

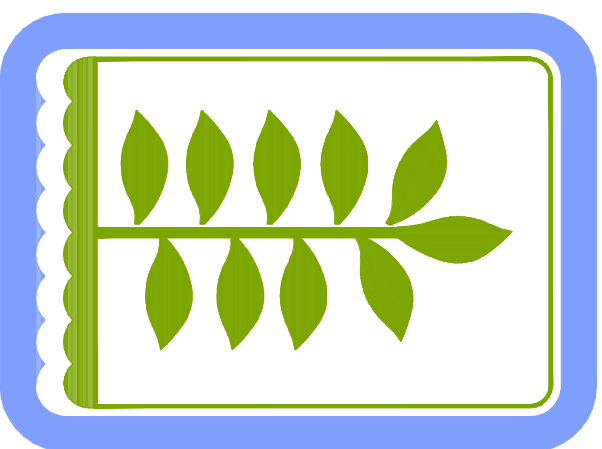
# NORTH TEXAS MUNICIPAL WATER DISTRICT

CONSTRUCTION PLANS FOR

I.H. 30 SANITARY SEWER REHABILITATION  
IN

ROCKWALL, TEXAS

PROJECT NO. ENG 08-5



**BIRKHOFF, HENDRICKS & CONWAY, L.L.P.**  
CONSULTING ENGINEERS  
Dallas, Texas

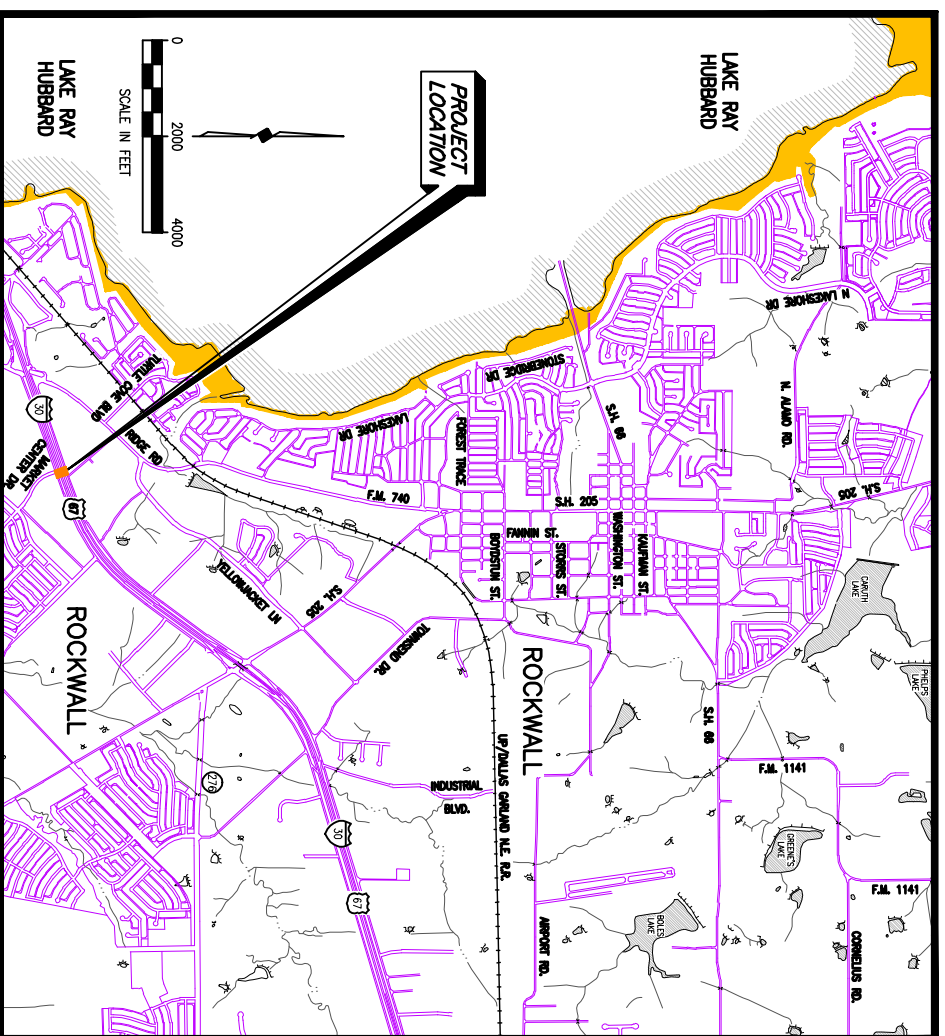
JUNE 2008

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offices of Birkhoff, Hendricks & Conway, L.L.P.*

