

## **Utility Coordination**



"Schwiers, Thomas"  
<Thomas.Schwiers@cincinnati-oh.gov>

03/09/2009 11:46 AM

To <Rick.Anton@dot.state.oh.us>

cc "Franklin, Rob" <Rob.Franklin@cincinnati-oh.gov>

bcc

Subject HAM\_71/75-0.00/0.22 PID 75119

Rick:

After receiving your letter of March 2, 2009 I put together some cost per foot to relocate some of our sewer lines. I thought this might be the best way to go given that there is no definite alignment set which would tell us the footage we need to relocate along with the manholes. In many cases we may be able to relocate a manhole to provide access to our sewer rather than relocating the line.

Tom Schwiers



244-5187 | 75&71 Widening.doc

MSD

Response for HAM -71/75-0.00/0.22 PID 75119

In general, it may be easier to modify the existing manholes leaving the sewers where they are than to try and relocate them. Using Table 30 provided in your letter of March 2, 2009 I wish to offer the following:

Item 2-9: The 72 inch sewer is our Mill Creek East Branch Interceptor sewer which runs 75% full on dry days. Originally this sewer was installed by tunneling. To relocate this sewer would cost \$3000.00 per lineal foot with shafts costing \$750,000.00 per shaft. The sewer is located in City Street R/W or if we cross private property it is in an easement. The 66 inch is an outfall sewer to the river to relocate this sewer could involve the relocation of a CSO. Estimated cost of sewer relocation would be \$1600.00 per foot with manholes costing \$25,000.00

Item 2-17: In addition to the three sewers mentioned there is a 24 inch sanitary and a 66 inch combined along the east side of Central Ave. in an easement. The 48 inch is in the street R/W and the 60 inches are in an easement. Relocation Cost for 24 inch is \$650.00 per foot, 60 inch is \$1500.00, 66 inch \$1600.00 with manholes costing \$20,000 to \$25,000 each.

Item 2-22; To relocate this sewer would cost \$1100.00 per foot. It might be easier to relocate manholes out of the widening.

Item 2-25: To relocate this line you would be looking at \$2400.00 per foot with manholes costing \$20,000.00. Sewer is in easement.

Item 2-29: With this line we may get by with adjusting manholes.

Item 2-30: The 60 inch sewer is in street R/W, Relocation cost would be \$1600.00 per foot with manholes costing \$18,000.00. As for the 72 inch it appears this line was abandoned when 75 was built.

Item 3-1: The 30 inch sewer is in street R/W and to relocate the sewer would require the sewer to be jacked and bored under the expressway at a cost of \$1100.00 per foot with manholes \$12,000 to \$15,000.00

Item 3-8: The 30 inch sewer is in street R/W cost to relocate similar to Item 3-1.



# OHIO DEPARTMENT OF TRANSPORTATION

DISTRICT 8 • 505 S. ST. RT. 741 • LEBANON, OH 45036 • (800) 831-2142

James G. Beasley, P.E., P.S.  
Director

Ted Strickland  
Governor

Hans R. Jindal, P.E.  
District 8 Deputy Director

March 2, 2009

Mr. Mark Conner  
Cincinnati Bell Telephone  
201 East 4<sup>th</sup> Street, Bldg 343  
Cincinnati, Ohio 45202

Subject: Potential Utility Impacts

Reference: HAM-71/75-0.00/0.22 PID 75119

Dear Mr. Conner:

ODOT is requesting that Cincinnati Bell Telephone look over the enclosed material to give us an estimate of the cost to relocate your facilities using today's dollars. Also, please indicate if your facilities are there by permit or on your own easement.

Enclosed is a map showing the potential impacts with Cincinnati Bell Telephone and our project. Using Table 30 (Utility Impacts in Ohio) and map sheets 5, 6 & 7 of 7, you will find the potential impacts to Cincinnati Bell Telephone Facilities.

I am also sending the above enclosed material to Dick Selms.

Any questions please call 513-933-6624 or email me at [rick.anton@dot.state.oh.us](mailto:rick.anton@dot.state.oh.us).

