERIALS REQUIRED BY ALL STATE AND FEDERAL REGULATIONS. THE CONTRACTOR IS REQUIRED TO IMMEDIATELY SHEED AND CLEAN UP ANY SPILL ALONG THE ROADWAY OR AREA OUTSIDE OF THE CONSTRUCTION AREA.
7. ALL DRIVES DAMAGED OR OPEN CUT DUE TO CONSTRUCTION ACTIVITIES SHALL BE REPLACED THE FULL WIDTH OF THE DRIVE FROM THE EDGE OF PAVEMENT TO THE FURTHEST POINT OF DAMAGE. CONTRACTOR DRIVES SHALL GO TO THE FURTHEST EXISTING CONSTRUCTION JOINT. ALL DRIVES SHALL BE SAW CUT.
8. DRIVES SHALL BE REPAIRED WITH THE FOLLOWING:

ASPHALT=

- 1-4" ASPHALT (S-1 OR S-3) ON
6" LIMESTONE LBR 100 ON
6" SUB-BASE STABILIZATION LBR 40.
CONCRETE=
8" CONCRETE (3,500 PSI) ON
8" SUBBASE STABILIZATION LBR 40.
CONTRACTOR SHALL MEET EXISTING DRYE THICKNESS IF IT EXCEEDS THICKNESS ABOVE.


1. THE WORK HEREIN AUTHORIZED INCLUDES THE INSTALLATION AND MAINTENANCE OF SUBAQUEOUS UTILITY AND TRANSMISSION LINES EMBEDDED IN THE BOTTOM OF NAVIGABLE WATERS OF THE UNITED STATES IN THE STATE OF FLORIDA. EXCEPT AS NOTED IN SPECIAL CONDITION #5 BELOW, ALL SUBAQUEOUS UTILITY AND /OR TRANSMISSION LINES, AUTHORIZED BY THIS GENERAL PERMIT MUST BE INSTALLED A MINIMUM OF 4 FEET BELOW THE BOTTOM CONTOUR.

2. NO WORK SHALL BE PERFORMED UNTIL THE APPLICANT SUBMITS SATISFACTORY PLANS FOR THE PROPOSED ACTIVITY AND RECEIVES written AUTHORIZATION FROM THE DISTRICT ENGINEER.
3. NO UTILITY AND/OR TRANSMISSION LINES WILL BE DISBURSED IN THE BOTTOM OF STATE CLASS I OR CLASS 2 WATERBAY OR AQUATIC PRESERVES.
4. APPLICABLE PERMITS UNDER PART IV OF CHAPTER 375 OF THE FLORIDA STATUTES, AND APPLICABLE STATE LAWS AUTHORIZING UNDER CHAPTER 253 OF THE FLORIDA, DEPARTMENT OF ENVIRONMENTAL PROTECTION (DEP), OR WATER MANAGEMENT DISTRICT (WMD), OR THEIR AUTHORIZED REPRESENTATIVES, AS APPROPRIATE, FOR SUBMERGIBLE UTILITY AND/OR TRANSMISSION LINES INCLUDING STRUCTURES AND FILL IN THE WATERS OF THE STATE.
5. IN ALL FLORIDA COUNTIES EAST OF JEFFERSON COUNTY, ALL SUBMERGIBLE UTILITY AND/OR TRANSMISSION LINES, AUTHORIZED BY THIS GENERAL PERMIT, MUST BE INSTALLED A MINIMUM OF 6 FEET BELOW THE AUTHORIZED CHANNEL BOTTOM. IN CHANNEL T CROSSERS, THE 6-FOOT COVER APPLIES TO THE ENTIRE AUTHORIZED WIDTH OF THE CHANNEL, PLUS A MINIMUM OF 25 FEET OUTSIDE THE CHANNEL EDGES TO ALLOW FOR MAINTENANCE OF THE SIDE SLOPES. IN ALL FLORIDA COUNTIES WEST OF JEFFERSON COUNTY, THE MINIMUM CLEARANCE SHALL BE 10 FEET BELOW THE AUTHORIZED CHANNEL DEPTH.
6. DREDGED OR FILL MATERIAL PLACED AS BACKFILL OR BEDDING FOR SUBMERGIBLE UTILITY AND TRANSMISSION LINES MUST NOT CHANGE THE PRE-CONSTRUCTION BOTTOM CONTOURS. EXCESS MATERIAL MUST BE DEPOSITED IN AN UPLAND DISPOSAL AREA.
7. THE PERMITTEE WILL INSTALL SIGNS AT THE SHORELINE TO NOTIFICATION INTERESTS OF THE LOCATION OF SUBMERGIBLE UTILITY AND TRANSMISSION LINES.
8. NO WORK SHALL BE PERFORMED UNTIL AFTER THE PERMITTEE PROVIDES NOTIFICATION TO THE OWNER(S) OR OPERATOR(S) OF ANY MARINED UTILITIES IN THE AREA OF WORK.
9. NOAA HAS BEEN NOTIFIED OF THIS AUTHORIZATION. THE PERMITTEE MUST NOTIFY NOAA AND THIS OFFICE IN WRITING, AT LEAST TWO WEEKS BEFORE BEGINNING THE AUTHORIZED WORK AND AGAIN UPON COMPLETION OF THE WORK. THE DISTRICT ENGINEER AT THE LETTERHEAD ADDRESS, ATTENTION REGULATORY DIVISION, AND NOAA, NATIONAL OCEAN SURVEY, ATLANTIC MARINE CENTER, 430 WEST YORK STREET, MORFORD, VA 23060. THIS NOTIFICATION WILL CERTIFY THAT THE PROJECT IS CONSTRUCTED AS AUTHORIZED. THE PERMITTEE MUST INCLUDE A DRAWING THAT CERTIFIES THE LOCATION AND DEPTH OF THE COMPLETED ACTIVITY.
10. SA-14 IS NOT APPLICABLE IN THE GEOGRAPHICAL BOUNDARIES OF THE THIMMUCU ECOLOGICAL AND HISTORICAL PRESERVE, THE ST. MARYS RIVER, FROM ITS HEADWATERS TO ITS CONFLUENCE WITH THE BELLS RIVER, THE ENTIRE WEDIVA RIVER, INCLUDING WEDIVA SPRINGS RUN, LAKE SPINGS RUN, THE ENTIRE SEMINOLE CREEK, AND BLACK WATER CREEK FROM ITS OUTFALL AT LAKE ROADS TO ITS CONFLUENCE WITH THE WEDIVA RIVER, THE LOUACHATKA RIVER FROM RIVERHEAD PARK TO ITS CONFLUENCE WITH THE WEDIVA RIVER, THE LAKE WICHITA CREEK WATERWAY FROM THE ST. LUCIE LOCK IN MARTIN COUNTY AND THE W.P. FRANKLIN LOCK THREE COUNTY, THE FOLLOWING STATE PARKS: EDWIN PENEWICK CORP. REEF STATE PARK, LONNIE WATKINS KEY STATE BOTANICAL STATE PARK, PRESIDENT JOHN F. KENNEDY STATE PARK, AND BAHIA NORDA STATE PARK.

11. NO RESTRICTED PROPERTY OR PROPERTIES LISTED AS ELIGIBLE FOR MAY BE INCLUSION IN THE NATIONAL REGISTER FOR HISTORIC PLACES AFFECTED, PRIOR TO THE START OF WORK, THE PERMITTEE MUST CONTACT THE STATE HISTORIC PRESERVATION OFFICER IN TALLAHASSEE AND RECEIVE CONFIRMATION THAT NO IMPACTS TO CULTURAL RESOURCES WILL OCCUR.
12. PRIOR TO ISSUANCE OF AUTHORIZATION THE DISCRETIONARY KEY DENTED, "ORDINANCE TO THE CORPS OF ENGINEERS, U.S. ARMY, FOR THE CONSTRUCTION OF A CONSTRUCTION PROTECTION REGARDING 'MAY AFFECT' DETERMINATIONS FOR THE MANATEE IN FLORIDA," WILL BE USED TO DETERMINE POTENTIAL MANATEE IMPACTS. PROJECTS JUDGED AS A "MAY AFFECT" TO THE MANATEE WILL BE COORDINATED WITH THE U.S. FISH AND WILDLIFE SERVICE IN ACCORDANCE WITH THE ENDANGERED SPECIES ACT. NOTE: THE PERMITTEE MAY BE SUBJECT TO REVISION OF THIS IT IS OUR INTENTION THAT THE MOST RECENT VERSION OF THIS TECHNICAL TOOL WILL BE UTILIZED DURING THE EVALUATION OF THE PERMIT APPLICATION.
13. THE PERMITTEE SHALL INSTRUCT ALL PERSONNEL ASSOCIATED WITH THE PROJECT OF THE POTENTIAL PRESENCE OF MANATEES AND THE NEED TO AVOID COLLISIONS WITH MANATEES. ALL CONSTRUCTION PERSONNEL ARE RESPONSIBLE FOR OBSERVING WATERSHED-RELATED ACTIVITIES FOR THE PRESENCE OF MANATEES.
14. THE PERMITTEE SHALL ADVISE ALL CONSTRUCTION PERSONNEL THAT THERE ARE CIVIL AND CRIMINAL PENALTIES FOR HARMING, HARASSING, OR KILLING MANATEES WHICH ARE PROTECTED UNDER THE MARINE MAMMALIA PROTECTION ACT OF 1972, THE ENDANGERED SPECIES ACT OF 1973 AND THE FLORIDA WATERSHED SANCTUARY ACT OF 1978. THE PERMITTEE AND/OR CONTRACTOR MAY BE HELD RESPONSIBLE FOR ANY MANATEE HARMED, HARASSED, OR KILLED AS A RESULT OF CONSTRUCTION ACTIVITIES.
15. SHELTER BARRIERS SHALL BE INSTALLED, SHALL BE MADE OF MATERIAL IN WHICH MANATEES CANNOT BECOME ENTANGLED, SHALL BE PROPERLY SECURED, AND SHALL BE MONITORED REGULARLY TO AVOID MANATEE ENTRAPMENT. BARRIERS SHALL NOT BLOCK MANATEE ENTRY TO OR EXIT FROM ESSENTIAL HABITAT.
16. ALL VESSELS ASSOCIATED WITH THE PROJECT SHALL OPERATE AT "NO WAKE/NOLE" SPEEDS AT ALL TIMES. VESSELS SHALL BE REQUIRED TO MAINTAIN A MINIMUM 100 YARDS FROM ANY FOUR FOOT DEPTH FROM THE BOTTOM AND THAT VESSELS SHALL FOLLOW ROUTES OF DEEP WATER TO AVOID ANY POSSIBLE COLLISIONS.
17. IF A MANATEE IS SIGHTED WITHIN 100 YARDS OF THE PROJECT AREA, ALL APPROPRIATE PRECAUTIONS SHALL BE IMPLEMENTED BY THE PERMITTEE/CONTRACTOR TO ENSURE PROTECTION OF THE MANATEE. THESE PRECAUTIONS SHALL INCLUDE OPERATING ALL EQUIPMENT IN SUCH A MANNER THAT MOVING EQUIPMENT DOES NOT COME WITHIN 50 FEET TO ANY MANATEE. OPERATION OF ANY EQUIPMENT CLOSER THAN 50 FEET TO ANY MANATEE MAY BE REQUIRED TO STOP. THE PERMITTEE SHALL BE RESPONSIBLE FOR NOT WILLINGLY NOT RESUME UNTIL THE MANATEE(S) HAS DEPARTED THE PROJECT AREA OF ITS OWN VOLITION.
18. ANY COLLISION WITH OR INJURY TO OR HARM TO A MANATEE SHALL BE REPORTED IMMEDIATELY TO THE "MANATEE HOTLINE" 417-466-0447-PRO (1-888-438-3622). COLLISION AND/OR INJURY SHOULD ALSO BE REPORTED TO THE U.S. FISH AND WILDLIFE SERVICE IN JACKSONVILLE (1-804-232-2500) FOR NORTH FLORIDA OR VERO BEACH (1-800-562-3000) IN SOUTH FLORIDA.

19. TEMPORARY SIGNS CONCERNING NANNATEES SHALL BE POSTED PRIOR TO AND DURING CONSTRUCTION / DEMOLITION ACTIVITIES. ALL TEMPORARY SIGNS ARE TO BE REMOVED BY THE PERMITTEE UPON COMPLETION OF THE PROJECT. A SIGN MEASURING AT LEAST 3 FEET BY 4 FEET WITH THE FOLLOWING WORDS
- CAUTION: NANNATEE AREA WILL BE POSTED IN LOCATION PROXIMATELY VISIBLE TO WATER RELATED CONSTRUCTION OR DEMOLITION. A SECOND SIGN SHOULD BE POSTED IF VESSELS ARE ASSOCIATED WITH THE CONSTRUCTION, AND SHOULD BE PLACED VISIBLE TO THE VESSEL OPERATOR. THE SECOND 4 INCHES BY 11 INCHES WORD READS: SIGN SHOULD BE AT LEAST 6/2**
- CAUTION: NANNATEE MARITIME LANE SPEED IS REQUIRED IF OPERATING A VESSEL IN THE CONSTRUCTION AREA. ALL EQUIPMENT MUST BE WITHIN 100 YARDS OF THE NANNATEE SIGNS WITHIN 60 FEET OF THE OPERATION. A COLLISION WITH AND/OR INJURY TO A NANNATEE SHALL BE REPORTED IMMEDIATELY TO THE FLORIDA MARINE PATROL AT 1-800-404-FWOC (1-800-404-3022) AND THE U.S. FISH AND WILDLIFE SERVICE AT (1-800-352-2673) FOR NORTH FLORIDA AND (1-561-362-3000) FOR SOUTH FLORIDA.**
20. NO ACTIVITY SHALL BE AUTHORIZED UNDER THIS GENERAL PERMIT WHICH BY ITS SIZE OR LOCATION MY ADVERSELY AFFECT WATER QUALITY, FISH AND WILDLIFE HABITAT, WETLANDS, OR EMERGENT OR SUBMERGED AQUATIC VEGETATION.
21. THIS GENERAL PERMIT WILL BE VALID UNTIL SUSPENDED OR REVOKED BY THE ISSUANCE OF A PUBLIC NOTICE BY THE DISTRICT ENGINEER. REVIEWS WILL BE CONDUCTED EVERY 5 YEARS TO DETERMINE IF CONTINUED USE OF THE PERMIT IS IN THE PUBLIC INTEREST. AUTHORIZATION OF ACTIVITIES THAT HAVE COMMENCED OR ARE UNDER CONTRACT TO COMMENCE IN RELIANCE ON SA-14 WILL EXPIRE IN EFFECT PROVIDED THE ACTIVITY IS COMPLETED WITHIN 12 MONTHS OF THE DATE SA-14 EXPIRED OR HAS BEEN REVOKED.
22. CONFORMANCE WITH THE DESCRIPTION AND CRITERIA CONTAINED HEREIN DOES NOT NECESSARILY GUARANTEE AUTHORIZATION UNDER THIS GENERAL PERMIT.
23. THE PERMITTEE SHALL DEFEND AND HOLD THE GOVERNMENT HARMLESS FROM ANY AND ALL CLAIMS BY REASON OF THE PLACEMENT AND INSTALLATION OF SUBAQUEOUS UTILITY AND TRANSMISSION LINES AUTHORIZED BY THIS PERMIT.
24. NO ACTIVITY SHALL BE AUTHORIZED UNDER THIS GENERAL PERMIT WHICH IS LIKELY TO ADVERSELY AFFECT A FEDERALLY LISTED THREATENED OR ENDANGERED SPECIES OR A SPECIES PROPOSED FOR SUCH DESIGNATION, OR DESTROY OR ADVERSELY MODIFY ITS DESIGNATED CRITICAL HABITAT.
25. THE DISTRICT ENGINEER RESERVES THE RIGHT TO REQUIRE THAT ANY REQUEST FOR AUTHORIZATION UNDER THIS GENERAL PERMIT BE PROCESSED AS A STANDARD PERMIT.
26. THE PERMITTEE SHALL PERFORM ALL WORK IN ACCORDANCE WITH THE ATTACHED GENERAL CONDITIONS

SHEET TITLE	GENERAL NOTES		REVISIONS NO. DATE	
	DRAWN BY: <i>JLM</i> CHECK BY: <i>JLM</i> DATED: <i>06-10-07</i> JOB NO.: <i>10607-14</i>			
PROPOSED GAS MAIN EXTENSION DUAL COUNTY, FLORIDA				
PREPARED FOR TECO - PROPLES GAS SYSTEM, INC.				