BY P.A.C. DATE 10/10/08

**PROJECT NOTES**  
(NO SEPARATE PAY ITEMS)

**PROJECT NOTES**  
(NO SEPARATE PAY ITEMS)



**LOCATION MAP**

EXISTING UTILITY OWNERS

NORTH TEXAS MUNICIPAL WATER DISTRICT	DENNIS MCSHERRY BRUCE COLE	(972) 442-5405	
CITY OF ROCKWALL	CHUCK TODD	(972) 771-7746	CITY ENGINEER
COMCAST	-	(800) 252-1133	
SOUTHWESTERN BELL TELEPHONE	-	(800) 395-0440 (800) 545-6005	
TCI CABLE	-	(214) 328 5000	
TEXAS ONE CALL SYSTEM	-	(800) 245-4545	
TEXAS EXCAVATION SAFETY SYSTEM	-	(800) 344-8377	
ONCOR	RICHARD BREWSTER	(214) 486-4245	
ATMOS ENERGY	LINE LOCATE EMERGENCY BEN CURTIS RONNEY LINTON	(800) 344-8377 (800) 817-8090 (800) 344-8377 (469) 261-2023	PROJECT MANAGER
LEVEL 3 FIBER OPTIC	-	(877) 366-8344	
METRO MEDIA FIBER OPTIC	-	(972) 771-7746	DIG/EMERGENCY

- CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE MEASURES FOR PREVENTING STORM WATER RUNOFF FROM ENTERING THE TRENCH DURING CONSTRUCTION.
- TOPSOIL SHALL BE STOCKPILED AND REPLACED TO A MINIMUM DEPTH OF 6 INCHES. THE REPLACED TOPSOIL SHALL BE DISC HARROWED AND SMOOTHED.
- FINISHED GROUND SHALL NOT CONTAIN MORE ROCKS OR DEBRIS THAN THE SURROUNDING UNDISTURBED GROUND.
- UNLESS OTHERWISE SHOWN ON THE PLANS THE CONTRACTOR SHALL RESTORE GROUND TO ORIGINAL GRADE AND PREVENT FLOODING OF STORM WATER RUNOFF ON ALL GROUND DISTURBED BY CONSTRUCTION ACTIVITIES.
- CONTRACTOR SHALL NOT REMOVE ANY TREES LARGER THAN 4 INCHES IN DIAMETER UNLESS IT IS SHOWN WITH A BOLD "X" ON THE PLANS WITHOUT WRITTEN PERMISSION OF THE OWNER.
- CONTRACTOR MAY TRIM TREES AS NECESSARY UNDER OWNERS SUPERVISION.
- ALL CUT LIMBS OVER 1 INCH IN DIAMETER SHALL BE PAINTED WITH TREE WOUND PAINT IMMEDIATELY AFTER CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED IN THIS AREA.
- ALL TREES OVER 4 INCHES IN DIAMETER THAT ARE REMOVED OR SEVERELY DAMAGED BY CONSTRUCTION OPERATIONS WITHOUT PERMISSION SHALL BE REPLACED WITH AN EQUIVALENT TYPE AND DIAMETER OF TREE AT THE SOLE EXPENSE OF THE CONTRACTOR OR THE CONTRACTOR SHALL PAY THE FAIR MARKET VALUE TO THE OWNER.
- THE CONTRACTOR SHALL TAKE SPECIAL CARE IN AVOIDING DAMAGE TO PLANT MATERIAL OR TREES WITHIN THE SITE OR PROPERTY ADJACENT TO THE WORK. ANY AND ALL DAMAGE TO PLANT MATERIAL OR TREES AS A RESULT OF THE CONTRACTOR'S WORK SHALL BE PAID FOR AND CORRECTED AT THE EXPENSE OF THE CONTRACTOR IN ACCORDANCE WITH THE TEXAS A&M FORMULA FOR SHADE TREE EVALUATION.
- ANY FENCES DAMAGED OR REMOVED BY CONSTRUCTION ACTIVITIES NOT NOTED ON PLANS SHALL BE REPLACED WITH A FENCE OF EQUAL OR SUPERIOR QUALITY AT CONTRACTOR'S EXPENSE.
- CONTRACTOR SHALL INCLUDE ALL COSTS FOR REMOVAL AND/OR REPLACEMENT OF PAVEMENT, FENCES, GATES, AND OTHER IMPROVEMENTS DAMAGED BY CONSTRUCTION ACTIVITIES IN THE APPROPRIATE ITEM OF THE BID SCHEDULE.
- THE LOCATION OF ALL UNDERGROUND UTILITIES SHOWN IN THE PLANS IS APPROXIMATE AND BASED ON THE INFORMATION AVAILABLE TO THE ENGINEER DURING DESIGN OF THE PROJECT. CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL EXISTING UTILITIES SUFFICIENTLY IN ADVANCE OF THE CONSTRUCTION SO THAT, IF IT IS NECESSARY TO CHANGE OR MOVE THE UTILITY THE PROGRESS OF THE WORK WILL NOT BE DELAYED.
- CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING SERVICE LINES AND BRIGATIONS SYSTEMS CROSSED OR EXPOSED BY HIS CONSTRUCTION OPERATIONS WHERE THEY ARE CUT, BROKEN OR DAMAGED. THE CONTRACTOR SHALL IMMEDIATELY REPLACE THEM WITH THE SAME TYPE AS THE ORIGINAL CONSTRUCTION OR SUPERIOR.
- ANY CONCRETE PAVEMENT OR SIDEWALK, NOT SHOWN TO BE REMOVED IN THE PLANS, REMOVED BY THE CONTRACTOR SHALL BE REPLACED BY THE CONTRACTOR AT HIS SOLE EXPENSE.
- CONTRACTOR SHALL PROVIDE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND ALL APPURTENANCES WHICH COMPLY WITH THE LATEST TCEQ SWPPP REGULATIONS.
- IF CONTRACTOR ENCOUNTERS GROUNDWATER ON THE PROJECT, HE SHALL PROVIDE ADEQUATE MEASURES FOR DEWATERING THE TRENCH. ALL COSTS FOR PUMPS AND/OR OTHER RELATED APPURTENANCES SHALL BE INCLUDED IN THE APPROPRIATE ITEM OF THE BID SCHEDULE.
- REMOVAL AND REPLACEMENT OF GRAVEL DRIVES, PARKING AREAS, AND WALKWAYS NOT SHOWN IN THE PLANS SHALL BE SUBSIDIARY. ALL COSTS SHALL BE INCLUDED IN THE APPROPRIATE ITEM OF THE BID SCHEDULE.
- CONTRACTOR SHALL CONSTRUCT TEMPORARY ASPHALT RAMP TO PROTECT CURBS AT THE CONCRETE PAVEMENT USED BY CONSTRUCTION TRAFFIC, AND SHALL REMOVE ASPHALT AT END OF PROJECT.
- NO TRENCHES SHALL BE LEFT OPEN WHILE CONTRACTOR IS NOT WORKING.
- CONTRACTOR SHALL CONTAIN ALL WORK WITHIN THE RIGHT-OF-WAY & EASEMENTS PROVIDED FOR THIS PROJECT AS SHOWN ON THE PLANS.
- CONTRACTOR SHALL PROVIDE WHATEVER MEASURES NECESSARY TO LIMIT TRENCH WIDTH TO 8 FEET THROUGHOUT THIS PROJECT UNLESS OTHERWISE SHOWN ON THE PLANS. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL SAFETY MEASURES AND PROGRAMS.
- THE CONTRACTOR SHALL PROVIDE BARRICADES, FLAGMEN AND OTHER TRAFFIC CONTROL DEVICES AS REQUIRED BY THE CITY OF ROCKWALL ENGINEERING DEPARTMENT FOR ANY CITY STREET LANE CLOSURES AND AS REQUIRED BY THE TEXAS DEPARTMENT OF TRANSPORTATION FOR WORK WITHIN TxDOT RIGHT-OF-WAY.
- THE CONTRACTOR MAY EMPLOY TWO OR MORE CONSTRUCTION CREWS ON THE PROJECT SIMULTANEOUSLY IN ORDER TO EXPEDITE COMPLETION.
- THE CONTRACTOR SHALL CONTINUOUSLY RESTORE THE CONSTRUCTION AREA SO THAT NO MORE THAN 50 L.F. ALONG THE EASEMENT HAS NOT BEEN RESTORED TO ORIGINAL GRADE AND SECTION.
- CONTRACTOR SHALL PROVIDE PRE AND POST CONSTRUCTION VIDEO OF ENTIRE PROJECT AREA-INCLUDING INSIDE PIPE LINE. CONTRACTOR SHALL PROVIDE VIDEO ON DVD FORMAT TO N.T.M.W.D.
- CONTRACTOR SHALL PROTECT ALL DRAINAGE STRUCTURES.
- CONTRACTOR SHALL PROVIDE BYPASS PUMPING AS REQUIRED. CONTRACTOR SHALL UTILIZE STORM SEWER SYSTEM UNDER I.H. 50 FOR ROUTING BYPASS PIPING FROM UPSTREAM MANHOLE TO DOWNSTREAM MANHOLE.
- CONTRACTOR SHALL SECURE EXCAVATION AT THE END OF EACH DAY. THE OWNER MAY REQUIRE THAT NO TRENCHES BE LEFT OPEN OVERNIGHT IN STREETS OR POPULATED AREAS.