Respectfully,

Rick Anton  
District 8 Utility Coordinator





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James G. Beasley, P.E., P.S.  
Director

Ted Strickland  
Governor

Hans R. Jindal, P.E.  
District 8 Deputy Director

March 2, 2009

Mr. Jeff Ballinger  
AT&T Fiber  
4435 Aicholtz Road, Suite 300  
Cincinnati, Ohio 45245

Subject: Potential Utility Impacts

Reference: HAM-71/75-0.00/0.22 PID 75119

Dear Mr. Ballinger:

ODOT is requesting that AT&T Fiber look over the enclosed material to give us an estimate of the cost to relocate your facilities using today's dollars. Also, please indicate if your facilities are there by permit or on your own easement.

Enclosed is a map showing the potential impacts with AT&T Fiber and our project. Using Table 30 (Utility Impacts in Ohio) and map sheets 5, 6 & 7 of 7, you will find the potential impacts to AT&T Fibers Facilities.

Any questions please call 513-933-6624 or email me at [rick.anton@dot.state.oh.us](mailto:rick.anton@dot.state.oh.us).

Respectfully,

Rick Anton  
District 8 Utility Coordinator



# OHIO DEPARTMENT OF TRANSPORTATION

DISTRICT 8 • 503 S. ST. RT. 741 • LEBANON, OH 45036 • (800) 851-2142

James G. Beasley, P.E., P.S.  
Director

Ted Strickland  
Governor

Hans R. Jindal, P.E.  
District 8 Deputy Director

March 2, 2009

Mr. Al Guest  
MCI/Verizon  
120 Ravine Street  
Akron, Ohio 44303

Subject: Potential Utility Impacts

Reference: HAM-71/75-0.00/0.22 PID 75119

Dear Mr. Guest:

ODOT is requesting that MCI/Verizon look over the enclosed material to give us an estimate of the cost to relocate your facilities using today's dollars. Also, please indicate if your facilities are there by permit or on your own easement.

Enclosed is a map showing the potential impacts with MCI/Verizon and our project. Using Table 30 (Utility Impacts in Ohio) and map sheets 5, 6 & 7 of 7, you will find the potential impacts to MCI/Verizon Facilities.

Any questions please call 513-933-6624 or email me at [rick.anton@dot.state.oh.us](mailto:rick.anton@dot.state.oh.us).

Respectfully,

Rick Anton  
District 8 Utility Coordinator



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James G. Beasley, P.E., P.S.  
Director

Ted Strickland  
Governor

Hans R. Jindal, P.E.  
District 8 Deputy Director

March 2, 2009

Mr. Tim Taylor  
Level 3 Communications  
400 Pike Street, Suite 300  
Cincinnati, Ohio 45202

Subject: Potential Utility Impacts

Reference: HAM-71/75-0.00/0.22 PID 75119

Dear Mr. Taylor:

ODOT is requesting that Level 3 Communications look over the enclosed material to give us an estimate of the cost to relocate your facilities using today's dollars. Also, please indicate if your facilities are there by permit or on your own easement.

Enclosed is a map showing the potential impacts with Level 3 Communications and our project. Using Table 30 (Utility Impacts in Ohio) and map sheets 5, 6 & 7 of 7, you will find the potential impacts to Level 3 Communications Facilities.

I am also sending the above enclosed material to Keith Osborn.

Any questions please call 513-933-6624 or email me at [rick.anton@dot.state.oh.us](mailto:rick.anton@dot.state.oh.us).

Respectfully,

Rick Anton  
District 8 Utility Coordinator





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James G. Beasley, P.E., P.S.  
Director

Ted Strickland  
GOVERNOR

Hans R. Jindal, P.E.  
District 8 Deputy Director

March 2, 2009

Mr. Keith Osborn  
Level 3 Communications, LLC  
1025 Eldorado Blvd, Suite 33A-524  
Broomfield, CO 80021

Subject: Potential Utility Impacts

Reference: HAM-71/75-0.00/0.22 PID 75119

Dear Mr. Osborn:

ODOT is requesting that Level 3 Communications look over the enclosed material to give us an estimate of the cost to relocate your facilities using today's dollars. Also, please indicate if your facilities are there by permit or on your own easement.