P&A
CONSULTING ENGINEERS, INC.

Civil Engineering & Environmental Services

TEL: 904-324-3755 • FAX: 904-824-3756

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2608 North Florida Street, Suite 501 • St. Augustine, FL 32084

LICENSED ENGINEER
 QUOC H. MAI
 PL#4006 CA#6521

MAINTENANCE OF TRAFFIC NOTES:

1. THE CONTRACTOR SHALL INSTALL STAND MOUNTED ADVANCE CONSTRUCTION SIGNING FOR ANY WORK LESS THAN 15 FEET FROM EDGE OF PAVEMENT.
3. ALL CONSTRUCTION EQUIPMENT AND MATERIALS SHALL BE STORED A MINIMUM OF 15 FEET FROM THE EDGE OF EXISTING PAVEMENT AND SHALL BE PROTECTED BY TYPE 1 BARRICADES WITH FLASHING YELLOW LIGHTS.
4. THERE SHALL BE NO EXCAVATIONS LEFT OPEN AFTER DARK.
5. THE CONTRACTOR SHALL NOTIFY DUVAL COUNTY RIGHT-OF-WAY OFFICE 48 HOURS PRIOR TO BEGINNING CONSTRUCTION.
6. IT IS THE CONTRACTORS RESPONSIBILITY TO CONTACT THE SUNSHINE STATE ONE CALL SYSTEM AT (800)-432-4770 FOR LOCATION OF UNDERGROUND UTILITIES.

SITE PREPARATION NOTES:

NORMAL GOOD PRACTICE SITE PREPARATION PROCEDURES SHALL BE USED FOR THIS PROJECT. THESE PROCEDURES INCLUDE: STRIPPING THE SITE OF EXISTING VEGETATION AND TOPSOIL, COMPACTING THE SUBGRADE AND PLACING NECESSARY FILL OR BACK FILL TO GRADE WITH ENGINEERED FILL, A MORE DETAILED SYNOPSIS OF THIS WORK IS AS FOLLOWS:

1. PRIOR TO CONSTRUCTION, THE LOCATION OF ANY EXISTING UNDERGROUND UTILITY LINES WITHIN THE CONSTRUCTION AREA SHOULD BE ESTABLISHED. PROVISIONS SHOULD THEN BE MADE TO RELOCATE INTERFERING UTILITIES TO APPROPRIATE LOCATIONS. REMOVED PIPES SHALL BE PROPERLY REMOVED OR PLUGGED, AS THEY MAY SERVE AS CONDUITS FOR SUB-SURFACE EROSION WHICH MAY SUBSEQUENTLY LEAD TO EXCESSIVE SETTLEMENT OF OVERLAY STRUCTURES).

2. IT IS RECOMMENDED THE TOP OF THE CLAYEY SANDS BE MAINTAINED A MINIMUM OF 2 FEET BELOW THE PROPOSED BOTTOM OF THE BASE MATERIAL OR CONCRETE PAVEMENT, IF THE SITE GRADING IS SUCH THAT THE MINIMUM SEPARATION DOES NOT EXIST, BE RECOMMENDED UNDERCUTTING THE CLAYEY MATERIALS TO MAINTAIN THIS SEPARATION AND BACK FILLING WITH CLEAN STRUCTURAL FILL, AS DESCRIBED BELOW.

3. COMPACT THE SUBGRADE FROM THE SURFACE WITH A LIGHT WEIGHT VIBRATORY ROLLER (A 2 TO 3 TON ROLLER, STATIC WEIGHT AND 3 FOOT DRUM DIAMETER) OR TRACKED DOZER EQUIPMENT UNTIL A MINIMUM DENSITY OF AT LEAST 90 PERCENT OF THE MODIFIED PROCTOR MAXIMUM DRY DENSITY (ASTM D-1555), TO A DEPTH OF 12 INCHES BELOW THE COMPACTED SURFACE IS OBTAINED. A MINIMUM OF EIGHT (8) COMPLETE COVERAGES SHOULD BE MADE IN THE PAVEMENT CONSTRUCTION AREA WITH A ROLLER TO IMPROVE THE UNIFORMITY AND INCREASE THE DENSITY OF THE UNDERLYING SANDY SOILS. THE USE OF HEAVY VIBRATORY COMPACTION EQUIPMENT SHALL NOT BE UTILIZED DUE TO THE POTENTIAL FOR PUMPING OF THE NEAR CLAYEY SOILS ENCOUNTERED, UNLESS APPROVED BY THE ENGINEER.

4. SHOULD THE SUBGRADE SOILS EXPERIENCE PUMPING AND SOIL STRENGTH LOSS DURING THE COMPACTION OPERATIONS, COMPACTION WORK SHOULD BE IMMEDIATELY TERMINATED AND (1) THE DISTURBED SOILS REMOVED AND BACKFILLED WITH DRY STRUCTURAL FILL SOILS WHICH ARE THEN COMPACTED, OR (2) THE EXCESS PORE PRESSURES WITHIN THE DISTURBED SOILS ALLOWED TO DISSIPATE BEFORE RECOMPACTION.

5. TO AVOID PUMPING OF THE UNDERLYING CLAYEY SOILS, SELF PROPELLED VIBRATING EQUIPMENT SHALL REMAIN A MINIMUM OF 2 FEET ABOVE THE CLAYEY SOILS. THE SANDY SOILS WITHIN 2 FEET OF THE CLAYEY SOILS MAY BE COMPACTED WITH A VIBRATORY ROLLER.

6. OPERATE IN THE STATIC MODE OR WITH A TRACK DOZER TO AVOID DISTURBING THE CLAYEY SOILS. A MINIMUM OF 18 INCHES OF SAND SHALL OVERLAY THE CLAYEY SOILS PRIOR TO OPERATION OF ANY TYPE OF CONSTRUCTION EQUIPMENT. EXCESS DISTURBANCE OF THE CLAYEY SOILS WILL DEGRADE THE STRENGTH CHARACTERISTICS OF THE SOIL AND MAY RESULT IN AN UNSUITABLE SOIL WHICH WILL REQUIRE OVER AND SUBSEQUENT BACKFILLING WITH CLEAN FINE SAND FILL MATERIAL. IN AREAS WHERE CLAYEY SOILS ARE ENCOUNTERED NEAR THE GROUND SURFACE OR ARE EXPOSED BY OVER EXCAVATION, AN INITIAL LIFT OF STRUCTURAL FILL MAY BE PLACED PRIOR TO COMPACTION OF THE SUBGRADE SOILS.

7. DUE TO THE PRESENCE OF THE NEAR SURFACE CLAYEY SOILS, THE SITE MAY BECOME DIFFICULT TO WORK DURING WET WEATHER. IF CONSTRUCTION IS BEGUN DURING WET WEATHER, IT IS RECOMMENDED THE BUILDING AND PAVEMENT SUBGRADES NOT BE DISTURBED OTHER THAN TO STRIP VEGETATION, FILL AND GRADING OPERATIONS SHOULD BE PERFORMED WITH A MINIMUM DISTURBANCE TO THE SURFICIAL SOILS. IN THIS REGARD, IT IS RECOMMENDED THAT TRACK EQUIPMENT BE USED ON SITE.

8. TEST THE SUBGRADE FOR COMPACTION AT A FREQUENCY OF NOT LESS THAN ONE TEST PER 10,000 SQUARE FEET.

9. PLACE FILL MATERIAL, AS REQUIRED. THE FILL SHOULD CONSIST OF CLEAN FINE SAND WITH LESS THAN 10 PERCENT SOIL FINES. PLACE FILL IN UNIFORM LAY TO 12 INCH LOOSE LAYS AND COMPACT EACH LIFT TO A MINIMUM DENSITY OF 98 PERCENT OF THE MODIFIED PROCTOR MAXIMUM DRY DENSITY.

10. CONTRACTOR SHALL OBTAIN RECORD / EVIDENCE OF ALL EXISTING FEATURES VIA VIDEO TAPING OR PHOTOGRAPHS PRIOR TO ANY CONSTRUCTION.

RR CROSSING SPECIFICATION

PROJECT NAME:	TECO PEOPLES GAS
DESIGN ENGINEER:	P&A CONSULTING ENGINEERS, INC. 2805 NORTH 77TH STREET, SUITE 501 ST. AUGUSTINE, FL 32084 904-824-3755
	DIRECTIONAL DRILL WITH 8" STEEL PIPE ASTM A142
DEPTH OF	MINIMUM 25 FEET FROM BOTTOM OF THE CROSSTIE TO TOP OF PIPE
LENGTH OF	MINIMUM 25 FEET FROM CENTER LINE OF RAIL ROAD TRACK
LOCATION OF PIPE:	CROSSING THE THREE RAIL ROAD TRACKS INSIDE JEA ST JOHNS POWER PLANT ON THE NORTH SIDE OF WILLIAMS OSMER ROAD. THE START AND END OF THE DRILL ARE OVER 50 FEET FROM CENTER TO TRACK.
CARRIER PIPE:	8"STEEL PIPE, ASTM A142, GRADE= X52 ERW, GAUGE=0.216, OD=8.625", TENSIL FUSION BOND EPOXY COATING, MIN YIELD STRENGTH 58,000, TEST YIELD STRENGTH RANGE OF 60 KSI TO 78 KSI, TEST TENSILE STRESS RANGE 74 KSI TO 81 KSI
OPERATION:	THE DRILL WILL NOT INTERFERE WITH THE NORMAL OPERATION OF THE RAILWAY AT ANY GIVEN TIME.

TIPS FOR COMMONLY USED BMPs

- CONSTRUCTION EXTERMINATION**
- REMOVE VEGETATION, ROOTS, AND OTHER MATERIAL FROM ENTRANCE.
 - LAY DOWN GEOTEXTILE, THEN 6 INCHES OF FOOT NO. 1 COURSE AGGREGATE ON TOP.
 - THE LENGTH OF ENTRANCE MUST BE AT LEAST 50 FEET.
 - MAINTAIN AS NEEDED TO PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAY.

SILT FENCES

- INSTALL WITHIN 24 HOURS OF LAND DISTURBANCE.
- BURY 8 INCHES OF FABRIC IN TRENCH.
- LEAVE NO GAPS (OVERLAP OR TRUST ENDS TOGETHER).
- MAINTAIN AND REPAIR UNTIL A GROUND COVER IS ESTABLISHED.

SOIL PILES

- LOCATE AWAY FROM DOWNGRADES, STREETS, DRIVEWAYS, STREAMS, WETLANDS, LAKES, ETC.
- KEEP COVERED WITH PLASTIC SHEETING.
- CAREFULLY NOT DOWN EXPOSED SOIL TO KEEP JUST AND EXPOSURE TO A MINIMUM.

STORM SEWER INLET PROTECTION

- PROJECT NEAREST STORM SEWER INLETS WITH STRAW OR SYNTHETIC BALE, SYNTHETIC FABRIC, FILTER SOCK, OR OTHER MEASURE.
- INSPECT, REPAIR, AND REPLACE AS NEEDED, AND REMOVE SEDIMENT DEPOSITS AFTER EVERY STORM.

SEDIMENT CLEANUP

- REMOVE SOIL TRACKED ONTO THE STREET AFTER EACH MORNING.
- CLEANUP ALL SOIL THAT HAS WASHED OFF SITE FOLLOWING A STORM.
- PRESERVE EXISTING VEGETATION
- PRESERVE EXISTING TREES, SHRUBS, AND OTHER VEGETATION WHENEVER POSSIBLE.
- TO PREVENT ROOT DAMAGE, DO NOT GRADE, PLACE SOIL PILES, OR PARK VEHICLES NEAR TREES MARKED FOR PRESERVATION.
- PLACE PLASTIC MESH AROUND TREES EXTENDING TO THE GRP LINE TO PROTECT THE AREA BELOW THEIR BRANCHES.

REVEGETATION

- SEED, SOO, OR MULCH BARE SOIL AS SOON AS POSSIBLE. VEGETATION IS THE MOST EFFECTIVE WAY TO CONTROL EROSION.

SEEDING AND MULCHING

- SPREAD AND COMPACT 2-4 INCHES TOPSOIL.
- SEED WITH APPROPRIATE MIX FOR SITE AND SEASON.
- RAKE LIGHTLY TO COVER SEED WITH 1/8 INCH OF SOIL.
- MULCH WITH ANCHORED STRAW.
- GENTLY WATER EVERY OTHER DAY UNTIL GRASS IS 2 INCHES TALL.

SOODING

- LEAVE OR REPLACE 4 INCHES OF TOPSOIL.
- LIGHTLY WATER SOIL BEFORE LAYING SOO.
- ON SLOPES, LAY SOO STARTING AT THE BOTTOM AND WORK TOWARD THE TOP, LAYING IN A BROCKWORK PATTERN PER EACH PIECE DOWN IN SEVERAL PLACES.
- USE SOO FROM SOURCES CERTIFIED BY THE DIVISION OF PLANT INDUSTRY AS "MORUOUS WEEB-FREE".
- INITIAL WATERING SHOULD MEET SOIL 8 INCHES DEEP. THEN WATER LIGHTLY EVERY OTHER DAY TO KEEP SOIL MOIST.

DESIGN RESTRICTION AND CONTRACTOR RESPONSIBILITY

***THIS DESIGN RESTRICTION ARE LISTED TO PROVIDE REASON FOR ADDITIONAL REQUIREMENTS TO THE CONTRACTOR TO DISCUSS PRIOR TO CONSTRUCTION IN ORDER TO MEET THE GUIDELINES FOR HORIZONTAL DIRECTIONAL DRILLING UNDER CSX RAIL ROAD LISTED ABOVE.

1. IT IS UNKNOWN AT THE DESIGN AND PERMITTING STAGE TO PROVIDE THE CONTRACTOR QUALIFICATION BECAUSE THE PROJECT IS YET DESIGNED, PERMITTED, BID OUT OR AWARDED TO THE CONTRACTOR. ONCE THE PROJECT DESIGN IS COMPLETED, PERMITTED, THE SELECTED CONTRACTOR SHALL SUBMIT A QUALIFICATION INCLUDING THE SPECIFIC INSTANCES OF PREVIOUS SUCCESSFUL EXPERIENCE IN DRILLING UNDER RAILROAD AND OTHER SENSITIVE SURFACE FACILITIES TO CSX. THE CONTRACTOR REQUIRED TO OBTAIN THE APPROVAL TO WORK BY CSX. THE OWNER RESERVED THE RIGHT TO VOID THE CONTRACT FOR WORK UNDER THE CSX RAILROAD IF THE CONTRACTOR FAIL TO OBTAIN THE APPROVAL FROM CSX.
2. THE DESIGN ASSUMES INDUSTRY STANDARD FOR DIRECTIONAL DRILL METHOD, PROCEDURE ONLY. CONTRACTOR'S EQUIPMENT, LABOR, MATERIAL, RESOURCE ALLOCATION AND SCHEDULE IS UNKNOWN AT THE DESIGN STAGE. THE SELECTED CONTRACTOR SHALL SUBMIT THE ACTUAL BORING PLAN WITH SPECIFIC INFORMATION ON DRILL RIG CAPACITY, DRILL PATH, DRILL PROFILE, EQUIPMENTS, SIZES OF PILOT HOLE, DRILL HOLE, REAMER, AND THE CONTINGENCY EQUIPMENT AND PLAN IN CASE OF UNEXPECTED SITUATION.
3. THIS DESIGN INCLUDES A SAMPLE FRAC-OUT PLAN FROM CSX THAT IS REQUIRED TO BE SUBMITTED TO CSX PRIOR TO CONSTRUCTION BY THE CONTRACTOR. DUE TO RESTRICTION OF THE DESIGN, THIS PLAN CAN NOT INCLUDE SPECIFIC EQUIPMENT DETAIL, LABOR, RESOURCE ALLOCATION AND SCHEDULE OF THE SPECIFIC CONTRACTOR. THEREFORE, IT IS REQUIRED FOR THE SELECTED CONTRACTOR TO SUBMIT THE ACTUAL FRAC-OUT PLAN TO CSX PRIOR TO CONSTRUCTION.
4. THE CONTRACTOR SHALL REQUIRED TO COORDINATE WITH CSX RAILWAY FOR PRE-CONSTRUCTION MEETING, COORDINATE WITH ENGINEER INSPECTOR FOR CONSTRUCTION AND PAY THE REQUIRED FEE TO CSX FOR THAT INSPECTOR.