- CONTRACTOR SHALL PROVIDE TEMPORARY SUPPORT OF ALL POWER AND TELEPHONE POLES AND GUY WIRES WITHIN 15 FEET OF PROPOSED SANITARY SEWER AND SHALL REPAIR DAMAGED POLES AND GUY WIRES OR RELOCATE POLES AND GUY WIRES AS REQUIRED BY THE UTILITY OWNER AT NO ADDITIONAL COST TO THE OWNER. CONTRACTOR MUST CONTACT & COORDINATE ALL WORK AND FEES W/ UTILITY OWNER AT NO ADDITIONAL COST TO N.M.W.D.
- TEMPORARY FENCING SHALL BE REQUIRED WHERE INDICATED ON THE DRAWINGS, WHERE THERE IS LIVESTOCK, AND WHERE DAMAGED OR REMOVED FENCES ARE NOT TO BE REPLACED BY END OF SAME WORK DAY, OR AS DIRECTED BY OWNER. CONTRACTOR TO VERIFY PRESENCE OF LIVESTOCK WITH LANDOWNER PRIOR TO ENTERING PROPERTY.
- CONTRACTOR SHALL SUBMIT A WRITTEN PLAN AND SCHEDULE 14 DAYS IN ADVANCE OF CONSTRUCTION ACTIVITIES REGARDING REPLENISHMENT OR SUPPORT OF EXISTING SANITARY SEWER PIPE, WATER PIPE OR STORM DRAIN PIPE. ASSOCIATED SCHEDULE. (LESHUDOWN/NE-IN)
- THE CONTRACTOR SHALL EMPLOY ADEQUATE METHODS TO MINIMIZE TURBIDITY IN WATERWAYS DURING ALL PHASES OF THE PROJECT. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE LAWS AND REGULATIONS CONCERNING WATER POLLUTION AND CONTROL OF EROSION.
- CONTRACTOR SHALL CLEAN THE RIGHT-OF-WAY OF ANY AND ALL TRASH.
- NO TREES WILL BE ALLOWED. BRUSH AND CONSTRUCTION DEBRIS SHALL BE REMOVED FROM THE SITE.
- ANY EXISTING UTILITY DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED OR REPLACED IMMEDIATELY WITH LIKE OR BETTER MATERIALS.
- IT SHALL BE THE COMPLETE RESPONSIBILITY OF THE CONTRACTOR TO REBUILD THE CONCRETE OR ASPHALT PAVEMENT REPLACEMENT SECTIONS TO THE SAME LINE AND GRADE AS WAS EXISTING PRIOR TO PIPELINE CONSTRUCTION. SEE NOTE ON TEMP. ASPHALT RAMPS.
- THE CONTRACTOR SHALL RESTORE AT HIS OWN EXPENSE. TEMPORARY ROADS AND CONSTRUCTION WORK AREAS.
- IN ACCORDANCE WITH TEXAS STATE LAW, AT LEAST 2 DAYS PRIOR TO BEGINNING EXCAVATION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING A TEXAS REGISTERED NOTIFICATION CENTER (I.E. TEXAS ONE CALL, DIG TESS, ETC.) IN ORDER TO HAVE EXISTING UTILITIES LOCATED. DIGRESS: 1-800-344-8377.
- IN ORDER TO HAVE EXISTING UTILITIES LOCATED. DIGRESS: 1-800-344-8377.
- CLEARING AND GRUBBING MAY BEGUN NO SOONER THAN TWO WEEKS PRIOR TO PIPE TRENCHING OPERATIONS. PIPE STRINGING SHALL BE NO MORE THAN TWO WEEKS PRIOR TO PIPE LAYING, BACKFILL, CLEAN-UP, AND SURFACE RESTORATION SHALL BE COMPLETED NO MORE THAN TWO WEEKS AFTER PIPE LAYING AND NO MORE THAN 50 FEET FROM PIPE LAYING OPERATIONS. THE SITE SHALL BE KEPT CLEAN OF TRASH AT ALL TIMES. FAILURE TO COMPLY WITH THESE REQUIREMENTS MAY RESULT IN WITHHOLDING SOME OR ALL PAYMENT TO THE CONTRACTOR.
- CONTRACTOR SHALL MAINTAIN AT LEAST ONE LANE OF TRAFFIC ON ALL ROADS AT ALL TIMES, AND CONSTRUCT TEMPORARY BYPASS. IF NECESSARY, IF THE ROADWAY MUST BE CLOSED TO FACILITATE CONSTRUCTION ACTIVITIES CONTRACTOR SHALL SUBMIT A TRAFFIC CONTROL PLAN TO THE OWNER AND THE RIGHT-OF-WAY OWNER FOR THE ROADWAY FOR APPROVAL. NO LESS THAN 14 DAYS IN ADVANCE OF THE PROPOSED ROADWAY CLOSURE. ANY COMMENTS RECEIVED ON THE PLAN BY THE OWNER OR RIGHT-OF-WAY OWNER SHALL BE INCORPORATED INTO THE PLAN. THE PLAN SHALL BE PREPARED SPECIFICALLY FOR THIS PROJECT AND SHALL BE SEALED AND SIGNED BY AN ENGINEER LICENSED IN THE STATE OF TEXAS. THE COST TO PREPARE THE TRAFFIC CONTROL PLAN, WHEN REQUIRED, SHALL BE MADE INCIDENTAL TO THE PROJECT. IF AT ANYTIME DURING CONSTRUCTION THE CONTRACTOR'S PROPOSED PLAN OF OPERATION FOR HANDLING TRAFFIC DOES NOT PROVIDE FOR THE SAFE, COMFORTABLE MOVEMENT OF TRAFFIC, THE CONTRACTOR SHALL IMMEDIATELY CHANGE HIS OPERATIONS TO CORRECT THE UNSATISFACTORY CONDITIONS.
- CONTRACTOR SHALL PROVIDE APPROPRIATE SIGNAGE, BARRICADES, FLAGMEN, ETC. REQUIRED TO MAINTAIN SAFE TRAFFIC FLOW AT ALL TIMES FOR ANY WORK ACTIVITY ON OR ADJACENT TO ANY CITY, COUNTY OR TxDOT ROADWAY. ALL TRAFFIC CONTROL MEASURES SHALL BE IN ACCORDANCE WITH TxDOT'S MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
- PROVIDE ACCESS FOR LANDOWNERS AT EXISTING ROADS AND DRIVES AT ALL TIMES.
- WHERE IT IS NECESSARY FOR LANDOWNERS TO MOVE TRAILERS, SHEDS, OR OTHER FACILITIES OR IMPROVEMENTS, OR WHEN THE CONTRACTOR INTENDS TO MOVE SUCH FACILITIES OR IMPROVEMENTS, CONTRACTOR SHALL NOTIFY THE LAND OWNER AND THE OWNER NO LESS THAN 14 DAYS PRIOR TO MOVING THE FACILITIES OR IMPROVEMENTS.
- CONTRACTOR SHALL CONTACT MR. MURRAY ALLEN, P.E. WITH TxDOT @ (214)-320-6289 PRIOR TO PROCEEDING WITH ANY WORK IN TxDOT RIGHT-OF-WAY.