Enclosed is a map showing the potential impacts with Level 3 Communications and our project. Using Table 30 (Utility Impacts in Ohio) and map sheets 5, 6 & 7 of 7, you will find the potential impacts to Level 3 Communications Facilities.

I am also sending the above enclosed material to Tim Taylor.

Any questions please call 513-933-6624 or email me at [rick.anton@dot.state.oh.us](mailto:rick.anton@dot.state.oh.us).

Respectfully,

Rick Anton  
District 8 Utility Coordinator



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Governor

Hans R. Jindal, P.E.  
District 8 Deputy Director

March 2, 2009

Mr. Rob Franklin  
Metropolitan Sewer District  
1600 Gest Street  
Cincinnati, Ohio 45204

Subject: Potential Utility Impacts

Reference: HAM-71/75-0.00/0.22 PID 75119

Dear Mr. Franklin:

ODOT is requesting that Metropolitan Sewer District look over the enclosed material to give us an estimate of the cost to relocate your facilities using today's dollars. Also, please indicate if your facilities are there by permit or on your own easement.

Enclosed is a map showing the potential impacts with Metropolitan Sewer District and our project. Using Table 30 (Utility Impacts in Ohio) and map sheets 5, 6 & 7 of 7, you will find the potential impacts to Metropolitan Sewer District Facilities.

I am also sending the above enclosed material to Tom Schwiers.

Any questions please call 513-933-6624 or email me at [rick.anton@dot.state.oh.us](mailto:rick.anton@dot.state.oh.us).

Respectfully,

Rick Anton  
District 8 Utility Coordinator



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Governor

Hans R. Jindal, P.E.  
District 8 Deputy Director

March 2, 2009

Mr. Tom Schwiers  
Metropolitan Sewer District  
1600 Gest Street  
Cincinnati, Ohio 45204

Subject: Potential Utility Impacts

Reference: HAM-71/75-0.00/0.22 PID 75119

Dear Mr. Schwiers:

ODOT is requesting that Metropolitan Sewer District look over the enclosed material to give us an estimate of the cost to relocate your facilities using today's dollars. Also, please indicate if your facilities are there by permit or on your own easement.

Enclosed is a map showing the potential impacts with Metropolitan Sewer District and our project. Using Table 30 (Utility Impacts in Ohio) and map sheets 5, 6 & 7 of 7, you will find the potential impacts to Metropolitan Sewer District Facilities.

I am also sending the above enclosed material to Rob Franklin.

Any questions please call 513-933-6624 or email me at [rick.anton@dot.state.oh.us](mailto:rick.anton@dot.state.oh.us).

Respectfully,

Rick Anton  
District 8 Utility Coordinator



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James G. Beasley, P.E., P.S.  
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Governor

Hans R. Jindal, P.E.  
District 8 Deputy Director

March 2, 2009

Mr. Jason DeLaet  
Cincinnati Water Works  
4747 Spring Grove Ave  
Cincinnati, Ohio 45232

Subject: Potential Utility Impacts

Reference: HAM-71/75-0.00/0.22 PID 75119

Dear Mr. DeLaet:

ODOT is requesting that Cincinnati Water Works look over the enclosed material to give us an estimate of the cost to relocate your facilities using today's dollars. Also, please indicate if your facilities are there by permit or on your own easement.

Enclosed is a map showing the potential impacts with Cincinnati Water Works and our project. Using Table 30 (Utility Impacts in Ohio) and map sheets 5, 6 & 7 of 7, you will find the potential impacts to Cincinnati Water Works Facilities.

I am also sending the above enclosed material to Russell Weber.

Any questions please call 513-933-6624 or email me at [rick.anton@dot.state.oh.us](mailto:rick.anton@dot.state.oh.us).