INTERIM GUIDELINES FOR HORIZONTAL DIRECTIONAL DRILLING UNDER CSX RAIL ROAD

1. FOR PIPE LINES CONVEYING GAS OR LIQUID SUBSTANCES, STEEL PIPE ONLY MAY BE INSTALLED UNDER TRACKS OR CSX RIGHT-OF-WAY UTILIZING HORIZONTAL DIRECTIONAL DRILLING. THE PIPE MAY BE USED AS A CARRIER PIPE OR A CASING PIPE. HIGH DENSITY POLYETHYLENE (HDPE) CARRIER PIPE, IF USED MUST BE INSTALLED WITHIN A STEEL CASING.
2. FOR WIRE LINE INSTALLATION, INCLUDING FIBER OPTIC CABLE, HDPE PIPE MAY BE INSTALLED AS THE OUTERMOST PIPE.
3. FOR ALL LIQUID OR GAS INSTALLATIONS, FOR NON-NOMINAL PIPE SIZES EXCEEDING 8 INCHES, MINIMUM COVER (MEASURED FROM BASE OF RAIL TOP OF PIPE) SHALL BE 25 FEET, REGARDLESS OF PRODUCT FOR FIBER OPTIC OR ELECTRICAL INSTALLATIONS, WITH CASING/CONDUIT NOMINAL SIZE OF 8 INCHES. OR LESS, MINIMUM COVER SHALL BE 15 FEET.
4. APPLICANT SUBMITTAL SHALL INCLUDE ACTUAL PLANNED DEPTH OF PIPE UNDER EACH RAILROAD TRACK.
5. APPLICANT MUST PROVIDE PIPE SPECIFICATIONS FOR CASING AND CARRIERS PIPES. PIPE MUST SATISFY ALL APPLICABLE GOVERNMENT AND INDUSTRY REGULATIONS.
6. APPLICANT MUST PROVIDE QUALIFICATIONS OF DRILLING CONTRACTOR INCLUDING SPECIFIC INSTANCES OF PREVIOUS SUCCESSFUL EXPERIENCE IN DRILLING UNDER RAILROAD AND OTHER SENSITIVE SURFACE FACILITIES.
7. A) THE CONTRACTOR MUST SUBMIT A BORING PLAN THAT DESCRIBES THE ANTICIPATED RIG CAPACITY, THE PROPOSED EQUIPMENT AND THE METHOD FOR ADVANCING THE BOREHOLE THROUGH EXPECTED SOIL CONDITIONS, DEPTH AND EXACT LOCATION OF THE EXIT HOLE, THE PILOT HOLE DIAMETER, THE PROPOSED REAMING PLAN, INCLUDING THE NUMBER AND DIAMETER OF PRE-REAMER/BACK-REAMERS AND DIAMETER OF THE FINAL REAMED BOREHOLE, AND THE CONTINGENCY EQUIPMENT AND PLANS FOR DEALING WITH SOIL CONDITIONS THAT A SOIL ENGINEER COULD REASONABLY EXPECT TO BE ENCOUNTERED AT THE PROPOSED HOD INSULATION SITE. THE BORING PLAN WILL ALSO ADDRESS THE ANTICIPATED HOURS OF OPERATION DURING THE HOD JOBS. HOD DRILLING AND INSTALLATION PROCESS, THE MINIMUM NUMBER OF PERSONNEL, AND THEIR RESPONSIBILITIES ON-DUTY AND ON SITE DURING ALL HOD DRILLING OPERATIONS. CONSIDERATION FOR WORKING HOURS MUST BE GIVEN TO MINIMIZE RISK TO RAILROAD OPERATIONS DURING DRILLING OPERATIONS.

- B) THE CONTRACTOR MUST PROVIDE A DETAILED FRACTURE MITIGATION (FRAC-OUT) PLAN INCLUDING METHOD OF MONITORING QUANTITY AND CAPTURING THE RETURN OF DRILLING FLUIDS WITH PARTICULAR ATTENTION TO VARIATION FROM PROPOSED PLAN (I.E. VOLUMES, PRESSURE OR CONSISTENCY).

- C) ESTABLISH A SURVEY GRID LINE AND PROVIDE A PROGRAM OF MONITORING AND DOCUMENTING THE ACTUAL LOCATION OF THE BOREHOLE DURING DRILLING OPERATIONS.

8. AN ENGINEERING INSPECTOR IS REQUIRED TO MONITOR THE GROUND AND TRACK FOR MOVEMENT DURING THE DRILLING REAMING AND PULLBACK PROCESSES. THE ENGINEERING INSPECTOR WILL BE PROVIDED BY CSX AT THE APPLICANTS SOLE COST AND EXPENSE. THE INSTALLATION PROCESS AND ALL TRAIN MOVEMENT MUST BE IMMEDIATELY STOPPED IF MOVEMENT IS DETECTED. THE DAMAGED AREA MUST BE IMMEDIATELY REPAIRED. THE INSTALLATION PROCESS MUST BE REVIEWED AND MONITORED AS REQUIRED BEFORE THE INSTALLATION MAY PROCEED. APPLICANT MUST PAY RAILROAD'S EXPENSE FOR REVIEW AND INSPECTION.

9. UPON COMPLETION OF THE HOD INSULATION WORK, THE CONTRACTOR SHALL PROVIDE AND ACCURATE AS-BUILT DRAWING OF THE INSTALLED HOD SEGMENT. AS-BUILT DRAWINGS WILL INCLUDE BOTH HORIZONTAL PROFILE PLANS, THE LATITUDE AND LONGITUDE COORDINATES OF THE ENTRY, EXIT, AND TURN POINTS SHALL BE PROVIDED ON THE AS-BUILT DRAWING.

LEGEND:

	MP	MARKER POST
	GAS	PROPOSED STEEL GAS PIPE
		CONTROL VALVE
	152+00	STATIONING LINE
	N	SECTION INDICATOR
		EDGE OF PAVEMENT
		PAVEMENT CUT & REPAIR
		DIRECTIONAL DRILL LOCATION
		RIGHT-OF-WAY
	SF	TYPE III SILT FENCE

GENERAL EROSION CONTROL NOTES:

1. CAUTION: ALL UTILITY LOCATIONS ARE APPROXIMATE AND MUST BE LOCATED PRIOR TO CONSTRUCTION.
2. VEGETATION CLEARING WILL BE KEPT TO THE ABSOLUTE MINIMUM NECESSARY FOR CONSTRUCTION.
3. MATERIAL RESULTING FROM EXCAVATION WILL NOT BE PLACED IN SUCH A MANNER THAT IT IS DISPERSED BY CURRENT OR OTHER FORCES. THE MATERIAL SHOULD BE COLLECTED AND CONTAINED AT ONE SITE AS APPROPRIATE.
4. HEAVY EQUIPMENT WORKING IN WETLANDS WILL BE PLACED ON MATS OR LOW GROUND PRESSURE EQUIPMENT USED DURING CONSTRUCTION TO LIMIT SOIL DISTURBANCE TO THE MINIMUM AREA REQUIRED TO INSTALL THE UTILITY.
5. NO STANDING AREAS OR TEMPORARY ACCESS ROADS WILL BE PLACED IN WETLANDS.
6. APPROPRIATE SEDIMENTATION AND EROSION CONTROLS WILL BE USED AND MAINTAINED IN EFFECTIVE OPERATING CONDITION DURING CONSTRUCTION, AND ALL EXPOSED SOIL AND FILLS WILL BE PERMANENTLY STABILIZED AT THE EARLIEST PRACTICABLE DATE.
7. SEDIMENT CONTROL, FERT (SILT) FENCES SHOULD BE INSTALLED AND MAINTAINED FOR THE DURATION OF THE CONSTRUCTION. SILT FENCE WILL BE INSTALLED ALONG AND WITHIN THE RIGHT-OF-WAY LINE (12 FT. AWAY FROM THE EDGE OF THE RIGHT-OF-WAY), IF A BODY OF WATER OR POTENTIAL WETLAND IS LOCATED WITHIN 60 FT. FROM THE EDGE OF THE RIGHT-OF-WAY, ANY OTHER SITUATIONS WILL BE APPROVED BY ENGINEER.
8. WHEN CONSTRUCTING IN WETLANDS, THE TOP 6 TO 12 INCHES OF THE TRENCH WILL BE BACK FILLED WITH TOP SOIL FROM THE TRENCH.
9. EXCESS MATERIAL WILL BE REMOVED FROM THE WETLAND AND PLACE ON UPLAND AREAS IMMEDIATELY UPON COMPLETION OF CONSTRUCTION.
10. EXPOSED SLOPES OF STREAM BANKS WILL BE RESTORED TO THEIR ORIGINAL CONTOURS AND STABILIZED IMMEDIATELY UPON COMPLETION OF CONSTRUCTION.
11. ANY TEMPORARY FILLS MUST BE REMOVED IN THEIR ENTIRETY AND THE AFFECTED AREAS RETURNED TO THEIR PRE-EXISTING ELEVATION.
12. ANY DISTURBED AREA WILL BE RESEED WITH NATIVE GRASS SEED, AND SEDIMENT CONTROL FENCE SHOULD BE REMOVED IMMEDIATELY UPON COMPLETION OF CONSTRUCTION.
13. WHEN CONSTRUCTING IN CITY LIMITS, ALL ROADWAY DRAINS, SUCH AS INLETS NEAR CURBS OR DROP INLETS ON ROADWAYS WHICH ARE LOCATED WITHIN THE RIGHT-OF-WAY, SHALL BE PROTECTED WITH TYPICAL INLET SEDIMENT FILTERS. THESE FILTERS WILL BE REMOVED IMMEDIATELY UPON COMPLETION OF CONSTRUCTION.
14. ALL CABLE PARBARS TO BE PLACED AS FAR BACK TO RIGHT-OF-WAY LINE AS POSSIBLE.
15. ALL HARD SURFACE THOROUGHFARES TO BE DIRECTIONAL BORED MINIMUM 6" BELOW SURFACE MINIMUM 5' FROM EDGE OF PAVEMENT OF SURFACE TO BE CROSSED.
16. HARD SURFACED DRIVEWAYS TO BE DIRECTIONAL BORED.
17. DRAWING DISCLAIMER: FACILITY LOCATIONS ARE GENERAL IN NATURE. ENGINEER WILL NOT BE HELD ACCOUNTABLE FOR THE ACCURACY OF THE INFORMATION PROVIDED ON THESE DRAWINGS. CONTRACTOR MUST LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION.

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LICENSED ENGINEER
QUOC H. NAM
FL-43638

NO.	DATE

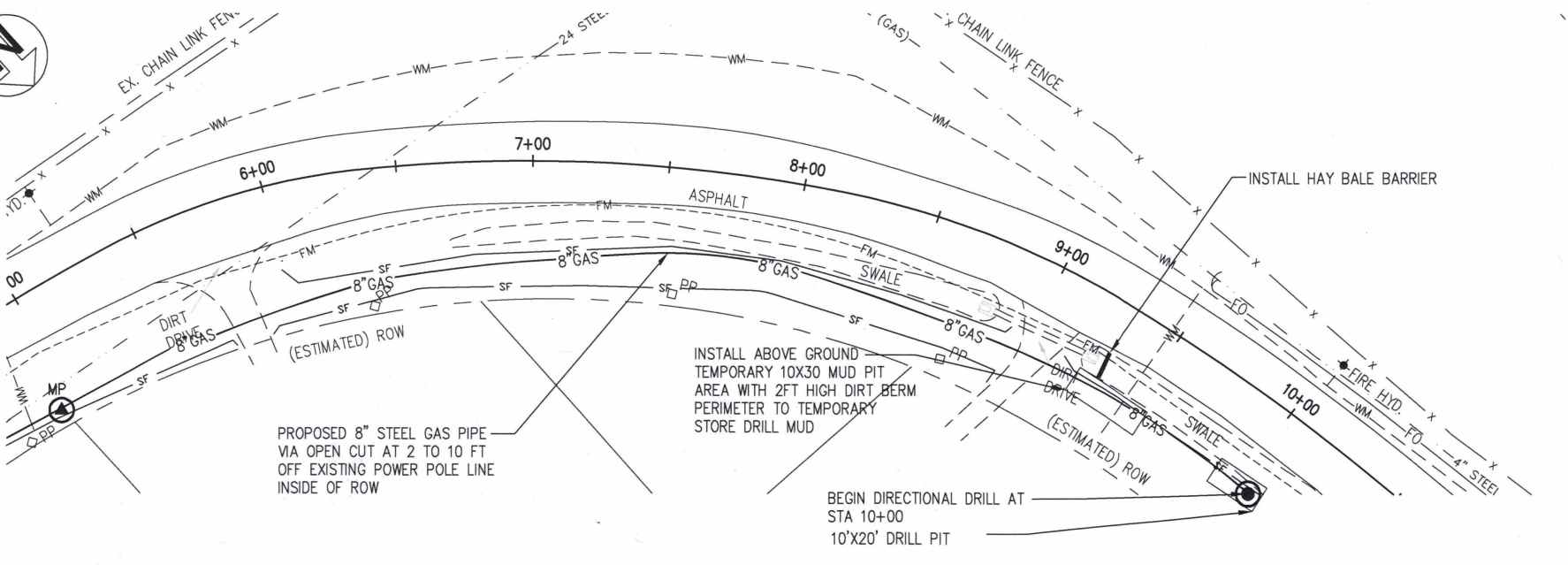
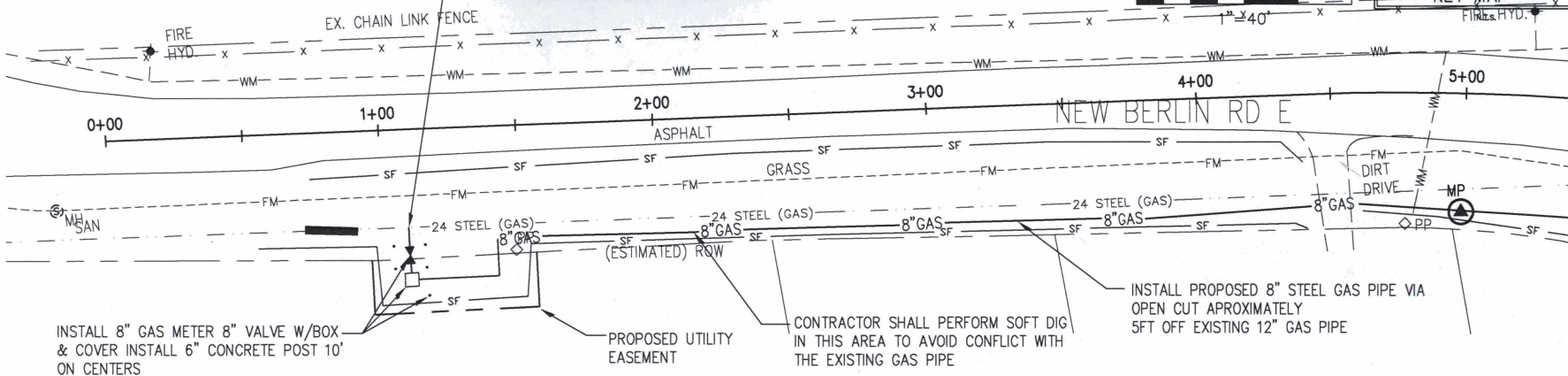
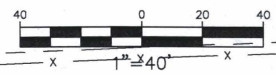
GENERAL NOTES
PROPOSED GAS MAIN EXTENSION
DUVAL COUNTY, FLORIDA
REVISED FOR
TECO - PEOPLES GAS SYSTEM, INC.