**SHEET INDEX**

**DESCRIPTION**

**SHEET NO.**

COVER SHEET	1
LOCATION MAP, PROJECT NOTES & SHEET INDEX	2
PLANS & DETAILS	3
TxDOT DETAILS	4

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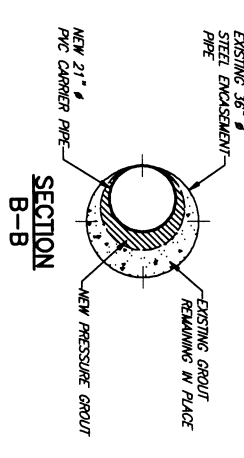
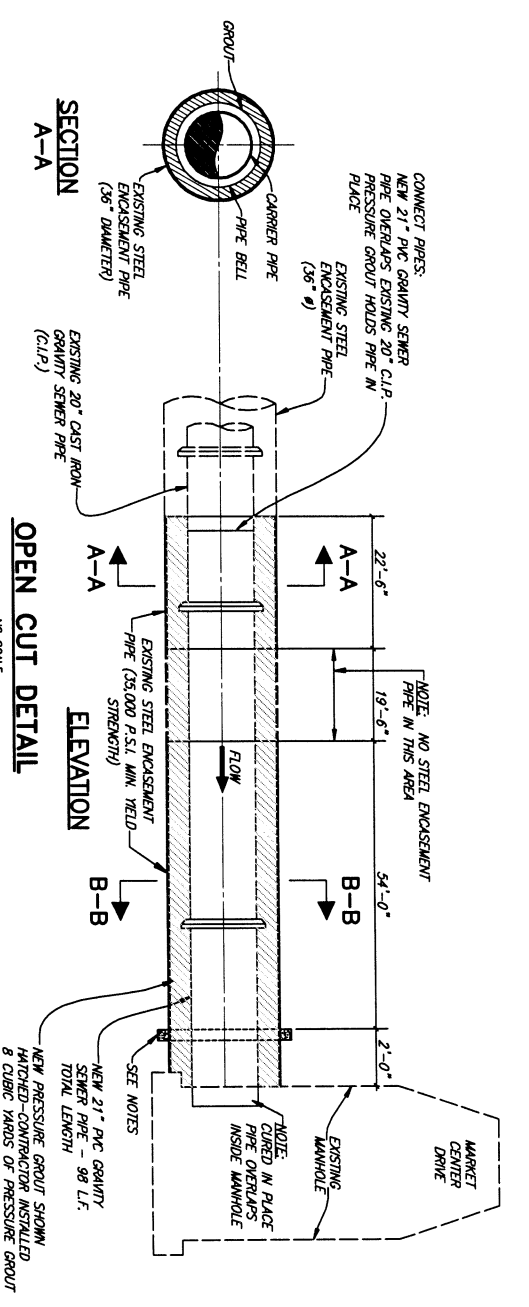
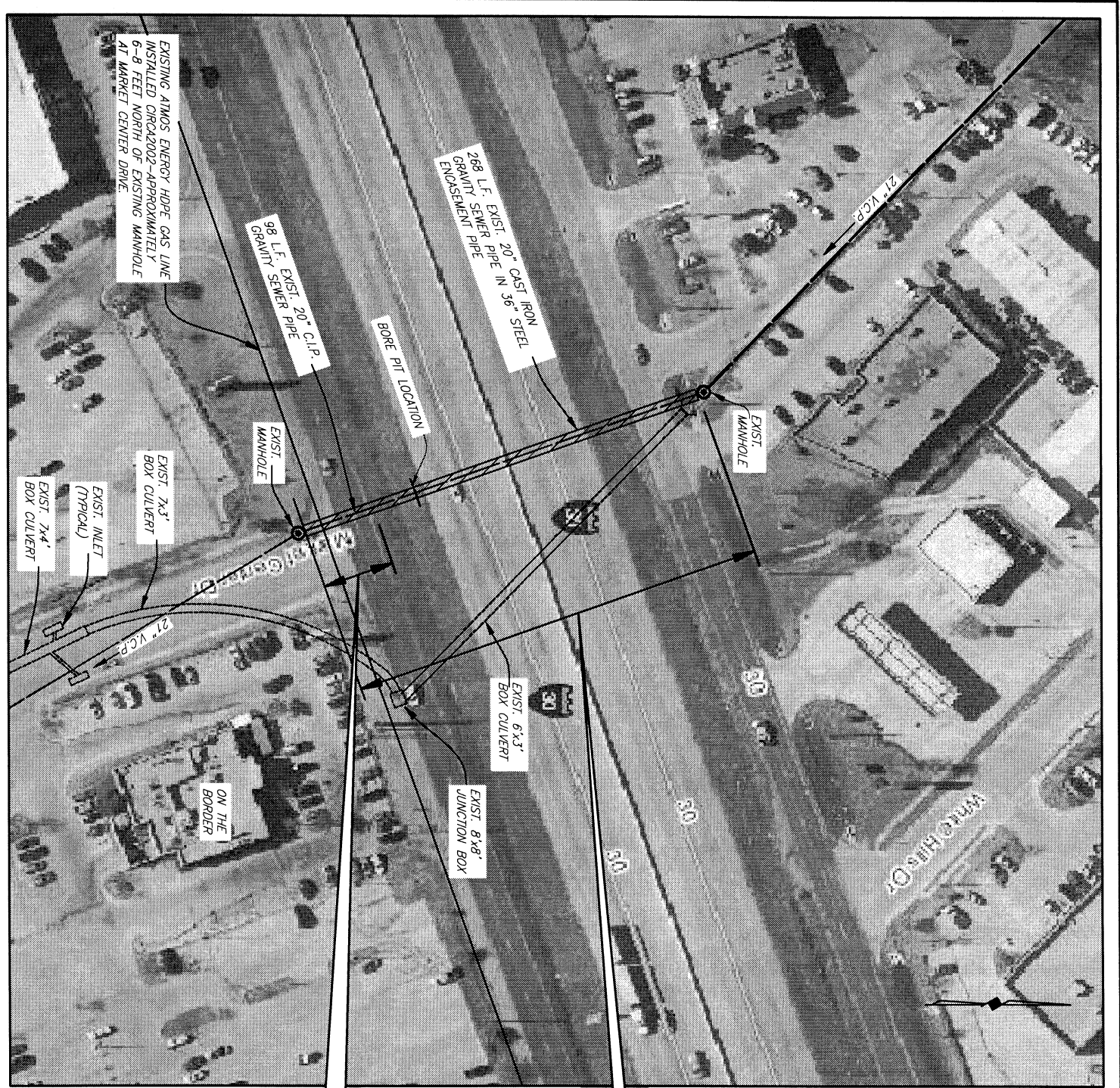
BY P.A.C. DATE 10/10/08