Respectfully,

Rick Anton  
District 8 Utility Coordinator



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James G. Beasley, P.E., P.S.  
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Governor

Hans R. Jindal, P.E.  
District 8 Deputy Director

March 2, 2009

Mr. Russell Weber  
Cincinnati Water Works  
4747 Spring Grove Ave  
Cincinnati, Ohio 45232

Subject: Potential Utility Impacts

Reference: HAM-71/75-0.00/0.22 PID 75119

Dear Mr. Weber:

ODOT is requesting that Cincinnati Water Works look over the enclosed material to give us an estimate of the cost to relocate your facilities using today's dollars. Also, please indicate if your facilities are there by permit or on your own easement.

Enclosed is a map showing the potential impacts with Cincinnati Water Works and our project. Using Table 30 (Utility Impacts in Ohio) and map sheets 5, 6 & 7 of 7, you will find the potential impacts to Cincinnati Water Works Facilities.

I am also sending the above enclosed material to Jason DeLaet.

Any questions please call 513-933-6624 or email me at [rick.anton@dot.state.oh.us](mailto:rick.anton@dot.state.oh.us).

Respectfully,

Rick Anton  
District 8 Utility Coordinator



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James G. Beasley, P.E., P.S.  
Director

Ted Strickland  
Governor

Hans R. Jindal, P.E.  
District 8 Deputy Director

March 2, 2009

Mr. Gary Hebbler  
Duke Gas  
139 East 4<sup>th</sup> Street, Room 460A  
Cincinnati, Ohio 45202

Subject: Potential Utility Impacts

Reference: HAM-71/75-0.00/0.22 PID 75119

Dear Mr. Hebbeler:

ODOT is requesting that Duke Gas look over the enclosed material to give us an estimate of the cost to relocate your facilities using today's dollars. Also, please indicate if your facilities are there by permit or on your own easement.

Enclosed is a map showing the potential impacts with Duke Gas and our project. Using Table 30 (Utility Impacts in Ohio) and map sheets 5, 6 & 7 of 7, you will find the potential impacts to Duke Gas Facilities.

I am also sending the above enclosed material to Laura Mate'.

Any questions please call 513-933-6624 or email me at [rick.anton@dot.state.oh.us](mailto:rick.anton@dot.state.oh.us).

Respectfully,

Rick Anton  
District 8 Utility Coordinator



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James G. Beasley, P.E., P.S.  
Director

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Governor

Hans R. Jindal, P.E.  
District 8 Deputy Director

March 2, 2009

Ms. Laura Mate'  
Duke Gas  
139 East 4<sup>th</sup> Street, Room 460A  
Cincinnati, Ohio 45202

Subject: Potential Utility Impacts

Reference: HAM-71/75-0.00/0.22 PID 75119

Dear Ms. Mate':

ODOT is requesting that Duke Gas look over the enclosed material to give us an estimate of the cost to relocate your facilities using today's dollars. Also, please indicate if your facilities are there by permit or on your own easement.

Enclosed is a map showing the potential impacts with Duke Gas and our project. Using Table 30 (Utility Impacts in Ohio) and map sheets 5, 6 & 7 of 7, you will find the potential impacts to Duke Gas Facilities.

I am also sending the above enclosed material to Gary Hebbler.

Any questions please call 513-933-6624 or email me at [rick.anton@dot.state.oh.us](mailto:rick.anton@dot.state.oh.us).

Respectfully,

Rick Anton  
District 8 Utility Coordinator



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James G. Beasley, P.E., P.S.  
Director

Ted Strickland  
Governor

Hans R. Jindal, P.E.  
District 8 Deputy Director

March 2, 2009

Mr. Jim Farley  
Duke Electric  
139 East 4<sup>th</sup> Street, 5<sup>th</sup> Floor Main  
Cincinnati, Ohio 45202

Subject: Potential Utility Impacts

Reference: HAM-71/75-0.00/0.22 PID 75119

Dear Mr. Farley:

ODOT is requesting that Duke Electric look over the enclosed material to give us an estimate of the cost to relocate your facilities using today's dollars. Also, please indicate if your facilities are there by permit or on your own easement.

Enclosed is a map showing the potential impacts with Duke Electric and our project. Using Table 30 (Utility Impacts in Ohio) and map sheets 5, 6 & 7 of 7, you will find the potential impacts to Duke Electric's Facilities.