DATE BY:	QJEM
DATE BY:	JLM
DATE BY:	QJEM
DATE:	08-09-07
JOB NO.:	10207-74
SHEET NO.:	3 OF 19

CONNECT PROPOSED 8" STEEL GAS PIPE TO EXISTING 24" GAS PIPE UP STREAM OF EXISTING STATION. CONTRACTOR SHALL VERIFY WITH TECO PRIOR TO TAPPING IF THE 24" IS CASING WITH CARRIER PIPE, SPECIAL TAPPING PROCEDURE MIGHT BE REQUIRED



GRAPHIC SCALE



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P&A

LICENSED ENGINEER
 DUCC H. WAI
 FL #4008 CA#6521

SITE PLAN

PROPOSED GAS MAIN EXTENSION

DUVAL COUNTY, FLORIDA

TECO - PROFILES GAS SYSTEM, INC.

REVISIONS

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MEET

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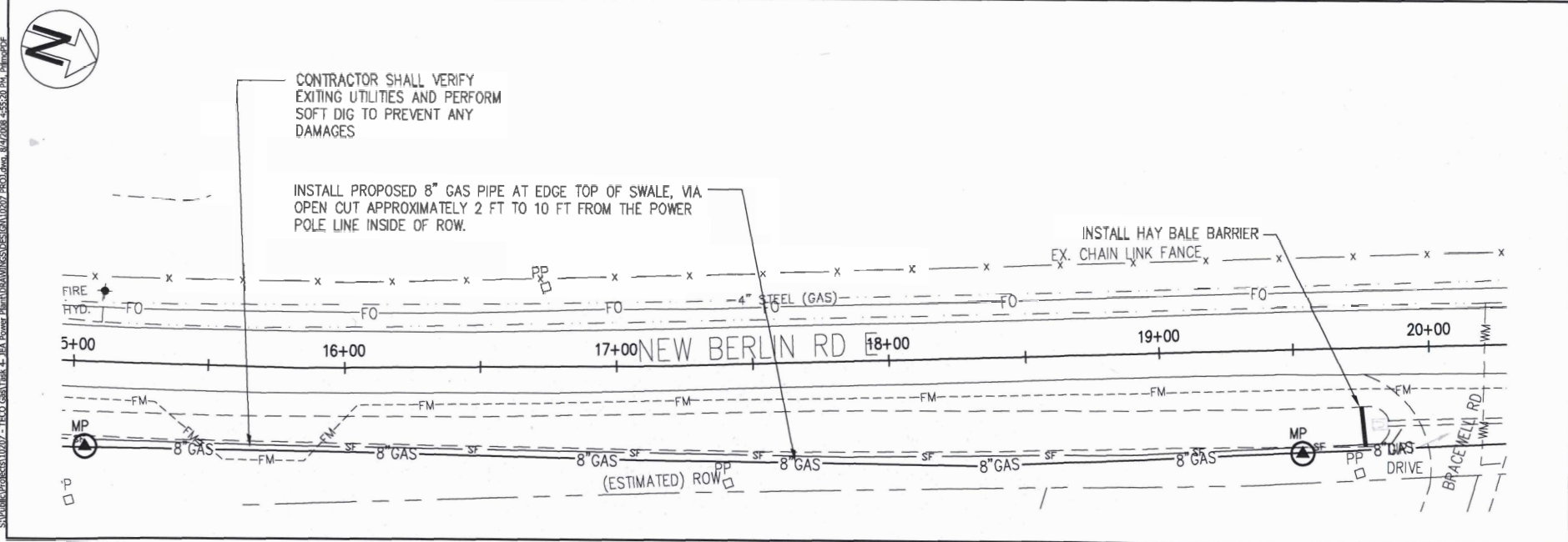
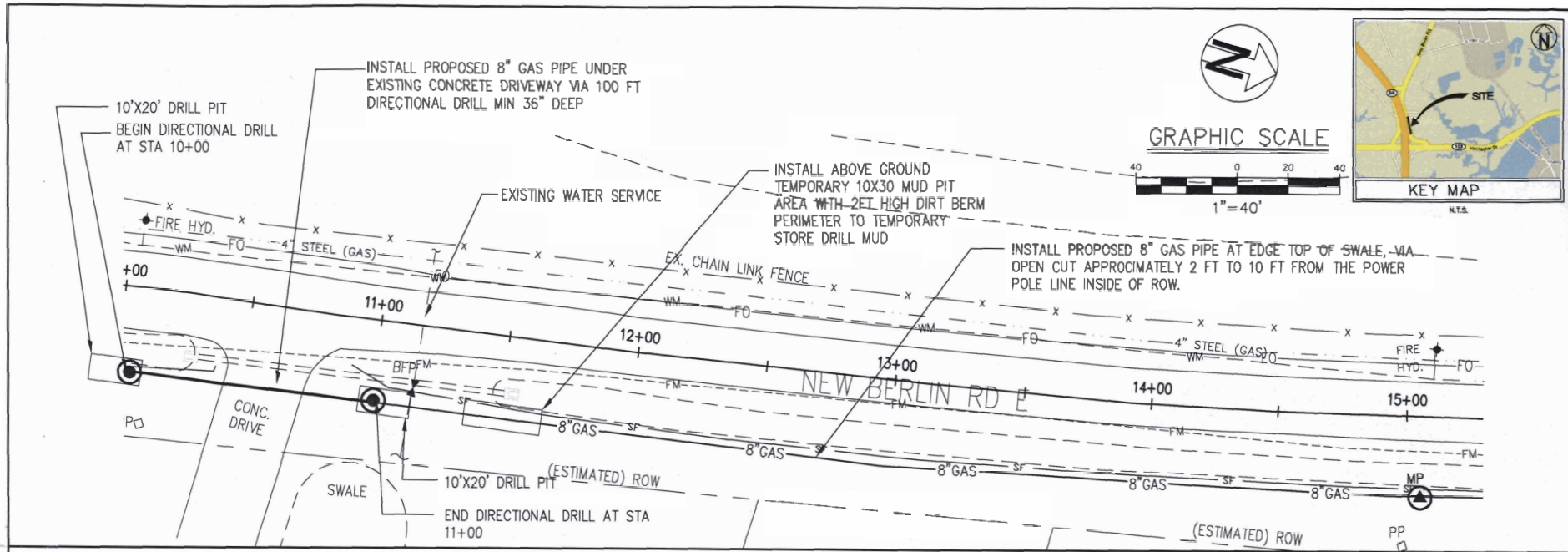
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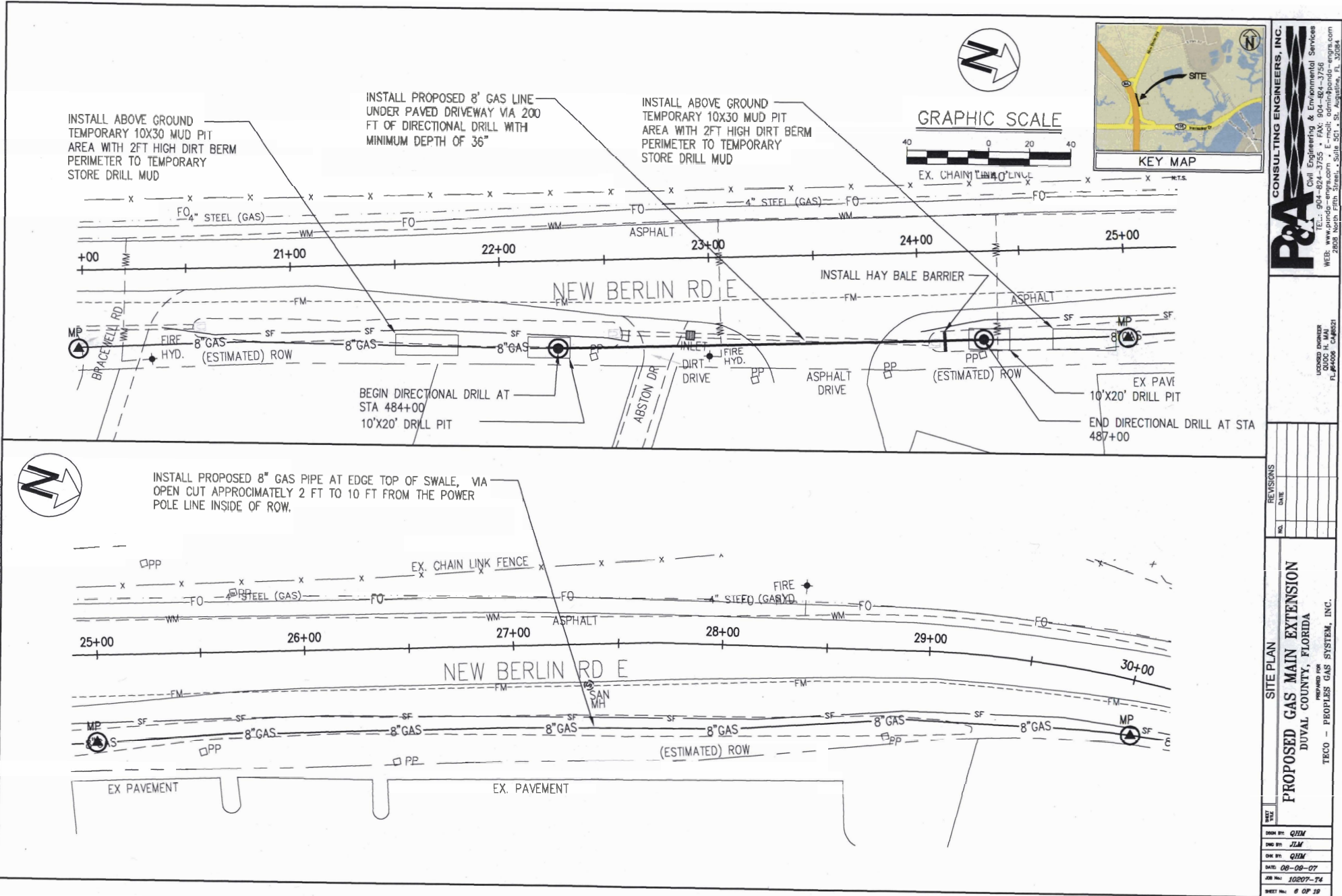
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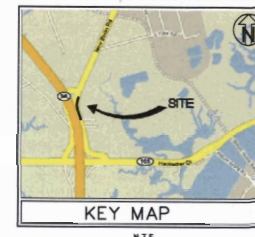
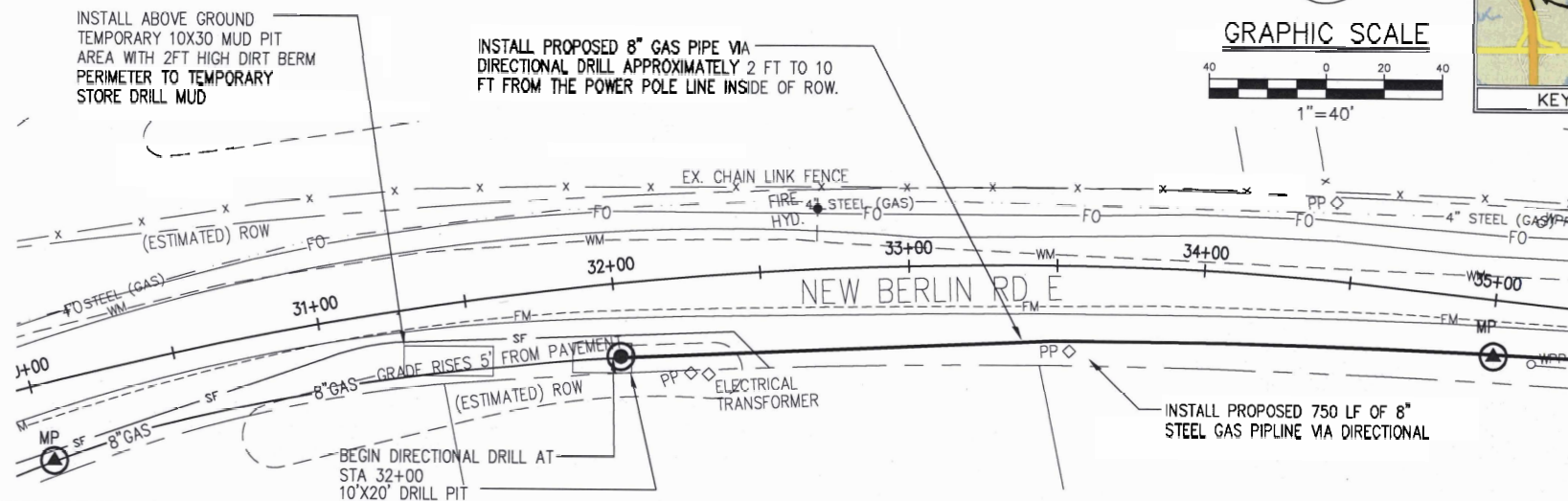
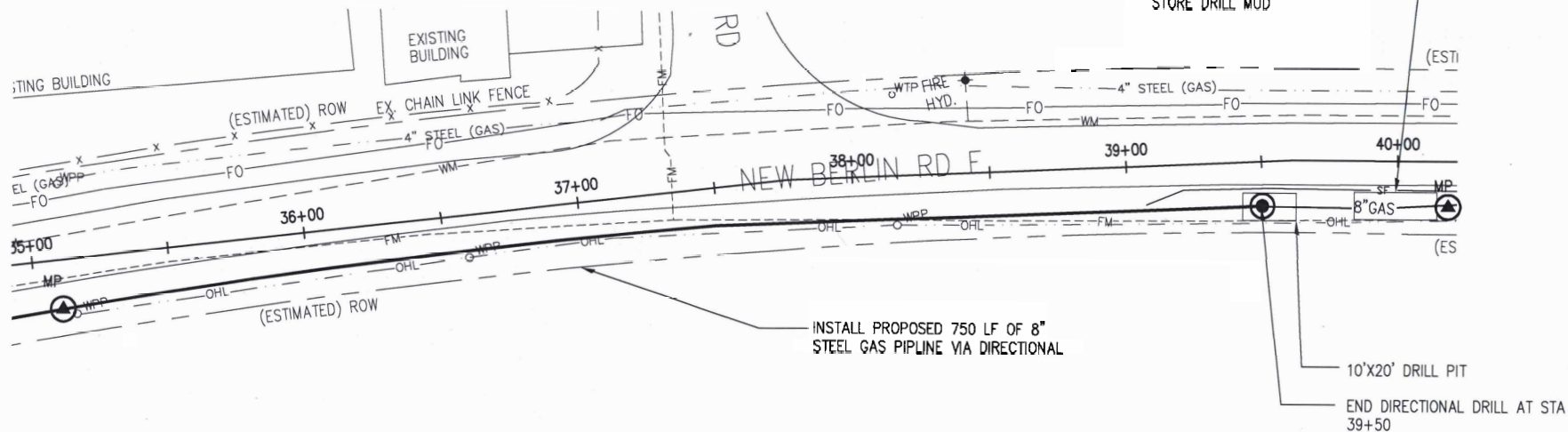
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DUVAL COUNTY, FLORIDA
PREPARED FOR
TECO - PEOPLES GAS SYSTEM, INC.