**BIRKHOFF, HENDRICKS & CONWAY, L.L.P.**  
CONSULTING ENGINEERS  
11910 Greenville Ave., Suite 600  
Dallas, Texas  
(214) 361-7900

**NORTH TEXAS MUNICIPAL WATER DISTRICT**  
**I.H. 50 SANITARY SEWER CROSSING REHABILITATION**  
LOCATION MAP, PROJECT'S NOTES AND SHEET INDEX

BHC  
PROJECT NO.  
2008-121  
JUNE 2008

SHEET NO.  
**2**



- OPEN CUT NOTES:**
1. PREPARED FOR THE OWNER.
  2. CONTRACTOR SHALL PROVIDE SUPPORT UNDER CARRIER PIPE TO MAINTAIN 4\"/>

**REMOVE EXISTING GRAVITY PIPE BETWEEN STEEL ENCASUREMENT PIPE & MANHOLE FURNISH & INSTALL:**

98 L.F. 21\"/>

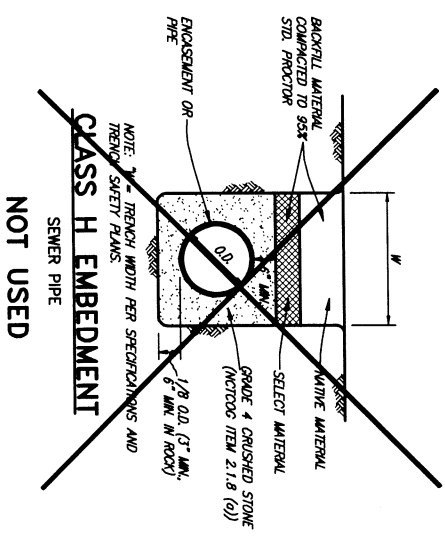
~~REMOVE EXISTING GRAVITY PIPE (7.0\"/>

~~CONNECT TO EXISTING MANHOLE~~

~~CONNECT TO EXISTING GRAVITY SEWER PIPE~~

~~REMOVE EXISTING STEEL ENCASUREMENT PIPE~~

~~REMOVE EXISTING 36\"/>~~~~



**CLASS H EMBEDMENT NOT USED**

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**BIRKHOFF, HENDRICKS & CONWAY, L.L.P.**  
 CONSULTING ENGINEERS  
 11910 Greenhill Ave., Suite 600  
 Dallas, Texas  
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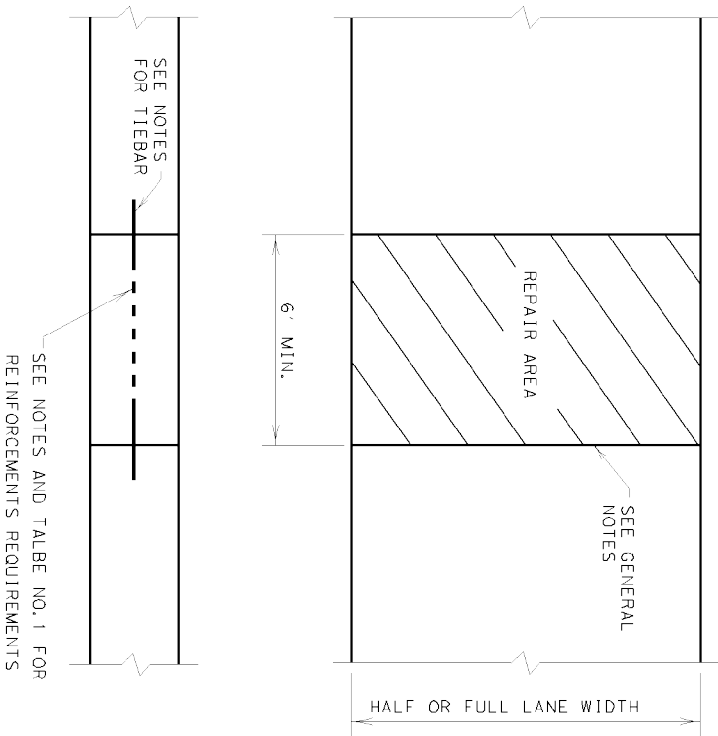