I am also sending the above enclosed material to Tom Birkenhauer and Aaron Wright.

Any questions please call 513-933-6624 or email me at [rick.anton@dot.state.oh.us](mailto:rick.anton@dot.state.oh.us).

Respectfully,

Rick Anton  
District 8 Utility Coordinator





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James G. Beasley, P.E., P.S.  
Director

Ted Strickland  
Governor

Hans R. Jindal, P.E.  
District 8 Deputy Director

March 2, 2009

Mr. Aaron Wright  
Duke Electric  
139 East 4<sup>th</sup> Street, Room 467A  
Cincinnati, Ohio 45202

Subject: Potential Utility Impacts

Reference: HAM-71/75-0.00/0.22 PID 75119

Dear Mr. Wright:

ODOT is requesting that Duke Electric look over the enclosed material to give us an estimate of the cost to relocate your facilities using today's dollars. Also, please indicate if your facilities are there by permit or on your own easement.

Enclosed is a map showing the potential impacts with Duke Electric and our project. Using Table 30 (Utility Impacts in Ohio) and map sheets 5, 6 & 7 of 7, you will find the potential impacts to Duke Electric's Facilities.

I am also sending the above enclosed material to Tom Birkenhauer and Jim Farley.

Any questions please call 513-933-6624 or email me at [rick.anton@dot.state.oh.us](mailto:rick.anton@dot.state.oh.us).

Respectfully,

Rick Anton  
District 8 Utility Coordinator



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James G. Beasley, P.E., P.S.  
Director

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Governor

Hans R. Jindal, P.E.  
District 8 Deputy Director

March 2, 2009

Mr. Tom Birkenhauer  
Duke Electric  
139 East 4<sup>th</sup> Street, Room 467A  
Cincinnati, Ohio 45202

Subject: Potential Utility Impacts

Reference: HAM-71/75-0.00/0.22 PID 75119

Dear Mr. Birkenhauer:

ODOT is requesting that Duke Electric look over the enclosed material to give us an estimate of the cost to relocate your facilities using today's dollars. Also, please indicate if your facilities are there by permit or on your own easement.

Enclosed is a map showing the potential impacts with Duke Electric and our project. Using Table 30 (Utility Impacts in Ohio) and map sheets 5, 6 & 7 of 7, you will find the potential impacts to Duke Electric's Facilities.

I am also sending the above enclosed material to Aaron Wright and Jim Farley.

Any questions please call 513-933-6624 or email me at [rick.anton@dot.state.oh.us](mailto:rick.anton@dot.state.oh.us).

Respectfully,

Rick Anton  
District 8 Utility Coordinator

Rick Anton/RealEstate/D08/ODOT

06/05/2009 10:49 AM

To "Jeffrey Ballinger" <[jballinger2@cinci.rr.com](mailto:jballinger2@cinci.rr.com)>, Stefan  
Spinosa/Contracts/D08/ODOT  
cc Brenda Russell/Construction/D08/ODOT  
Subject Re: HAM-71/75-0.00/0.22 PID75119 [Link](#)

**Thanks Jeff, for now we are looking for an estimate.**

**Stefan, Please see the below email from AT&T Fiber Optic.**

Rick Anton, TTS  
ODOT, District 8 Utility Coordinator  
505 South State Route 741  
Lebanon, Ohio 45036-9518  
Direct Phone Line: 513.933.6624  
Fax: 513.933.8252

////////////////////

"Jeffrey Ballinger" <[jballinger2@cinci.rr.com](mailto:jballinger2@cinci.rr.com)>

06/01/2009 03:28 PM

To <[Rick.Anton@dot.state.oh.us](mailto:Rick.Anton@dot.state.oh.us)>

cc

Subject HAM-71/75-0.00/0.22 PID75119

Rick

at&t is located at 358 Gest Street Part of the impacted Line went over the at&t office location  
at&t has a lease at this location for 20 Years broken down by 5 year renewable They think the next renew  
date 12/21/11

at&t fiber on the property are covered under the lease The fiber in the road right of way are there by  
permit The majority of the core cable in this area was just placed in 2007 and 2008 areas was placed joint  
with the water main the city was placing

