Utility Coordination in the City of Grand Prairie, Texas

Romin A. Khavari, P.E., CFM
City Engineer
Rkhavari@gptx.org

Existing Underground Utilities are the Veins and Arteries of our Cities and Roads

And yet, we know very little about where they are

Communication
Gas
Petroleum
Water
Wastewater
Drainage
Power
Steam
Others

WHY?

We keep adding and changing utilities

- Expansion
- Modernization
- Changing Utility Technology
- Changing Facility Missions

Lack of good records

- Referenced to changed topo features
- No centralized records storage
- No standard format

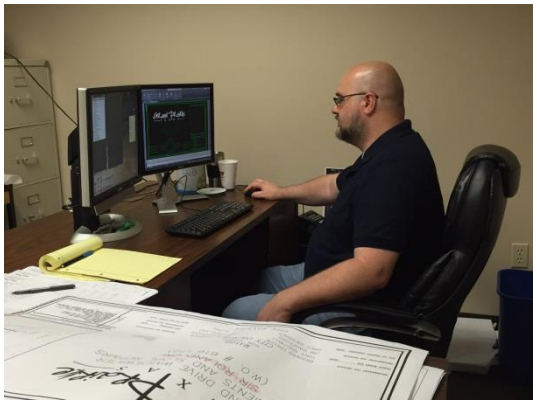
Where do we get Utility Info. From?

- Old Project Plans (As-Designed – Not As-Built)
- Utility Records (As-Designed)
- Utility Records (As-Built)
- Maintenance Records
- Repair Records

- Visual Observation
- Field Survey

The Engineer uses these sources to compile a utility composite that overlays the new design

Nowadays, we frequently digitize this data into a CADD or GIS System…



The Engineer ends up with utility data of unknown reliability

This makes it extremely difficult to manage the risks that are created by existing underground utilities

I think the gas line is here, but I'm not really sure. It might be in conflict with this proposed drain.

I guess we'll let the contractor worry about that !

There are a lot of other risks too

$$

TIME

- Redesign costs
- Higher construction bids
- Change orders
- Extra work orders
- Construction Claims
- Higher insurance costs
- Higher financing costs

- Project delays
- Detours

Intangibles: Bad publicity

Fortunately, there's a way to handle this risk:

SUBSURFACE UTILITY ENGINEERING (SUE)

S.U.E. Combines Traditional Engineering Practices, such as …..

Utility Records Research

Relocation Cost Estimates

Utility Design/Relocation Design

Plotting of Utilities from Records

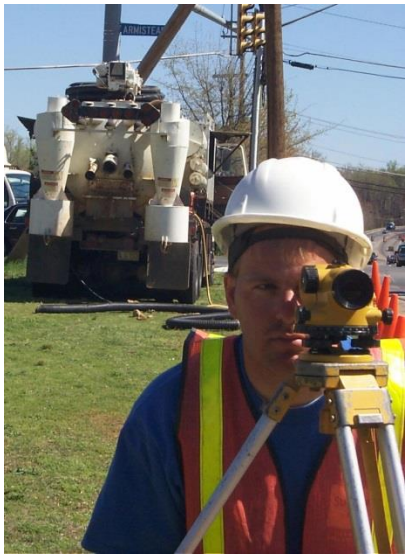
with New Technologies

Utility Designating

via

Surface Geophysical Methods

Grand Prairie TEXAS



Utility Locating

Via Non-Destructive Vacuum Exposure

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The Most Significant Advancement is the Utility Quality Level Attribute

Quality Level Attributes are attached to plotted utilities

They indicate how utility data was developed

Reliability and Accountability are defined

“Quality Level D”

The least reliable utility data

- **Plotted on plans from records.**
- **Sometimes a field visit - to look for utility indications on the site - is made.**
- **Sometimes “verbal recollections” are plotted.**

This level of effort is great for Project Planning purposes, utility “inventories,” and very preliminary utility relocation cost estimates

“Quality Level C”

The “traditional” utility depiction

- **Surface Appurtenances are surveyed and accurately plotted on a current site plan**
- **Utility data from records (QL “D”) are correlated to the appurtenances**

Problems with records interpretations still exist: e.g. schematics, no appurtenances depicted, utilities not straight between appurtenances, no records exist, and so on.