THESE DOCUMENTS ARE FOR BIDDING, CONSTRUCTION, AND PERMIT PURPOSES.  
 DATE: 9/10/08

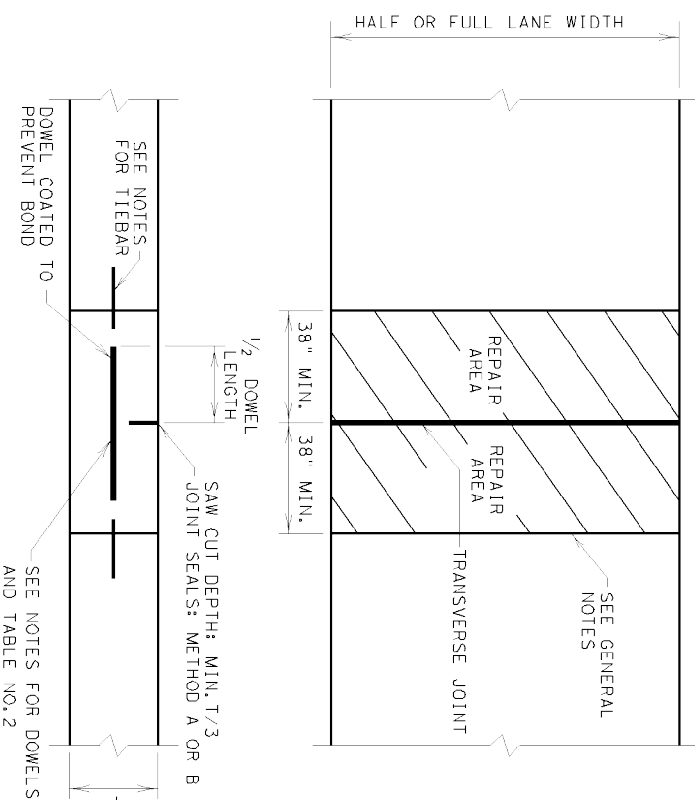
**NORTH TEXAS MUNICIPAL WATER DISTRICT**  
 LH 30 SANITARY SEWER CROSSING REHABILITATION  
 PLANS AND DETAILS

BHC PROJECT NO. 2008-121  
 SHEET NO. 3  
 JUNE 2008

**FULL DEPTH REPAIR**



**FULL DEPTH TRANSVERSE JOINT REPAIR**



**GENERAL NOTES:**

1. ITEM 361, "FULL-DEPTH REPAIR OF CONCRETE PAVEMENT," SHALL GOVERN FOR THIS WORK. THE FOLLOWING SPECIFICATIONS ARE REFERENCED IN ITEM 361.
  - \* ITEM 360, "CONCRETE PAVEMENT"
  - \* ITEM 421, "HYDRAULIC CEMENT CONCRETE"
  - \* ITEM 438, "CLEANING AND SEALING JOINTS AND CRACKS (RIGID PAVEMENT AND BRIDGE DECKS)"
  - \* ITEM 440, "REINFORCING STEEL"
  - \* DMS-4650, "HYDRAULIC CEMENT CONCRETE CURING MATERIALS AND EVAPORATION RETARDANTS"
  - \* DMS-6100, "EPOXIES AND ADHESIVES"
  - \* DMS-6310, "JOINT SEALANTS AND FILLERS"
2. FULL DEPTH SAW CUTS SHALL BE MADE AROUND THE PERIMETER OF THE AREA TO BE REPAIRED. THE CUT SHALL BE MADE AT A RIGHT ANGLE TO THE PAVEMENT EDGE AND TO THE CENTER LINE OF THE PAVEMENT.
3. LONGITUDINAL FULL DEPTH SAW CUTS SHALL BE AT EXISTING LONGITUDINAL JOINTS.
4. ADDITIONAL SAW CUTS MAY BE REQUIRED WITHIN THE AREA OF THE REPAIR TO FACILITATE REMOVAL OF THE CONCRETE OR TO ALLEVIATE BINDING OF THE FULL DEPTH SAW CUT AT THE REPAIR EDGE.
5. THE SAW CUTS WHICH EXTEND OUTSIDE THE AREA OF THE REPAIR WILL BE CLEANED AND FILLED WITH A GROUT APPROVED BY THE ENGINEER.
6. EXISTING LONGITUDINAL AND TRANSVERSE JOINTS REMOVED DUE TO REPAIR OPERATION SHOULD BE RESTORED IN ACCORDANCE WITH STANDARD SHEET "CONCRETE PAVING DETAILS, JOINT SEALS."