Did not know if at this time if you needed this on a 75-1 or just a estimate for a budget

at&t is looking into replacement of the existing core cables placed in 1988 so if this goes I will be in  
contact with you to work around these projects

The total is \$33,685,000

If you need anything else just call 614-216-1160

Thanks Jeff

Capital Driver	20XX	Burden	Totals	Comments
Building Purchase	\$1,500	\$0	\$1,500	Replaces the current POP building.
Building Renovation	\$750	\$0	\$750	Capital to renovate the new building to meet network central office standards.
DC Power/Alarms	\$700	\$27	\$727	DC power and alarm equipment.
Telemetry	\$90	\$3	\$93	Telemetry equipment.
NSDNET	\$80	\$3	\$83	NSDNET equipment.
Sync	\$160	\$6	\$166	Sync equipment.
Signaling	\$120	\$5	\$125	SS7 signaling equipment.
Core Transport	\$16,017	\$610	\$16,627	Core transport in support of ULH and etc.
Core STE/MUX	\$394	\$15	\$409	Core multiplex and service terminating equipment in support of POP function.
Core OSP	\$750	\$29	\$779	Core OSP in support of ULH migration and POP to POP network architecture.
Metro Titan/COE	\$2,000	\$76	\$2,076	Metro COE equipment in support of local services.
Metro Switch	\$2,000	\$76	\$2,076	Metro switch in support of local services.
Metro OSP	\$2,170	\$83	\$2,253	Metro OSP in support of local rings .
Metro Transport	\$5,800	\$221	\$6,021	Metro electronics to support fiber/rings
	\$0	\$0	\$0	
	\$0	\$0	\$0	
	\$0	\$0	\$0	
	\$0	\$0	\$0	
<b>Totals</b>	<b>\$32,531</b>	<b>\$1,154</b>	<b>\$33,685</b>	

All numbers x1000

RECEIVED AUG 10 2009



**Cincinnati Bell<sup>SM</sup>**

August 4, 2009

Mr. Rick Anton  
District 8 Utility Coordinator  
Ohio Department of Transportation  
505 South S.R. 741  
Lebanon, Ohio 45036

221 E. Fourth St.  
P.O. Box 2301  
Cincinnati, Ohio 45201-2301

TO  
Stephan  
8/10/09

Dear Mr. Anton:

This letter is in regards to your letter dated March 2, 2009 concerning the potential utility impacts for the HAM-71/75-0.00/0.22 PID 75119 project. I have determined the cost of each item number based on our current structures in the field. The following costs are for structures only, and include conduit, manholes and pull-boxes. Item number 2-20 would require us to place 2 new duct systems along 3<sup>rd</sup> Street from Vine Street to west of I-75 (**Cost \$1,175,000**). Item number 2-24 would require us to place a new duct system under I-75 from W. 8<sup>th</sup> Street to W. Court Street (**Cost \$87,000**). Item 2-27 would require us to place a new duct system under I-75 from the intersection of W. Court and Linn Street over to Freeman Avenue (**Cost \$284,000**). Item 3-2 would require us to place a new duct system under I-75 from Winchell Avenue (near old manhole 335) headed west to Wade Avenue west of Western Avenue (near manhole 9389), then north to the intersection of Dalton Street and Western Avenue (**Cost \$442,000**). Item number 3-5 would require us to place a new duct system from Poplar and Winchell under I-75 over Western Avenue north of Poplar (**Cost \$32,000**). Item 3-12 would require us to place a new duct system from the intersection of Spring Grove and Queen City under I-75 over to McMillian south of Rush Street (near manhole 6635), (**Cost \$159,000**). All facilities for our main duct system are there by permit.

The aforementioned costs are estimated and do not include any fieldwork or intensive records research to determine exactly what is required. Costs could change once preliminary plans are issued.

A copy of this letter has been sent to John Webster (566-8055) of our West District Office to determine the cable and splicing costs.