“Quality Level B”

A significant upgrade in quality

- **Surface Geophysical Methods used to search for and trace existing utilities.**
- **Designated utilities are then surveyed and plotted on site plan.**

Non-recorded utilities found. Utilities’ routes between appurtenances are imaged.

Typically used in early preliminary design for construction footprint decisions.

“Quality Level A”

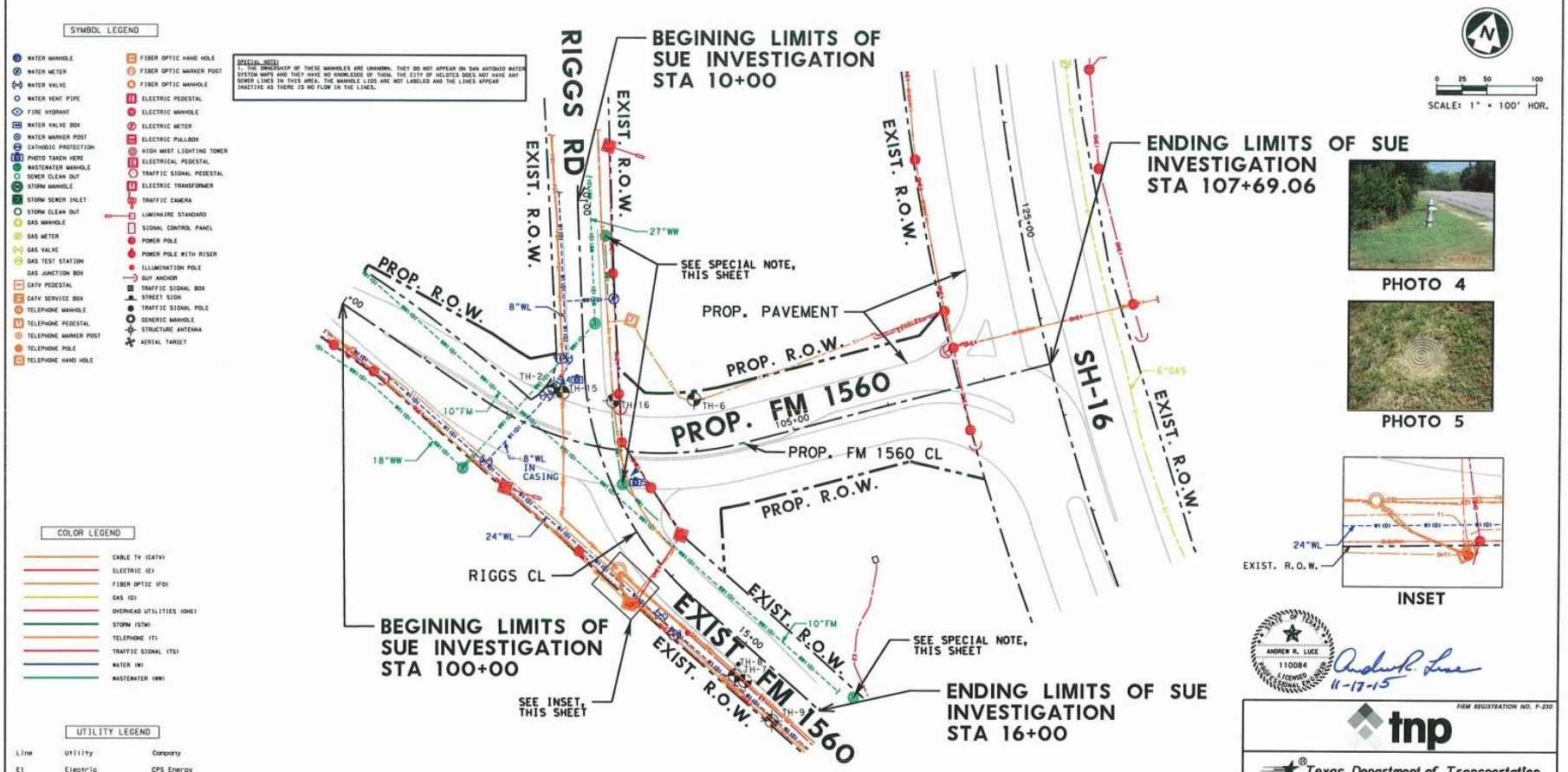
A guarantee in 3-D

- **Utilities exposed via non-destructive air-vacuum means**
- **Exposed utilities are then surveyed and plotted on site plan Elevations, Size, Condition, Materials, Precise Horizontal Positions are measured and documented**

Typically used in final design stages. Allows small adjustments in design for big savings in construction

QL “A” and QL “B” upgrades have been successful in reducing risk on projects.