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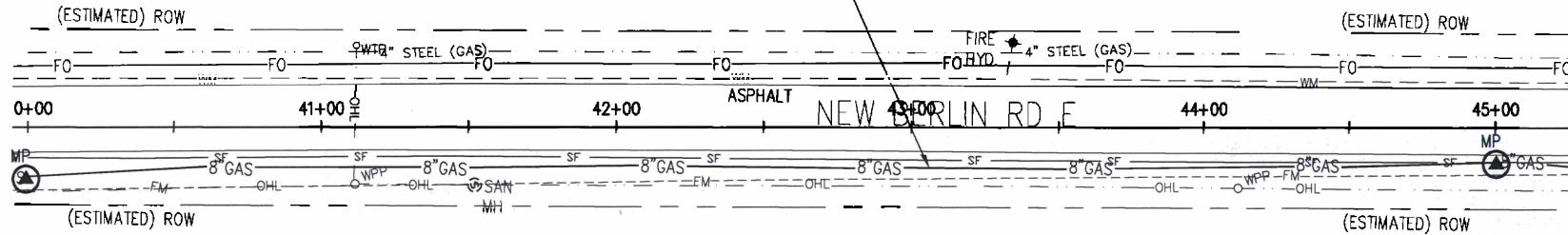
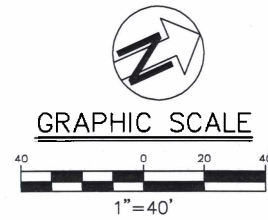
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PROPOSED GAS MAIN EXTENSION	
DUVAL COUNTY, FLORIDA	
PREPARED FOR	
PEOPLES GAS SYSTEM, INC.	
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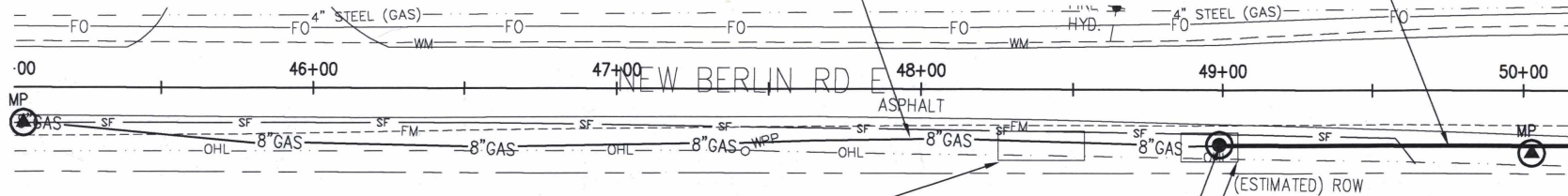
CONTRACTOR SHALL VERIFY ALL EXISTING UNDER GROUND UTILITIES AND PERFORM SOFT DIG WHEN NECESSARY TO PREVENT ANY DAMAGES

INSTALL PROPOSED 8" GAS PIPE VIA OPEN CUT APPROXIMATELY 2 FT TO 10 FT FROM THE POWER POLE LINE INSIDE OF ROW.



INSTALL PROPOSED 8" GAS PIPE VIA OPEN CUT APPROXIMATELY 2 FT TO 10 FT FROM THE POWER POLE LINE INSIDE OF ROW.

INSTALL PROPOSED 1000 LF OF 8" STEEL GAS PIPELINE VIA DIRECTIONAL



CONTRACTOR SHALL VERIFY ALL EXISTING UNDER GROUND UTILITIES AND PERFORM SOFT DIG WHEN NECESSARY TO PREVENT ANY DAMAGES

INSTALL ABOVE GROUND TEMPORARY 10X30 MUD PIT AREA WITH 2FT HIGH DIRT BERM PERIMETER TO TEMPORARY STORE DRILL MUD

BEGIN DIRECTIONAL DRILL AT STA 484+00
10'X20' DRILL PIT

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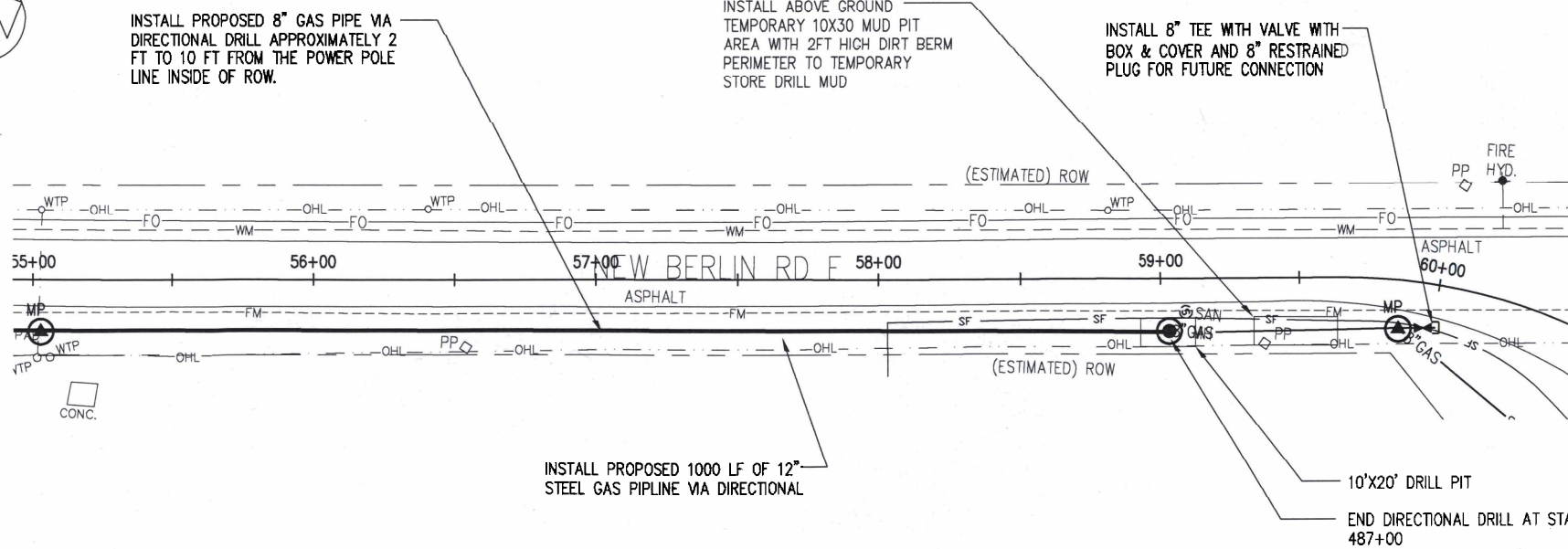
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STATE OF FLORIDA
No. 12500
Exp. 12/31/2008

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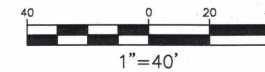
SITE PLAN
PROPOSED GAS MAIN EXTENSION
DUVAL COUNTY, FLORIDA
PREPARED FOR
TECO - PEOPLE'S GAS SYSTEM, INC.

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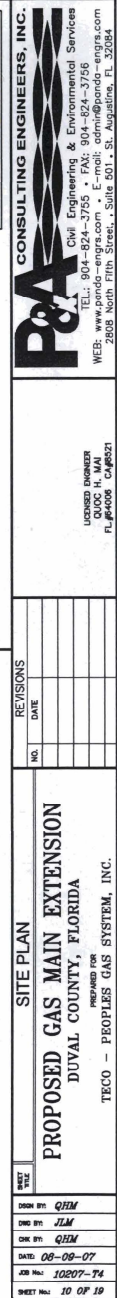
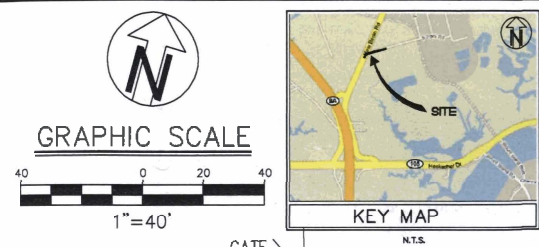
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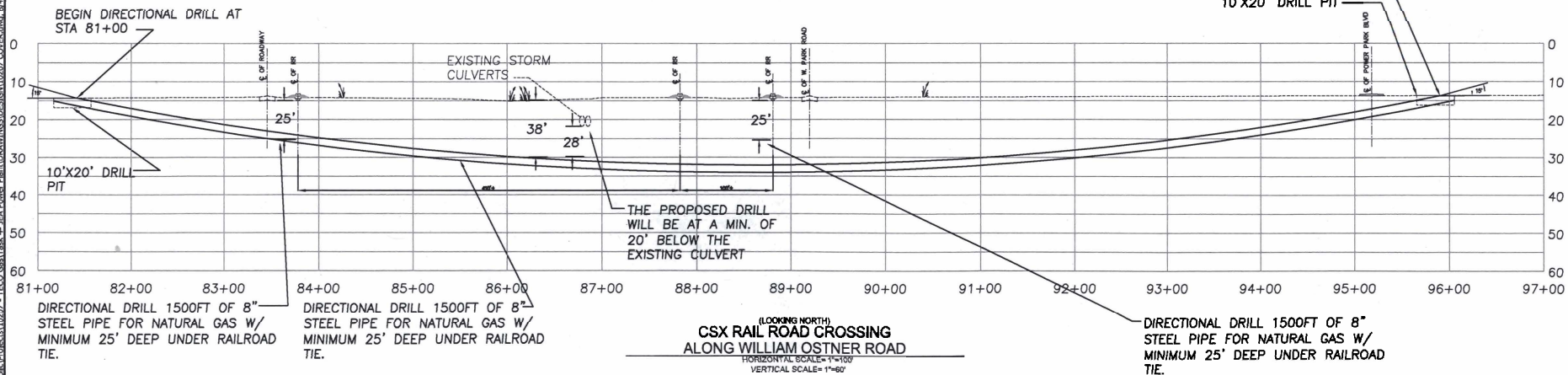
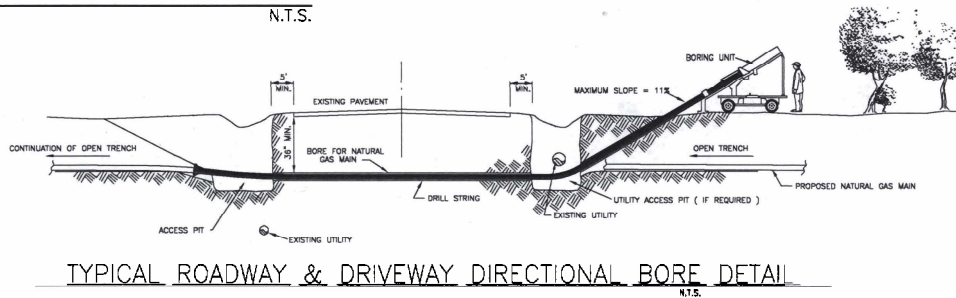
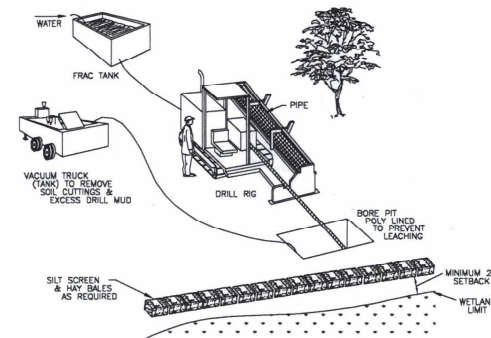
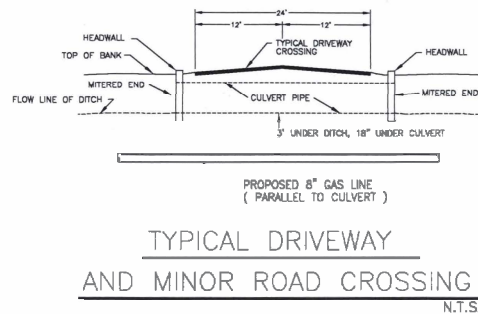
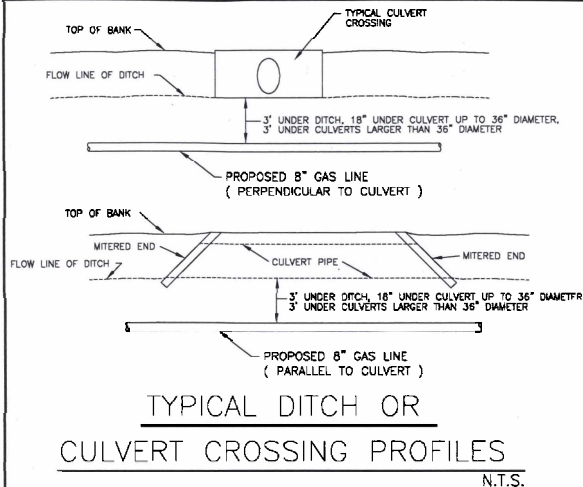
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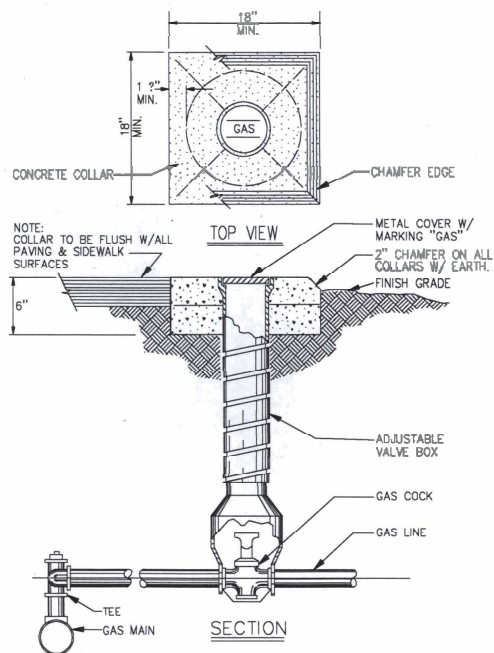
CONSULTING ENGINEERS, INC.
P&A
Civil Engineering & Environmental Services
TEL: 904-324-3755 FAX: 904-324-3756
WWW.PANDACORPORATION.COM
2808 North Fifth Street, Suite 501, St. Augustine, FL 32084

USING NUMBER
FL#4006 CAP#21

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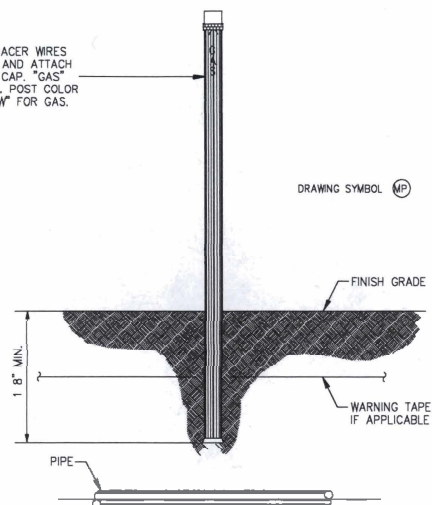
GENERAL DETAILS
PROPOSED GAS MAIN EXTENSION
DUVAL COUNTY, FLORIDA
PREPARED FOR
TECO - PEOPLES GAS SYSTEM, INC.

DATE: 08-10-07
JOB NO: 10207-T4
SHEET NO: 14 OF 19



GAS VALVE BOX DETAIL

MARKER POST, TRACER WIRES
EXTEND UP POST AND ATTACH
TO TERMINALS IN CAP. "GAS"
WRITTEN ON POST. POST COLOR
SHALL BE "YELLOW" FOR GAS.

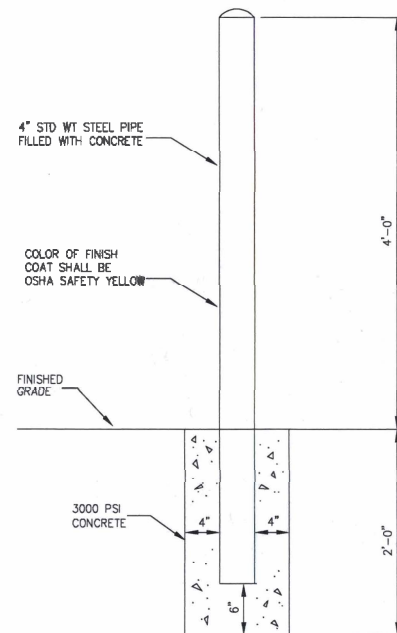


SECTION

NOTES:

- NOTES:
1. LOCATE POST AT EACH VALVE CLUSTER, EACH PIPING CHANGE OF DIRECTION, EVERY 500' MAXIMUM SPACING, AND AS SHOWN ON PROJECT DWGS.
 2. LOCATION OF MARKER ON PLAN MAY BE ADJUSTED ONSITE TO AVOID OTHER UNFORESEEN CONFLICTS AND ESTHETIC REASONS.