Sincerely,

Mark Conner  
Specialist - Conduit Engineering

cc: John Webster  
File

## West End Substation Project Scope

### West End Substation Replace the East Yard

JAN. 2012

#### Civil Scope:

- Install 30 tower foundations for the new East yard
- Install 9 breaker foundations in the new East yard
- Install 2 breaker foundations in the West yard for CB 947 and CB 953
- Install ground mat in the new substation area
- Install crushed stone surface in the new substation area
- Install foundation for a new building addition extending 30ft north of the existing building running from column row 3 to column row 11
- Install a steel support structure and the new building addition floor which will be at elevation 522'-0"
- Install the new steel building approximately 30ft x 144ft

#### Structural Scope:

- Install 30 - 4ft x 4ft x 65ft tower columns
- Install 44 - 4ft x 4ft x 36ft beams
- Install 42 - 2ft x 4ft x 36ft beams
- Install 5 - 4ft x 4ft x 16ft beams
- Install 22 - 2000A 115kV breaker line and bus disconnect switches
- Install 2 motor operated line disconnects with a manual ground switches for F1385 & F1389
- Install 11 - 138kV CCVTs (F1286, F1587, bus 1,2 & 4, TB12 & 13)
- Install wave traps for F1286 and F1587
- Install 15 surge arresters for the overhead and cable circuits
- Install 11 structures for CBs similar to the structure for CB 949
- Install 11 - 3000A 138kV 40kA CBs with 6 sets of 2000/5 CT's
- Install a stairs and platforms to provide access to CBs and equipment
- Install bundled 954MCM AL cable from the East tower to the West tower for a bus ties

Install 5in. AL tube main bus and 4in. AL tube bus between breakers

Install cap and pin equivalent high creep insulators for the buses

Install a cable tray system to run new control cable from the sub to the new 138kV relay room

#### Electrical Scope:

Install dual PVD bus differential packages for 138kV bus 2, 3, 4 and 5

Install 4 - 138kV bus 4 and bus 5 differential test switch cabinets

Install SEL451 control and breaker failure relays for the 11 new breakers and 5 existing breakers

Install 3 dual SEL421 relay packages for F1286, F1587 and F5985

Install 2 SEL421/SEL311L relay packages for F1385 and F1389

Install an annunciator for the new 138kV relay room

Install a synchronizing panel

Install a RuggedCom switch

Install a D20 RTU for the transmission substation

Install a DFR for the transmission substation

Install 2 new dc distribution panels in the new 138kV relay room; connect 1 to each existing battery

Install control cable from the new substation equipment to the new 138kV relay room

Remove the existing 138kV line relays and the bus 1 and 2 relays located in the existing control room

#### **West End Substation Reconnect the 13kV Transformers and Buses**

##### Civil Scope:

Install 3 new transformer foundations to elevation 513'-0" that incorporate oil containment and foundations for steel deadend structures and masonry firewalls (similar to existing at bank 7 & 8) including foundations for grounding banks and low voltage bus

Install foundations for 15kV cable bus from the 3 new transformers to the new switchgear

Install oil containment and foundations for steel deadend structure and masonry firewalls for old TB9 now new TB11

### Structural Scope:

- Install 2 - 138kV motor operated air break switches for new TB 12 and TB13
- Relocate ABS950 for TB 10
- Install 4 deadend towers for TB10, TB11, TB12 and TB14
- Relocate TB10 and GRD TB 10 to the new foundation
- Remove TB9 and Grd TBs 9-1 and 9-2
- Install 3 new 132-13.0kV 67MVA LTC transformers TB11, TB12 and TB14 with new GRD banks
- Install 3000 amp 15kV cable bus from the 4 - 67MVA transformers to the new switchgear
- Install new switchgear in the new building; re-use the 3000 amp 15kV drawout breakers from buses 11, 21, 31 and 41 in the new cells
- Install 2000 amp 15kV cable bus from the new switchgear to the top floor switch house for bus ties 10-12-17, 20-22-16, 30-32-19 and 40-42-15
- Install 2000 amp cable bus and re-use the cable tray from CB 106 and CB 305 for new cable for bus ties 10-19 and 17-30
- Install 2000 amp cable bus and re-use the cable tray from CB 206 and CB 405 for new cable for bus ties 17-20 and 19-40
- Install 2000 amp cable bus for bus ties 12-16, 16-42, 15-22 and 15-32
- Install control cable from the transformers to the new 138kV relay room
- Remove the reactors from the old 12-22 bus tie and the 32-42 bus tie
- Remove the equipment for buses 11, 21, 31 and 41 in the West switch house and the tie cables to the upper floor switch house