This is a tried and true process


SYMBOL LEGEND
WATER MANHOLE
WATER METER
WATER VALVE
WATER VENT PIPE
FIRE HYDRANT
WATER VALVE BOX
WATER MARKER POST
CATHODIC PROTECTION
PHOTO TAKEN HERE
WASTEWATER MANHOLE
SEWER CLEAN OUT
STORM MANHOLE
STORM SEWER INLET
STORM CLEAN OUT
GAS MANHOLE
GAS METER
GAS VALVE
GAS TEST STATION
GAS JUNCTION BOX
CATV PEDESTAL
CATV SERVICE BOX
TELEPHONE MANHOLE
TELEPHONE PEDESTAL
TELEPHONE MARKER POST
TELEPHONE POLE
TELEPHONE HAND HOLE
FIBER OPTIC HAND HOLE
FIBER OPTIC MARKER POST
FIBER OPTIC MANHOLE
ELECTRIC PEDESTAL
ELECTRIC MANHOLE
ELECTRIC METER
ELECTRIC PULLBOX
HIGH MAST LIGHTING TOWER
ELECTRICAL PEDESTAL
TRAFFIC SIGNAL PEDESTAL
ELECTRIC TRANSFORMER
TRAFFIC CAMERA
LUMINAIRE STANDARD
SIGNAL CONTROL PANEL
POWER POLE
POWER POLE WITH RISER
ILLUMINATION POLE
GUY ANCHOR
TRAFFIC SIGNAL BOX
STREET SIGN
TRAFFIC SIGNAL POLE
GENERIC MANHOLE
STRUCTURE ANTENNA
AERIAL TARGET
SPECIAL NOTE:
1. THE OWNERSHIP OF THESE MANHOLES ARE UNKNOWN. THEY DO NOT APPEAR ON SAN ANTONIO WATER SYSTEM MAPS AND THEY HAVE NO KNOWLEDGE OF THEM. THE CITY OF HELOTES DOES NOT HAVE ANY SEWER LINES IN THIS AREA. THE MANHOLE LIDS ARE NOT LABELED AND THE LINES APPEAR INACTIVE AS THERE IS NO FLOW IN THE LINES.
RIGGS RD
BEGINING LIMITS OF SUE INVESTIGATION STA 10+00
EXIST. R.O.W.
EXIST. R.O.W.
EXIST. R.O.W.
EXIST. R.O.W.
EXIST. R.O.W.
ENDING LIMITS OF SUE INVESTIGATION STA 107+69.06
SEE SPECIAL NOTE, THIS SHEET
PROP. R.O.W.
PROP. PAVEMENT
PROP. R.O.W.
PROP. FM 1560
PROP. FM 1560 CL
PROP. R.O.W.
SH-16
8"WL
10"FM
18"WW
8"WL IN CASING
24"WL
6"GAS
27"WW
TH-2
TH-15
TH-16
TH-6
TH-8
TH-9
RIGGS CL
BEGINING LIMITS OF SUE INVESTIGATION STA 100+00
SEE INSET, THIS SHEET
EXIST. FM 1560
SEE SPECIAL NOTE, THIS SHEET
ENDING LIMITS OF SUE INVESTIGATION STA 16+00
SCALE: 1" = 100' HOR.
PHOTO 4
PHOTO 5
INSET
24"WL
EXIST. R.O.W.
COLOR LEGEND
CABLE TV (CATV)
ELECTRIC (E)
FIBER OPTIC (FO)
GAS (G)
OVERHEAD UTILITIES (OHE)
STORM (STM)
TELEPHONE (T)
TRAFFIC SIGNAL (TS)
WATER (W)
WASTEWATER (WW)
UTILITY LEGEND
Line Utility Company
E1 Electric CPS Energy
E2 Electric TxDOT
E3 Electric Private
FO1 Fiber Optic AT&T
G1 Gas CPS Energy
G2 Gas Grey Forest Utilities
OHE(TV) Overhead Cable TV Time Warner Cable
OHE1 Overhead Electric CPS Energy
OHT1 Overhead Telephone AT&T
STM1 Stormwater TxDOT
T1 Telephone AT&T
W1 Water San Antonio Water System
WW1 Wastewater San Antonio Water System
QUALITY LEVEL LEGEND
WW1 QUALITY LEVEL B
WW1 (D) WW1 (D) WW1 (D) QUALITY LEVEL D
GENERAL NOTES:
THE FOLLOWING INFORMATION AND CONTROL DATA WAS SUPPLIED TO TEAGUE NALL AND PERKINS, INC. BY TXDOT:
BEARINGS OF LINES SHOWN HEREON REFER TO GRID NORTH OF THE TEXAS COORDINATE SYSTEM OF 1983 (SOUTH CENTRAL ZONE); NAD83(2011) EPOCH 2010) AS DERIVED LOCALLY FROM TXDOT'S CONTINUOUSLY OPERATING REFERENCE STATIONS (CORS) VIA REAL TIME KINEMATIC (RTK) METHODS. AN AVERAGE COMBINATION FACTOR OF 1.0001700 WAS USED TO SCALE GRID COORDINATES AND DISTANCES TO SURFACE. ALL COORDINATES SHOWN ARE SURFACE.
SIZE INFORMATION SHOWN IS TAKEN FROM AVAILABLE UTILITY RECORDS.
UTILITY QUALITY LEVEL A:
PRECISE HORIZONTAL AND VERTICAL LOCATION OF UTILITIES OBTAINED BY THE ACTUAL EXPOSURE (OR VERIFICATION OF PREVIOUSLY EXPOSED AND SURVEYED UTILITIES) AND SUBSEQUENT MEASUREMENT OF SUBSURFACE UTILITIES, USUALLY AT A SPECIFIC POINT.
UTILITY QUALITY LEVEL B:
INFORMATION OBTAINED THROUGH THE APPLICATION OF APPROPRIATE SURFACE GEOPHYSICAL METHODS TO DETERMINE THE EXISTENCE AND APPROXIMATE HORIZONTAL POSITION OF SUBSURFACE UTILITIES. QUALITY LEVEL B DATA SHOULD BE REPRODUCIBLE BY SURFACE GEOPHYSICS AT ANY POINT OF THEIR DEPICTION. THIS INFORMATION IS SURVEYED TO APPLICABLE TOLERANCES DEFINED BY THE PROJECT AND REDUCED ONTO PLAN DOCUMENTS.
UTILITY QUALITY LEVEL C:
INFORMATION OBTAINED BY SURVEYING AND PLOTTING VISIBLE ABOVE-GROUND UTILITY FEATURES AND BY USING PROFESSIONAL JUDGEMENT IN CORRELATING THIS INFORMATION TO QUALITY LEVEL D INFORMATION
UTILITY QUALITY LEVEL D:
INFORMATION DERIVED FROM EXISTING RECORDS OR ORAL RECOLLECTIONS.
CONTACT LIST
COMPANY | UTILITES COORDINATOR | PHONE | E-mail | ADDRESS
AT&T | Ron Capps | 210-283-1990 | rc2165@att.com |
CPS Energy | Bill Fey | 210-353-4267 | wtfey@cpsenergy.com |
Grey Forest Utilities | Vanessa Lopez | 210-695-5992 | vmlopez@gfugas.com | PO Box 258 Helotes, Texas 78023
Time Warner Cable | | | west-engineering-relo@twcable.com |
San Antonio Water System | Matthew Matula | 210-233-3945 | Matthew.Matula@SAWS.org |
Quality Level | Quantity
QL 'A' (Each) | 0
QL 'B' (Linear Foot) | 5,820
QL 'C/D' (Linear Foot) | 5,633
ANDREW R. LUCE 110084 LICENSED PROFESSIONAL ENGINEER 11-17-15
FIRM REGISTRATION NO. F-230
tnp
Texas Department of Transportation
© 2015
FM-1560 & RIGGS RD
FROM STA.100+00 TO STA.107+69.06
FROM STA.10+00 TO STA. 16+00
EXISTING UTILITY PLANS
DESIGN SPK
DESIGN CK ARL
GRAPHICS SPK
GRPH CHECK ARL
FED.RD. DIV.NO. 6
FEDERAL AID PROJECT NO.
HIGHWAY NO. FM1560
STATE TEXAS
DISTRICT SAT.
COUNTY BEXAR
SHEET NO. 6
CONTROL 2230
SECTION 01
JOB 018
FILE: V:\Projects\TX01524201-PSE\PROD\SHEETS\SUE4.dgn
DATE: 11/17/2015 8:43:19 AM
Somm

teague nall & perkins
1100 Macon Street
Fort Worth, Texas 76102
817.336.5773 ph 817.332.7756 fx
www.tnpinc.com