MARKER POST WITH
TEST BOX DETAIL

BOLLARD

SHEET PAGE	DETAILS		REVISIONS	
	NO.	DATE		
<p align="center">PROPOSED GAS MAIN EXTENSION DUVAL COUNTY, FLORIDA</p>				
<p>DESIGN BY: <i>QJM</i></p>			<p>PREPARED FOR:</p>	
<p>CHECK BY: <i>JLM</i></p>			<p>TECO - PEOPLES GAS SYSTEM INC</p>	
<p>DATE: <i>08-10-07</i></p>				
<p>JOB NO.: <i>100207-14</i></p>				
<p>SHEET NO.: <i>15 OF 19</i></p>				

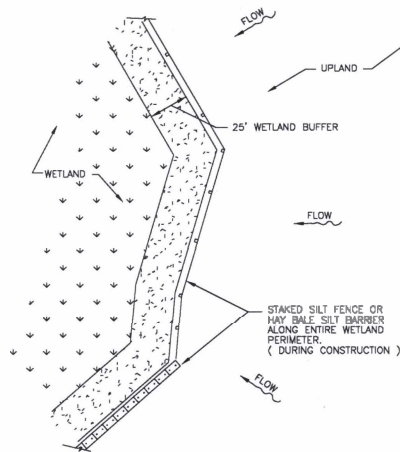
CONSULTING ENGINEERS, INC.

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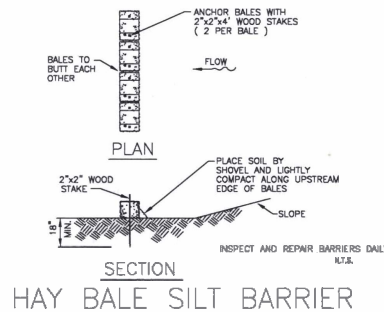
LICENSED ENGINEER
QUOC H. MAI
REG. NO. 1006 C.A. 5524

PROPOSED GAS MAIN EXTENSION
DUVAL COUNTY, FLORIDA
TECO - PROPIES GAS SYSTEM INC
PREPARED FOR

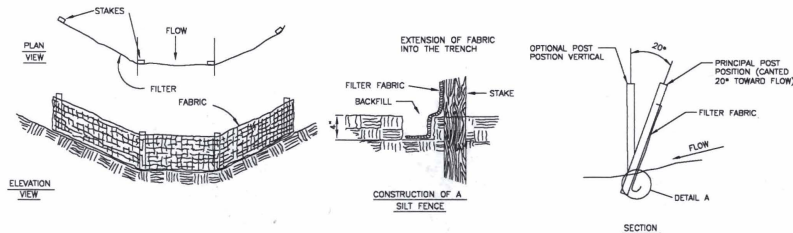
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WETLAND PROTECTION

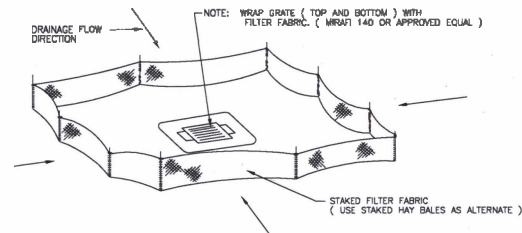


HAY BALE SILT BARRIER

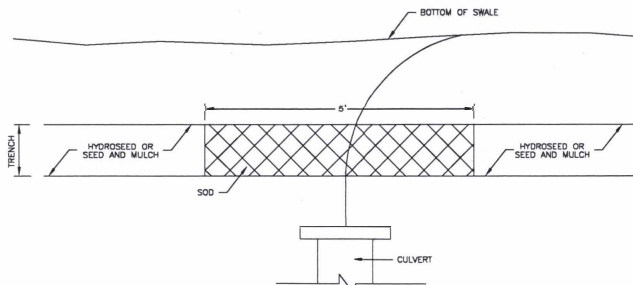


1. FILTER BARRIERS MUST BE INSTALLED, AS INDICATED HEREIN, PRIOR TO CONSTRUCTION.
2. FILTER BARRIERS SHALL NOT BE INSTALLED IN ANY CONFIGURATION THAT BLOCKS THE THROAT OF ANY STORMWATER INLET.
3. INSPECTIONS AND REPAIRS TO BARRIERS SHALL BE MADE DAILY.
4. FILTER BARRIERS SHALL NOT BE REMOVED UNTIL APPROVED BY ENGINEER.

STAKED SILT BARRIER
(DURING CONSTRUCTION ONLY)



PROTECTION OF INLETS



NOTES:

1. WHERE SLOPE OF EXISTING/FINISHED GRADE IS GREATER THAN 1 VERTICAL TO 3 HORIZONTAL, SOD TO LAPS OF TRENCH.
2. MAINTAIN EROSION CONTROL MEASURES UNTIL NEW TURF GROWTH IS ESTABLISHED.

RESTORATION OF TRENCH LOCATED
IN DRAINAGE SWALE

EROSION CONTROL NOTES

1. GENERAL

THE CONTRACTOR SHALL PROVIDE ALL LABOR, EQUIPMENT, TOOLS, MATERIALS AND SERVICES NEEDED TO ENSURE ADEQUATE EROSION AND SEDIMENT CONTROL MEASURES. THESE MEASURES SHALL CONFORM TO THE PLANS AND SPECIFICATIONS AND ALL STATE AND LOCAL REQUIREMENTS.

2. EARTH MOVING ACTIVITIES

a) THE CONTRACTOR SHALL EXERCISE CARE TO PRESERVE THE NATURAL LANDSCAPE AND SHALL CONDUCT HIS/HER CONSTRUCTION OPERATIONS SO AS TO PREVENT ANY UNNECESSARY DESTRUCTION, SCARRING OR DEFACING OF THE NATURAL SURROUNDINGS IN THE VICINITY OF THE WORK AREA. EXCEPT WHERE CLEARING IS REQUIRED FOR PERMANENT WORK, FOR APPROVED CONSTRUCTION ROADS OR FOR EXCAVATION OPERATIONS, ALL TREES, NATIVE SHRUBBERY AND VEGETATION SHALL BE PRESERVED AND SHALL BE PROTECTED FROM DAMAGE WHICH MAY BE CAUSED BY THE CONTRACTOR'S CONSTRUCTION OPERATIONS AND EQUIPMENT.

b) TOPSOIL SHOULD BE TAKEN FROM THE CONSTRUCTION AREAS AND SHOULD BE STOCKPILED FOR REUSE IN FINISHED GRADING. STOCKPILES SHOULD BE PLACED SO AS NOT TO ADD ANY ADDITIONAL SEDIMENT TO THE CONSTRUCTION. THE STOCKPILES SHOULD BE MULCHED AND/OR SEEDED WHEN EXPOSED BEYOND THIRTY (30) DAYS.

c) GRADED AREAS ARE TO BE SEEDED AND/OR SODDED WITHIN THIRTY (30) DAYS FOLLOWING EARTH MOVING PROCEDURES. IF THE TIME OF YEAR IS NOT CONDUCTIVE FOR PERMANENT SEEDING, A TEMPORARY MULCH AND/OR SEEDING SHOULD BE USED.

3) MAINTENANCE

a) REPAIR ALL DAMAGES CAUSED BY SOIL EROSION OR CONSTRUCTION EQUIPMENT AT OR BEFORE THE END OF EACH WORK DAY.

b) SEDIMENT SHALL BE REMOVED FROM SLUMP AREAS. THE SEDIMENT SHALL BE PLACED IN SUCH A MANNER THAT IT WILL NOT ERODE FROM THE SITE. THE SEDIMENT SHALL NOT BE DEPOSITED DOWNSTREAM FROM THE EMBANKMENT OR IN OR ADJACENT TO A STREAM OR FLOOD PLAIN.

c) AFTER CONSTRUCTION IS COMPLETED AND AREAS ARE SEEDED AND/OR SODDED, MAINTENANCE IS LIMITED TO VISUAL INSPECTIONS ON A ROUTINE BASIS.

REVISIONS

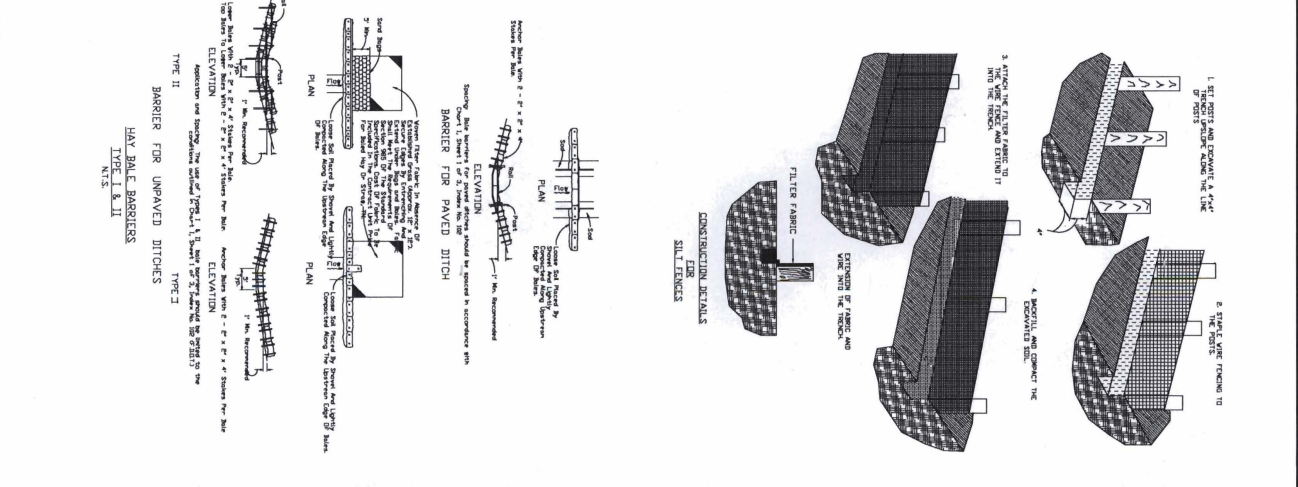
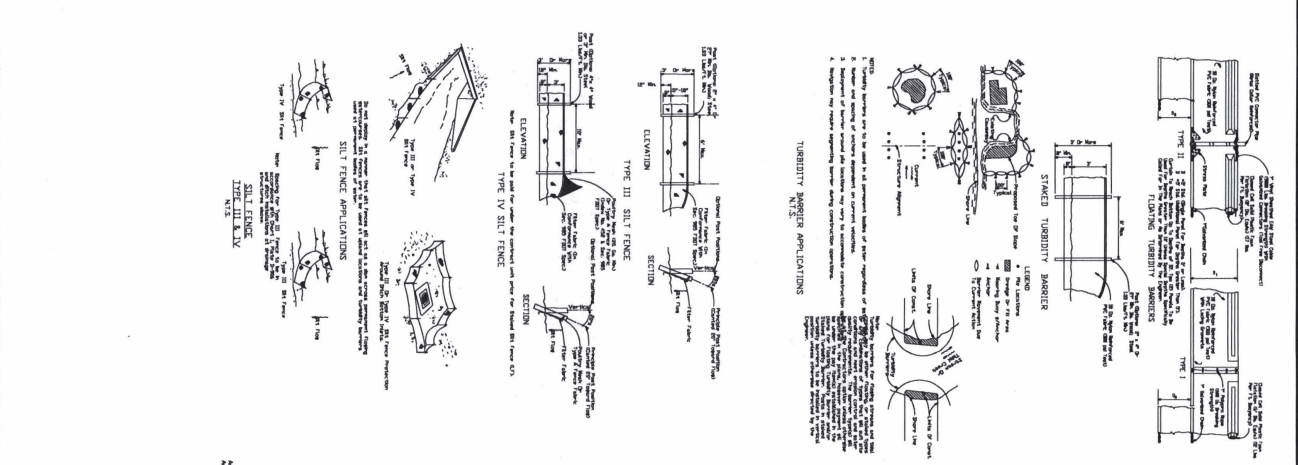
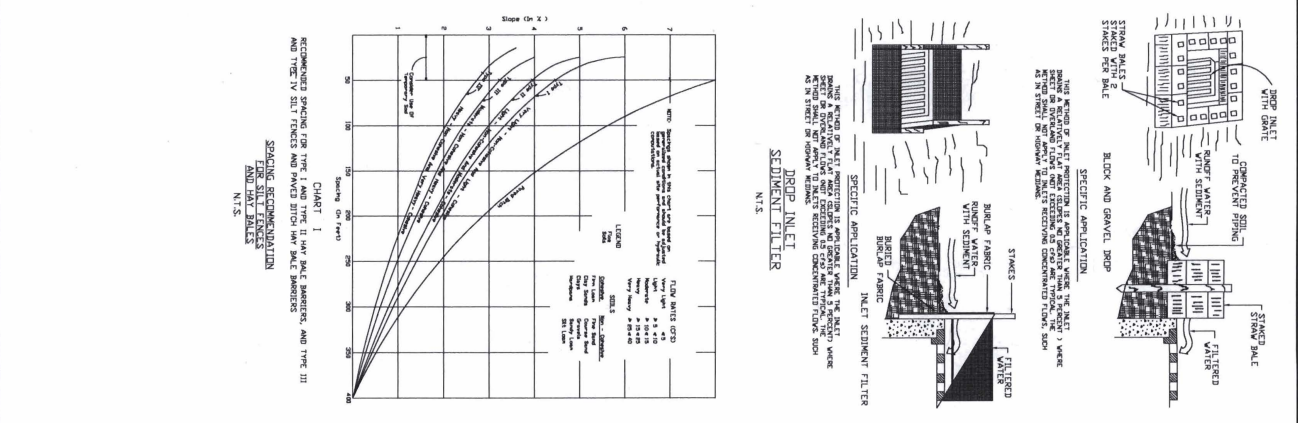
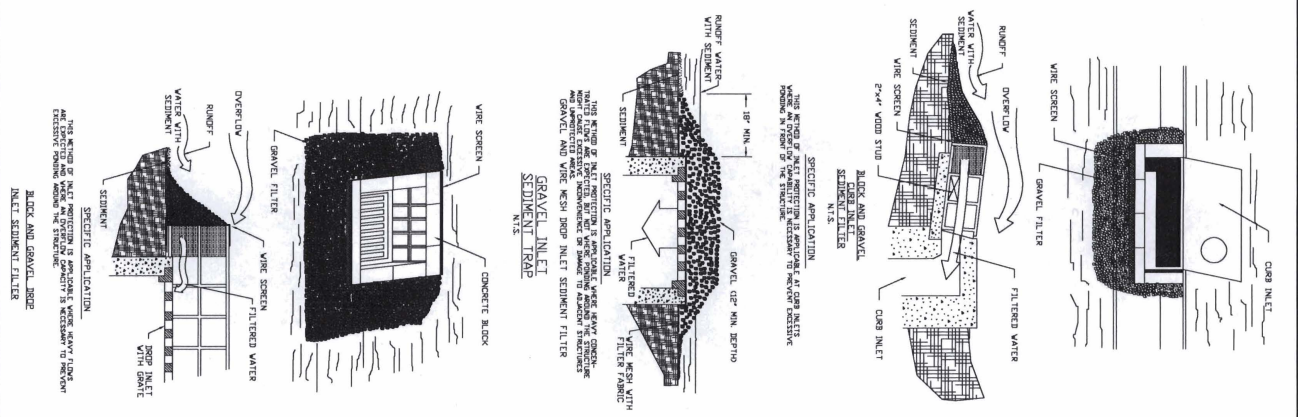
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EROSION CONTROL DETAILS

PROPOSED GAS MAIN EXTENSION
DUVAL COUNTY, FLORIDA

PREPARED FOR
TECO - PEOPLES GAS SYSTEM, INC.