### Electrical Scope:

- Install 4 dual TPU relay packages for the 4 - 67MVA transformers
- Install 4 SEL551 protection packages for the 4 GRD transformers
- Install PVD differential and SEL487 differential bus relays packages for the 4 new switchgear buses
- Install PVD differential and SEL487 differential bus relay packages for the 10-19, 12-16, 15-22, 15-32, 16-42, 17-20, 17-30, and the 19-40 bus ties
- Re-connect and re-use the CO-7/ CO-8 CO-11 relays for the 10-12-17, 15-40-42, 16-20-22, and 19-30-32 bus ties
- Install a PLC to control the LTCs and the capacitor breakers



## **West End Substation Reconfigure the 13kV System**

Demolish the West switch house after removing the 12kV breakers and disconnecting banks 9 and 10

### **Reroute circuit 1385 and 1389 to the new East yard**

Build a manhole around F1385 and F1389 in Augusta St East of the existing Brent Spence bridge

Install 1600ft. of 8in. pipe from the manhole to the new East yard cable termination locations

Install 2000MCM cable and cable terminations for each circuit

Join the existing cable and pipe to the new cable and pipe in the new manhole

Perform HV acceptance testing of the cable circuits

### **Reroute circuit 1286 and 1587 to the new East yard**

Remove tower 101 for the new bridge, Erect (2) double-circuit heavy-angle structures to reroute F1286 and F1587. Routes are over and about buildings. Conductors are similar to existing conductor. Estimate: (2) structures, (2) foundations, (2000')-159kCM ACSR 12/7static, (6000') - 795kCM ACSR 45/7.

## **Charles Substation Replace Circuit 1385 and 1389 Relays**

Replace the F1385 HCB/LCB relay schemes with a SEL421/SEL311L relay package

Replace the F1389 dual LCB relay package with a SEL421/SEL311L relay package

## **Mitchell Ave Substation Replace Circuit 1286 Relays**

Replace the F1286 relays and carrier equipment with a standard dual SEL421/SEL451 relay package

## **Crescent Substation Replace Circuit 1587 Relays**

Replace the F1587 relays and carrier equipment with a standard dual SEL421/SEL451 relay package

## **Wilder Substation Replace Circuit 5985 Relays**

Replace the F5985 relays and carrier equipment with a standard dual SEL421/SEL451 relay package

## **West End Substation Remove the 138kV East Yard**

Remove the oil from the equipment

Remove the existing East 138kV substation equipment and structures, including TB's 7 & 8 and the 138kV breakers

Abandon the foundations in place; they will be removed as part of the site remediation

*preliminary Eng. - will do separate P&M*

West End Substation Replace the East Yard	\$12,000,000
West End Substation Reconnect the 13kV Transformers and Buses	\$13,500,000
West End Substation Reconfigure the 13kV System	\$ 250,000
Reroute circuit 1385 and 1389 to the new East yard	\$ 2,750,000
Reroute circuit 1286 and 1587 to the new East yard	\$ 1,050,000
Charles Substation Replace Circuit 1385 and 1389 Relays	\$ 500,000
Mitchell Ave Substation Replace Circuit 1286 Relays	\$ 250,000
Crescent Substation Replace Circuit 1587 Relays	\$ 250,000
Wilder Substation Replace Circuit 5985 Relays	\$ 250,000
West End Substation Remove the 138kV East Yard	\$ 350,000

**\$31,150,000**

*set arranged  
for this.*

*As P&E Estimate - that increased  
summer 2011*

*Last increase - 2013*

*will be a separate work order for P&E costs.*