**REINFORCEMENTS REQUIREMENTS**

REINFORCING STEEL SHALL BE #6 DEFORMED STEEL BARS CONFORMING TO ASTM A 615 (GRADE 60) OR ASTM A 996 (GRADE 60).

- R1. THE STEEL SPACING FOR CONTINUOUSLY REINFORCED CONCRETE PAVEMENT (CRCP) AND JOINTED REINFORCED CONCRETE PAVEMENT (JRCP) SHALL BE REINFORCED AS SHOWN IN TABLE NO. 1.
- R2. REINFORCING BARS SHALL BE PLACED IN ONE LAYER AND SHALL BE TIED TO THE TIEBARS.
- R3. THE LENGTH OF THE REINFORCING BAR SHALL BE THE LENGTH OR WIDTH OF THE REPAIR AREA MINUS 2 INCHES. THE END OF THE BAR SHALL BE PLACED WITHIN 1 INCH FROM THE REPAIR EDGE.

**TIEBARS FOR REPAIR AREAS**

- T1. TIEBARS SHALL BE PLACED AT APPROXIMATELY THE MID-DEPTH OF SLAB. THE BOTTOM OF THE HOLE DRILLED FOR THE LONGITUDINAL BARS SHALL BE AT MID-DEPTH AND THE TOP OF THE HOLES DRILLED FOR THE TRANSVERSE BARS SHALL BE AT MID-DEPTH. MID-DEPTH WILL BE ESTABLISHED BY MEASURING FROM THE TOP OF THE SLAB DOWN. THE THICKNESS OF THE CONCRETE SLAB WILL BE DEFINED BY THE PLANS OR THE ENGINEER.
- T2. THE BAR SIZE AND SPACING OF TIEBARS ARE SHOWN IN TABLE NO. 1.
- T3. THE MINIMUM LENGTH OF TIEBARS EXTENDED INTO THE REPAIR AREA SHOULD BE 25 INCHES FOR A #6 BAR.
- T4. THE TIEBAR SHALL BE GROUTED INTO THE EXISTING CONCRETE A MINIMUM OF 12 INCHES. BEFORE REPAIR WORK, DEMONSTRATE THAT THE BOND STRENGTH OF THE EPOXY-GROUTED TIEBARS MEETS THE REQUIREMENTS OF PULL-OUT TEST SPECIFIED IN ITEM 361.
- T5. MULTIPLE PIECE TIEBARS SHALL BE USED WHEN THE REPAIR AREA MUST BE PLACED IN TWO STAGES DUE TO SEQUENCE OF CONSTRUCTION.

**DOWELS FOR TRANSVERSE JOINT REPAIRS**

- D1. SMOOTH DOWEL BARS SHALL BE DELIVERED TO THE JOBS SITE IN PREFABRICATED DOWEL ASSEMBLIES. THE ENTIRE DOWEL BAR SHALL BE COATED WITH A MATERIAL WHICH WILL PREVENT BONDING TO THE CONCRETE.
- D2. THE SIZE AND SPACING OF DOWEL BARS SHALL BE AS SHOWN IN TABLE NO. 2.
- D3. PLACEMENT OF TIEBARS AND OTHER REINFORCING STEEL SHALL BE STOPPED APPROXIMATELY 4" FROM THE DOWEL BAR ASSEMBLY.
- D4. DOWEL BAR PLACEMENT SHALL MEET THE REQUIREMENTS OF ITEM 360, "CONCRETE PAVEMENT."

PAVEMENT THICKNESS (INCHES)	SIZE AND DIA. (INCHES)	LENGTH (INCHES)	SPACING (INCHES)
8	#8 (1 IN.)	18	
9	#9 (1 1/8 IN.)		12
≥ 10	#10 (1 1/4 IN.)		12

TABLE NO. 1 STEEL BARS SIZE AND SPACING

TYPE OF REINFORCEMENTS	TIEBARS			REGULAR REBARS			ALL BARS
	TYPE PAVEMENT	PAVEMENT THICKNESS (INCHES)	SIZE BAR (BAR NO.)	BAR SPACING (INCHES)	SIZE BAR (BAR NO.)	SPACING (INCHES)	
TRANSVERSE BARS	CRCP (CPCD)	ALL	#6	24	#6	24	12
			#6	24	NONE	NONE	12
			#6	9	#6	9	12
			#6	8	#6	8	12
			#6	7	#6	7	12
LONGITUDINAL BARS	JRCP	11	#6	6.5	#6	6.5	12
		10	#6	7	#6	7	12
		≥ 12	#6	6	#6	6	12
	JCP (CPCD)	ALL	#6	12	NONE	NONE	12

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**Texas Department of Transportation**  
Construction Division (Pavements)

**FULL DEPTH REPAIR FOR CONCRETE PAVEMENT**

**FDR (CP) -05**

Files	fdr-cp05.dgn	Dw	HC	Cs	LL
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REVISIONS					4
		CONTROL	SECT	JOB	H.OWENS