DATE	BY
DESIGN BY	QEM
DRAWN BY	JLM
CHECK BY	QEM
DATE	08-10-07
JOB NO.	10207-74
SHEET NO.	18 OF 20

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SUBMITTANCE 10/07 - TECO GAS/TECO - JFA Power Environmental Services 10/07 COVER/Rev. 8/4/2008 4:50:05 PM PhotoDoc

CONTRACTOR FRAC-OUT CONTINGENCY PLAN FOR DIRECTIONAL DRILLING

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8.0 PROJECT COMPLETION AND CLEAN-UP

1.0 INTRODUCTION AND PURPOSE

DIRECTIONAL BORE OPERATIONS HAVE A POTENTIAL TO RELEASE DRILLING FLUIDS INTO THE SURFACE ENVIRONMENT THROUGH FRAC-OUTS (A FRAC-OUT IS THE CONDITION WHERE DRILLING MUD IS RELEASED THROUGH FRACTURED BEDROCK INTO THE SURROUNDING ROCK AND SAND AND TRAVELS TOWARD THE SURFACE) BECAUSE DRILLING MUD'S CONSIST LARGELY OF A BENTONITE CLAY-WATER MIXTURE. THEY ARE NOT CLASSIFIED AS TOXIC OR HAZARDOUS SUBSTANCES. HOWEVER, IF IT IS RELEASED INTO WATER BODIES, BENTONITE HAS THE POTENTIAL TO ADVERSELY IMPACT FISH AND INVERTEBRATES. WHILE DRILLING FLUID SEEPAGE ASSOCIATED WITH A FRAC-OUT IS MOST LIKELY TO OCCUR NEAR THE BORE ENTRY AND EXIT POINTS WHERE THE DRILL HEAD IS SHALLOW, FRAC-OUTS CAN OCCUR IN ANY LOCATION ALONG A DIRECTIONAL BORE. THIS FRAC-OUT CONTINGENCY PLAN (FCP) ESTABLISHES OPERATIONAL PROCEDURES AND RESPONSIBILITIES FOR THE PREVENTION, CONTAINMENT, AND CLEAN-UP OF FRAC-OUTS ASSOCIATED WITH THE PROPOSED DIRECTIONAL DRILLING. UTILITY PROJECT OF HENKELS & MOODY, INC. ALL PERSONNEL AND SUB-CONTRACTORS RESPONSIBLE FOR THE WORK MUST ADHERE TO THIS PLAN DURING THE DIRECTIONAL DRILLING PROCESS.

THE SPECIFIC OBJECTIVES OF THIS PLAN ARE TO:

1. MINIMIZE THE POTENTIAL FOR A FRAC-OUT ASSOCIATED WITH DIRECTIONAL DRILLING ACTIVITIES;
2. PROVIDE FOR THE TIMELY DETECTION OF FRAC-OUTS;
3. PROTECT THE ENVIRONMENTALLY SENSITIVE RIVERBED AND ASSOCIATED RIPARIAN VEGETATION;
4. ENSURE AN ORGANIZED, TIMELY, AND "MINIMAL-IMPACT" RESPONSE IN THE EVENT OF A FRAC-OUT AND RELEASE OF DRILLING BENTONITE; AND
5. ENSURE THAT ALL APPROPRIATE NOTIFICATIONS ARE MADE IMMEDIATELY TO THE CUSTOMER, MANAGEMENT AND SAFETY PERSONNEL.

2.0 DESCRIPTION OF WORK

THE PROPOSED PROJECT CONSISTS OF: EXPLAIN WORK TASK IN DETAIL TO CREW MEMBERS. DRILLING OPERATIONS WILL BE HALTED BY THE DRILL RIG OPERATORS IMMEDIATELY UPON DETECTION OF A DROP IN DRILLING PRESSURE OR OTHER EVIDENCE OF A FRAC-OUT. THE CLEAN-UP OF ALL SPILLS SHALL BEGIN IMMEDIATELY. MANAGEMENT & SAFETY DEPARTMENT SHALL BE NOTIFIED IMMEDIATELY OF ANY SPILLS AND SHALL BE CONSULTED REGARDING CLEAN-UP PROCEDURES. A SPILL KIT SHALL BE ON-SITE AND USED IF A FRAC-OUT OCCURS. A VACUUM TRUCK AND CONTAINMENT MATERIALS, SUCH AS STRAW BALES, SHALL ALSO BE ON-SITE PRIOR TO AND DURING ALL OPERATIONS. THE SITE SUPERVISOR WILL BE IMMEDIATELY NOTIFIED. IN THE EVENT OF A FRAC-OUT, THE ON-SITE FOREMAN/SUPERVISOR WILL CONDUCT AN EVALUATION OF THE SITUATION AND DIRECT RECOMMENDED MITIGATION ACTIONS, BASED ON THE FOLLOWING GUIDELINES.

- A. IF THE FRAC-OUT IS MINOR, EASILY CONTAINED, HAS NOT REACHED THE SURFACE AND IS NOT THREATENING SENSITIVE RESOURCES, DRILLING OPERATIONS MAY RESUME AFTER USE OF A LEAK STOPPING COMPOUND OR REDIRECTION OF THE BORE.
- B. IF THE FRAC-OUT HAS REACHED THE SURFACE, ANY MATERIAL CONTAMINATED WITH BENTONITE SHALL BE REMOVED BY HAND TO A DEPTH OF 2-FEET, CONTAINED AND PROPERLY DISPOSED OF, AS REQUIRED BY LAW. THE DRILLING CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT THE BENTONITE IS EITHER PROPERLY DISPOSED OF AT AN APPROVED DISPOSAL FACILITY OR PROPERLY RECYCLED IN AN APPROVED MANNER. THE SITE SUPERVISOR SHALL NOTIFY AND TAKE ANY NECESSARY FOLLOW-UP RESPONSE ACTIONS IN COORDINATION WITH AGENCY REPRESENTATIVES. THE SITE SUPERVISOR WILL COORDINATE THE MOBILIZATION OF EQUIPMENT STORED AT OFF-SITE LOCATIONS (E.G., VACUUM TRUCKS) ON AN AS NEEDED BASIS.

3.0 SITE SUPERVISOR/FOREMAN RESPONSIBILITIES

THE SITE SUPERVISOR/FOREMAN HAS OVERALL RESPONSIBILITY FOR IMPLEMENTING THIS FCP. THE SITE SUPERVISOR/FOREMAN WILL ENSURE THAT ALL EMPLOYEES ARE TRAINED PRIOR TO ALL DRILLING. THE SITE SUPERVISOR/FOREMAN SHALL BE NOTIFIED IMMEDIATELY WHEN A FRAC-OUT IS DETECTED. THE SITE SUPERVISOR/FOREMAN WILL BE RESPONSIBLE FOR ENSURING THAT THE SAFETY DEPARTMENT IS AWARE OF THE FRAC-OUT, COORDINATING PERSONNEL, RESPONSE, CLEANUP, REGULATORY AGENCY NOTIFICATION AND COORDINATION TO ENSURE PROPER CLEAN-UP, DISPOSAL, OF RECOVERED MATERIAL AND TIMELY REPORTING OF THE INCIDENT. THE SITE SUPERVISOR/FOREMAN SHALL ENSURE ALL WASTE MATERIALS ARE PROPERLY CONTAINERIZED, LABELED, AND REMOVED FROM THE SITE TO AN APPROVED DISPOSAL FACILITY BY PERSONNEL EXPERIENCED IN THE REMOVAL, TRANSPORT AND DISPOSAL OF DRILLING MUD. THE SITE SUPERVISOR/FOREMAN SHALL BE FAMILIAR WITH ALL ASPECTS OF THE DRILLING ACTIVITY, THE CONTENTS OF THIS FRAC-OUT CONTINGENCY PLAN AND THE CONDITIONS OF APPROVAL UNDER WHICH THE ACTIVITY IS PERMITTED TO TAKE PLACE. THE SITE SUPERVISOR/FOREMAN SHALL HAVE THE AUTHORITY TO STOP WORK AND COMMIT THE RESOURCES (PERSONNEL AND EQUIPMENT) NECESSARY TO IMPLEMENT THIS PLAN. THE SITE SUPERVISOR/FOREMAN SHALL ASSURE THAT A COPY OF THIS PLAN IS AVAILABLE (ON-SITE) AND ACCESSIBLE TO ALL CONSTRUCTION PERSONNEL. THE SITE SUPERVISOR/FOREMAN SHALL ENSURE THAT ALL WORKERS ARE PROPERLY TRAINED AND FAMILIAR WITH THE NECESSARY PROCEDURES FOR RESPONSE TO A FRAC-OUT, PRIOR TO COMMENCEMENT OF DRILLING OPERATIONS.

4.0 EQUIPMENT

THE SITE SUPERVISOR SHALL ENSURE THAT: ALL EQUIPMENT AND VEHICLES ARE BE CHECKED AND MAINTAINED DAILY TO PREVENT LEAKS OF HAZARDOUS MATERIALS. SPILL KITS AND SPILL CONTAINMENT MATERIALS ARE AVAILABLE ON-SITE AT ALL TIMES AND THAT THE EQUIPMENT IS IN GOOD WORKING ORDER. EQUIPMENT REQUIRED TO CONTAIN AND CLEAN UP A FRAC-OUT RELEASES WOULD BE AVAILABLE AT THE WORK SITE OR READILY AVAILABLE AT AN OFFSITE LOCATION WITHIN 15- MINUTES OF THE BORE SITE. IF EQUIPMENT IS REQUIRED TO BE OPERATED NEAR A RIVERBED, ABSORBENT PADS AND PLASTIC SHEETING FOR PLACEMENT BENEATH MOTORIZED EQUIPMENT SHALL BE USED TO PROTECT THE RIVERBED FROM ENGINE FLUIDS.

5.0 TRAINING

PRIOR TO THE START OF CONSTRUCTION, THE SITE SUPERVISOR/FOREMAN, SHALL ENSURE THAT THE CREW MEMBERS RECEIVE TRAINING IN THE FOLLOWING:
THE PROVISIONS OF THE FRAC-OUT CONTINGENCY PLAN, EQUIPMENT MAINTENANCE AND SITE SPECIFIC PERMIT AND MONITORING REQUIREMENTS, INSPECTION PROCEDURES FOR RELEASE PREVENTION AND CONTAINMENT EQUIPMENT AND MATERIALS.
CONTRACTOR/CREW OBLIGATION TO IMMEDIATELY STOP THE DRILLING OPERATION UPON FIRST EVIDENCE OF THE OCCURRENCE OF A FRAC-OUT AND TO IMMEDIATELY REPORT ANY FRAC-OUT RELEASES.
CONTRACTOR/CREW MEMBER RESPONSIBILITIES IN THE EVENT OF A RELEASE. OPERATION OF RELEASE PREVENTION AND CONTROL EQUIPMENT AND THE LOCATION OF RELEASE CONTROL MATERIALS, AS NECESSARY AND APPROPRIATE; AND PROTOCOLS FOR COMMUNICATION WITH AGENCY REPRESENTATIVES WHO MIGHT BE ON-SITE DURING THE CLEAN-UP EFFORT.

6.0 DRILLING PROCEDURES

THE FOLLOWING PROCEDURES SHALL BE FOLLOWED EACH DAY, PRIOR TO THE START OF WORK. THE FRAC-OUT CONTINGENCY PLAN SHALL AVAILABLE ON-SITE DURING ALL CONSTRUCTION. THE SITE SUPERVISOR/FOREMAN SHALL BE ON-SITE AT ANY TIME THAT DRILLING IS OCCURRING OR IS PLANNED TO OCCUR. THE SITE SUPERVISOR/FOREMAN SHALL ENSURE THAT A JOB BRIEFING MEETING IS HELD AT THE START OF EACH DAY OF DRILLING TO REVIEW THE APPROPRIATE PROCEDURES TO BE FOLLOWED IN CASE OF A FRAC-OUT. QUESTIONS SHALL BE ANSWERED AND CLARIFICATION GIVEN ON ANY POINT OVER WHICH THE DRILLING CREW OR OTHER PROJECT STAFF HAS CONCERNS. DRILLING PRESSURES SHALL BE CLOSELY MONITORED SO THEY DO NOT EXCEED THOSE NEEDED TO PENETRATE THE FORMATION. PRESSURE LEVELS SHALL BE MONITORED RANDOMLY BY THE OPERATOR. PRESSURE LEVELS SHALL BE SET AT A MINIMUM LEVEL TO PREVENT FRAC-OUTS. DURING THE PILOT BORE, MAINTAIN THE DRILLED ANNULUS. CUTTERS AND REAMERS WILL BE PULLED BACK INTO PREVIOUSLY-DRILLED SECTIONS AFTER EACH NEW JOINT OF PIPE IS ADDED. EXIT AND ENTRY PITS SHALL BE ENCLOSED BY SILT FENCES AND STRAW. A SPILL KIT SHALL BE ON-SITE AND USED IF A FRAC-OUT OCCURS. A VACUUM TRUCK SHALL BE READILY AVAILABLE. ON-SITE PRIOR TO AND DURING ALL DRILLING OPERATIONS, CONTAINMENT MATERIALS (STRAW, SILT FENCING, SAND BAGS, FRAC-OUT SPILL KITS, ETC.) SHALL BE STAGED ON-SITE AT LOCATION WHERE THEY ARE READILY AVAILABLE AND EASILY MOBILIZED FOR IMMEDIATE USE IN THE EVENT OF AN ACCIDENTAL RELEASE OF DRILLING MUD (FRAC-OUT). IF NECESSARY, BARRIERS (STRAW BALES OR SEDIMENTATION FENCES) BETWEEN THE BORE SITE AND THE EDGE OF THE WATER SOURCE, SHALL BE CONSTRUCTED, PRIOR TO DRILLING, TO PREVENT RELEASED BENTONITE MATERIAL FROM REACHING THE WATER. ONCE THE DRILL RIG IS IN PLACE, AND DRILLING BEGINS, THE DRILL OPERATOR SHALL STOP WORK WHENEVER THE PRESSURE IN THE DRILL RIG DROPS, OR THERE IS A LACK OF RETURNS IN THE ENTRANCE PIT. AT THIS TIME THE SITE SUPERVISOR/FOREMAN SHALL BE INFORMED OF THE POTENTIAL FRAC-OUT. THE SITE SUPERVISOR/FOREMAN AND THE DRILL RIG OPERATOR(S) SHALL WORK TO COORDINATE THE LIKELY LOCATION OF THE FRAC-OUT. THE LOCATION OF THE FRAC-OUT SHALL BE RECORDED AND NOTES MADE ON THE LOCATION AND MEASURES TAKEN TO ADDRESS THE CONCERN. THE FOLLOWING SUBSECTIONS SHALL BE ADHERED TO WHEN ADDRESSING A FRAC-OUT SITUATION. WATER CONTAINING MUD, SILT, BENTONITE, OR OTHER POLLUTANTS FROM EQUIPMENT WASHING OR OTHER ACTIVITIES, SHALL NOT BE ALLOWED TO ENTER A LAKE, FLOWING STREAM OR ANY OTHER WATER SOURCE. THE BENTONITE USED IN THE DRILLING PROCESS SHALL BE EITHER DISPOSED OF AT AN APPROVED DISPOSAL FACILITY OR RECYCLED IN AN APPROVED MANNER. OTHER CONSTRUCTION MATERIALS AND WASTES SHALL BE RECYCLED, OR DISPOSED OF, AS APPROPRIATE.

6.1 VAC-TRUCK

A VACUUM TRUCK SHALL BE STAGED AT A LOCATION FROM WHICH IT CAN BE MOBILIZED AND RELOCATED SO THAT ANY PLACE ALONG THE DRILL SHOT, CAN BE REACHED BY THE APPARATUS, WITHIN 10 MINUTES OF A FRAC-OUT.

6.2 FIELD RESPONSE TO FRAC-OUT OCCURRENCE

THE RESPONSE OF THE FIELD CREW TO A FRAC-OUT RELEASE SHALL BE IMMEDIATE AND IN ACCORDANCE WITH PROCEDURES IDENTIFIED IN THIS PLAN. ALL APPROPRIATE EMERGENCY ACTIONS THAT DO NOT POSE ADDITIONAL THREATS TO SENSITIVE RESOURCES WILL BE TAKEN, AS FOLLOWS:

- A. DIRECTIONAL BORING WILL STOP IMMEDIATELY;
- B. THE BORE STEM WILL BE PULLED BACK TO RELIEVE PRESSURE ON FRAC-OUT;
- C. THE SITE SUPERVISOR/FOREMAN WILL BE NOTIFIED TO ENSURE THAT MANAGEMENT AND THE SAFETY DEPARTMENT IS NOTIFIED, ADEQUATE RESPONSE ACTIONS ARE TAKEN AND NOTIFICATIONS MADE;
- D. THE SITE SUPERVISOR/FOREMAN SHALL EVALUATE THE SITUATION AND RECOMMEND THE TYPE AND LEVEL OF RESPONSE WARRANTED, INCLUDING THE LEVEL OF NOTIFICATION REQUIRED;
- E. IF THE FRAC-OUT IS MINOR, EASILY CONTAINED, HAS NOT REACHED THE SURFACE AND IS NOT THREATENING SENSITIVE RESOURCES, A LEAK STOPPING COMPOUND SHALL BE USED TO BLOCK THE FRAC-OUT. IF THE USE OF LEAK STOPPING COMPOUND IS NOT FULLY SUCCESSFUL, THE BORE STEM SHALL BE REDIRECTED TO A NEW LOCATION ALONG THE DESIRED DRILL PATH WHERE A FRAC-OUT HAS NOT OCCURRED;
- F. IF THE FRAC-OUT HAS REACHED THE SURFACE, ANY MATERIAL CONTAMINATED WITH BENTONITE SHALL BE REMOVED BY HAND, TO A DEPTH OF 2-FEET, CONTAINED AND PROPERLY DISPOSED OF, AS REQUIRED BY LAW. A DIKE OR BERM MAY BE CONSTRUCTED AROUND THE FRAC-OUT TO ENTRAP RELEASED DRILLING FLUID, IF NECESSARY. CLEAN SAND SHALL BE PLACED AND THE AREA RETURNED TO PRE-PROJECT CONTOURS.
- G. IF A FRAC-OUT OCCURS, REACHES THE SURFACE AND BECOMES WIDESPREAD, THE SITE SUPERVISOR/FOREMAN SHALL AUTHORIZE A READILY ACCESSIBLE VACUUM TRUCK AND BULDOZER STORED OFF-SITE TO BE MOBILIZED. THE VACUUM TRUCK MAY BE EITHER POSITIONED AT EITHER END OF THE LINE OF THE DRILL, SO THAT THE FRAC-OUT CAN BE REACHED BY CREWS ON FOOT, OR MAY BE PULLED BY A BULDOZER, SO THAT CONTAMINATED SOILS CAN BE VACUUMED UP.

6.3 RESPONSE CLOSE-OUT PROCEDURES

WHEN THE RELEASE HAS BEEN CONTAINED AND CLEANED UP, RESPONSE CLOSEOUT ACTIVITIES WILL BE CONDUCTED AT THE DIRECTION OF THE SITE SUPERVISOR/FOREMAN AND SHALL INCLUDE THE FOLLOWING:
A. THE RECOVERED DRILLING FLUID WILL EITHER BE RECYCLED OR HAULED TO AN APPROVED FACILITY FOR DISPOSAL. NO RECOVERED DRILLING FLUIDS WILL BE DISCHARGED INTO STREAMS, STORM DRAINS OR ANY OTHER WATER SOURCE.
B. ALL FRAC-OUT EXCAVATION AND CLEAN-UP SITES WILL BE RETURNED TO PRE-PROJECT CONTOURS USING CLEAN FILL, AS NECESSARY;
C. ALL CONTAINMENT MEASURES (FIBER ROLLS, STRAW BALE, ETC.) WILL BE REMOVED, UNLESS OTHERWISE SPECIFIED BY THE SITE SUPERVISOR/FOREMAN.

6.4 CONSTRUCTION RE-START

FOR SMALL RELEASES NOT REQUIRING EXTERNAL NOTIFICATION, DRILLING MAY CONTINUE. IF 100 PERCENT CONTAINMENT IS ACHIEVED THROUGH THE USE OF A LEAK STOPPING COMPOUND OR REDIRECTION OF THE BORE AND THE CLEAN-UP CREW REMAINS AT THE FRAC-OUT LOCATION THROUGHOUT THE CONSTRUCTION PERIOD, FOR RELEASES REQUIRING EXTERNAL NOTIFICATION AND/OR OTHER AGENCIES, CONSTRUCTION ACTIVITIES WILL NOT RESTART WITHOUT PRIOR APPROVAL FROM THE SAFETY DEPARTMENT.

6.5 BORE ABANDONMENT

ABANDONMENT OF THE BORE WILL ONLY BE REQUIRED WHEN ALL EFFORTS TO CONTROL THE FRAC-OUT WITHIN THE EXISTING DIRECTIONAL BORE HAVE FAILED.

7.0 NOTIFICATION

IN THE EVENT OF A FRAC-OUT THAT REACHES A WATER SOURCE, THE SITE SUPERVISOR/FOREMAN WILL NOTIFY SAFETY DEPARTMENT SO THEY CAN NOTIFY THE APPROPRIATE RESOURCE AGENCIES. ALL AGENCY NOTIFICATIONS WILL OCCUR WITHIN 24 HOURS AND PROPER DOCUMENTATION WILL BE ACCOMPLISHED IN A TIMELY AND COMPLETE MANNER. THE FOLLOWING INFORMATION WILL BE PROVIDED:

1. NAME AND TELEPHONE NUMBER OF PERSON REPORTING;
2. LOCATION OF THE RELEASE;
3. DATE AND TIME OF RELEASE;
4. TYPE AND QUANTITY, ESTIMATED SIZE OF RELEASE;
5. HOW THE RELEASE OCCURRED;
6. THE TYPE OF ACTIVITY THAT WAS OCCURRING AROUND THE AREA OF THE FRAC-OUT;
7. DESCRIPTION OF ANY SENSITIVE AREAS, AND THEIR LOCATION IN RELATION TO THE FRAC-OUT;
8. DESCRIPTION OF THE METHODS USED TO CLEAN UP OR SECURE THE SITE; AND
9. LISTING OF THE CURRENT PERMITS OBTAINED FOR THE PROJECT.

7.1 COMMUNICATING WITH REGULATORY AGENCY

ALL EMPLOYEES AND SUBCONTRACTORS WILL ADHERE TO THE FOLLOWING PROTOCOLS WHEN PERMITTING REGULATORY AGENCY PERSONNEL ARRIVE ON SITE. REGULATORY AGENCY PERSONNEL WILL BE REQUIRED TO COMPLY WITH APPROPRIATE SAFETY RULES. ONLY THE SITE SUPERVISOR/FOREMAN AND THE SAFETY DEPARTMENT ARE TO COORDINATE COMMUNICATION WITH REGULATORY AGENCY PERSONNEL.

7.2 DOCUMENTATION

THE SITE SUPERVISOR/FOREMAN SHALL RECORD THE FRAC-OUT EVENT IN HIS OR HER DAILY LOG. THE LOG WILL INCLUDE THE FOLLOWING: DETAILS ON THE RELEASE EVENT, INCLUDING AN ESTIMATE OF THE AMOUNT OF BENTONITE RELEASED, THE LOCATION AND TIME OF RELEASE, THE SIZE OF THE AREA IMPACTED, AND THE SUCCESS OF THE CLEAN-UP ACTION. THE LOG REPORT SHALL ALSO INCLUDE THE NAME AND TELEPHONE NUMBER OF PERSON REPORTING; DATE, HOW THE RELEASE OCCURRED; THE TYPE OF ACTIVITY THAT WAS OCCURRING AROUND THE AREA OF THE FRAC-OUT; DESCRIPTION OF ANY SENSITIVE AREAS, AND THEIR LOCATION IN RELATION TO THE FRAC-OUT; DESCRIPTION OF THE METHODS USED TO CLEAN UP OR SECURE THE SITE; AND A LISTING OF THE CURRENT PERMITS OBTAINED FOR THE PROJECT.

8.0 PROJECT COMPLETION AND CLEAN-UP

- A. ALL MATERIALS AND ANY RUBBER-CONSTRUCTION DEBRIS SHALL BE REMOVED FROM THE CONSTRUCTION ZONE AT THE END OF EACH WORKDAY;
- B. SLUMP PITS AT BORE ENTRY AND EXITS WILL BE FILLED AND RETURNED TO NATURAL GRADE; AND
- C. ALL PROTECTIVE MEASURES (FIBER ROLLS, STRAW BALE, SILT FENCE, ETC.) WILL BE REMOVED UNLESS OTHERWISE SPECIFIED BY THE SITE SUPERVISOR/FOREMAN.

CONSULTING ENGINEERS, INC.

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REVISIONS

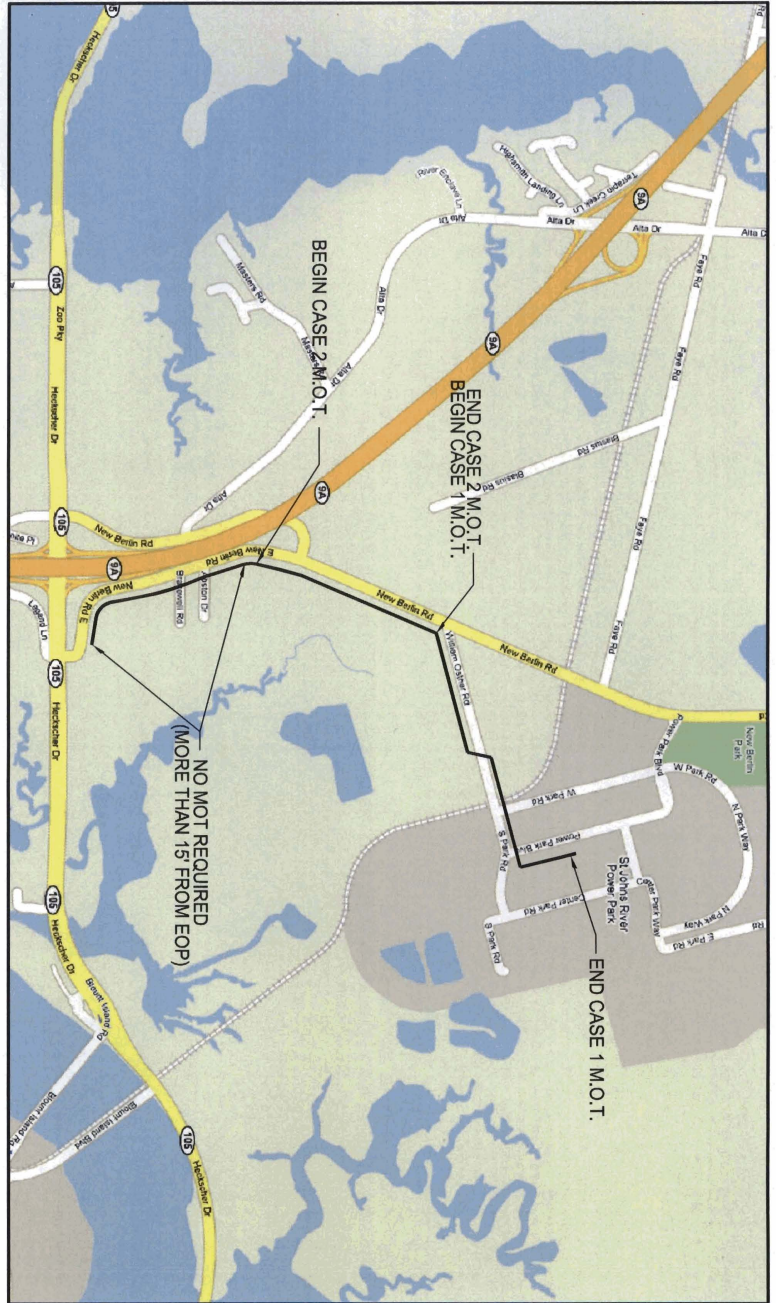
NO.	DATE

SAMPLE FRAC-OUT PLAN

PROPOSED GAS MAIN EXTENSION
DUVAL COUNTY, FLORIDA
PREPARED FOR
TECO - PEOPLES GAS SYSTEM, INC.

REV

DESIGN BY:	QEM
DRAW BY:	JLM
CHECK BY:	QEM
DATE:	08-10-07
JOB NO.:	10207-T4
SHEET NO.:	18 OF 19



ROAD TYPE	DISTANCE BETWEEN SIGNS**		
	A	B	C
URBAN (LOW SPEED)	100	100	100
URBAN (HIGH SPEED)	350	350	350
RURAL	500	500	500
EXPRESSWAY/FREEWAY	1,000	1,500	2,240

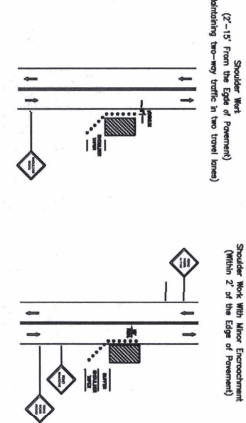
* SPEED CATEGORY TO BE DETERMINED BY HIGHWAY AGENCY B, AND C ARE THE DIMENSIONS SHOWN IN FIGURES 61-1 THROUGH 61-46 OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). THE DIMENSION IS THE DISTANCE FROM THE TRANSITION OR POINT OF BEGINNING OF THE TAPER TO THE NEXT SIGN. THE DIMENSION IS THE DISTANCE FROM THE TRANSITION OR POINT OF BEGINNING OF THE TAPER TO THE NEXT SIGN. THE DIMENSION IS THE DISTANCE FROM THE TRANSITION OR POINT OF BEGINNING OF THE TAPER TO THE NEXT SIGN. THE DIMENSION IS THE DISTANCE FROM THE TRANSITION OR POINT OF BEGINNING OF THE TAPER TO THE NEXT SIGN.

TYPE OF TAPER	TAPER LENGTH CRITERIA	
	AT LEAST L	AT LEAST L/2
MERGING TAPER	AT LEAST L	AT LEAST 0.5L
SHIFTING TAPER	AT LEAST 0.5L	AT LEAST 0.5L
SHOULDER TAPER	AT LEAST 0.5L	AT LEAST 0.5L
ONE LANE, TWO WAY TRAFFIC TAPER	100 FT. MAXIMUM	100 FT. MAXIMUM
CONSTRUCTION TAPER	100 FT. PER LANE	100 FT. PER LANE

FORMULAS FOR L ARE AS FOLLOWS
FOR SPEED LIMITS OF 40 MPH OR GREATER
 $L = WS^2$
WHERE: L = TAPER LENGTH IN FEET
W = WIDTH OF TRAFFIC LANE IN FEET
S = POSTED SPEED LIMIT

CASE 1 M.O.T.
PER FDOT INDEX 612

CASE 2 M.O.T.
PER FDOT INDEX 613



- MAINTENANCE OF TRAFFIC REQUIREMENTS**
1. CONTRACTOR MUST MAINTAIN EXISTING SIGNING. IF SIGNS ARE DAMAGED DUE TO HIS ACTIVITY, THE CONTRACTOR IS REQUIRED TO REPLACE THEM IN ACCORDANCE WITH CURRENT CITY OR COUNTY STANDARD SPECIFICATIONS IMMEDIATELY.
 2. ACCESS TO ALL STREETS AND DRIVEWAYS TO BE MAINTAINED AT ALL TIMES. IF SIGNALS ARE DISTURBED AND HAVE TO BE REPLACED, HANDICAP PARKING ARE TO BE INSTALLED.
 3. THE CONTRACTOR SHALL CONTINUE HIS ACTIVE WORK AREA TO NO MORE THAN ONE BLOCK AT A TIME.
 4. THE ROADWAY SHALL BE RESTORED TO AT LEAST A LANEWORK SURFACE BEFORE IT IS CLOSED TO TRAFFIC. AND BEFORE THE CONTRACTOR MOVES ON TO THE NEXT CONSTRUCTION ZONE.
 5. DUST CONTROL MEASURES SHALL BE IMPLEMENTED ON ALL UNPAVED SURFACES UNTIL PAVED.

LEGEND	
	Connecting Device
	Flag
	Portable Sign Support
	Arrow Display
	High Intensity Warning Device
	Work Area
	Warning Sign