TEST HOLE DATA FORM

Test Hole: 4	Point Number: 11004	Project Number: CPL14141	Completion Date: 02/10/2015
Location: 34' west of the west curb of S Denton Tap Rd. & 690' south of the centerline E Sandy Lake Rd.			
Client: City of Coppell	City/Town: Coppell	County: Dallas	State: Texas
Utility Owner: Verizon	Utility Type: Telephone & Fiber Optic Cable	Pavement Thickness/Type: Natural Ground	
Utility Size & Material: Twelve 4" PVC Conduits			

PLAN VIEW (NTS)

STATE OF TEXAS
ANDREW R. LUCE
110084
LICENSED
PROFESSIONAL ENGINEER

Andrew R. Luce, PE 2-25-15

Benchmark Information:

17 (El=505.44')
Chiseled Plus in Concrete

38 (El=506.16')
Chiseled Plus in Concrete

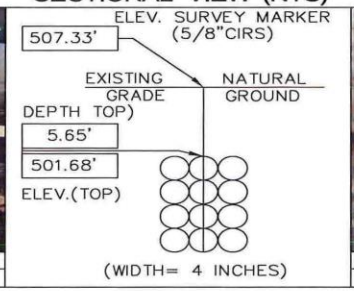
SURVEY INFORMATION

Horizontal Datum: Texas State Plane Coordinate System—North Central Zone, NAD83(2011) Epoch 2010.00)
Scaled to Surface by 1.0001454981
Vertical Datum: NAVD88

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
11004	7039233.35	2430740.70	507.33	Natural Ground
11004	7039233.35	2430740.70	501.68	Top of Utility

SECTIONAL VIEW (NTS)

Survey Manager: Steve Hampton
Surveyed By: Clay Hanson



Field Manager: Luis Cardoza
Date: 02/10/2015

Grand Prairie
TEXAS

Coordination Process with the Franchise Utility Companies

Grand Prairie

Richard Brewster
ONCOR
1616 Woodall Rodgers
Dallas, TX 75202-1234
Lloyd.Brewster@oncor.com
Phone: 214-486-4245

Date:

To Whom It May Concern:

This office has completed the preparation of preliminary plans for the following described improvements:

Project Title and Work Order Number

We expect to receive bids on November 12, 2016 for this project.

Please mark-up your utilities on the attached set of drawings including size, material, depth and location. Furthermore, please verify and make any corrections to your facilities if already shown in the attached drawings.

Please sign the attached form and return with the plans even if you have no utilities in this area. After marking the drawings as requested, please return to this address within 15 days of the above date:

City of Grand Prairie Engineering Department
Attn: Craig Alexander
206 W. Church St.
Grand Prairie, TX 75050

Note: The City may require you to stake (pot-hole) the locations and depths of your underground utilities at points of potential conflicts with proposed improvements.

If you have any questions regarding this subject, please contact Craig Alexander with the City of Grand Prairie at 972-237-8135 or calexander@gptx.org.

Thank you for your cooperation.

Sincerely,

Craig Alexander
Licensed Civil Engineer
City of Grand Prairie

Franchise Utility	Contact Name	Email Address	Office Phone Number	Cell Phone Number	Address	Sent Plans	Feedback Received	Type of Communication	Feedback
AT&T	Gary Tilory	gt1219@att.com	(817) 338-6202					Email/phone	Main Supervisor/Coordinator for Area
	Luckie Harbert	lh393b@att.com	(972) 660-0336					Email/phone	Contact for all of Grand Prairie
	Brian McGinley	bm5044@att.com						Email/phone	Contact for a portion of Grand Prairie
	Tonja Van Vleck	tv8572@att.com	(972) 660-0079	(972) 207-3027				Email/phone	Contact for the southern portion of Grand Prairie
	Roland Thomas	rt1359@att.com	(972) 660-0324					Email/phone	Supervisor
	Jason Kennedy		(972) 342-5725					Email/phone	Contract coordinator in AT&T Construction Dept. for Grand Prairie
Atmos	Richard Johnson	richard.johnson@atmosenergy.com	(817) 375-7921	(620) 332-7662	1550 Tech Centre Parkway Arlington, TX 76014			Email/phone	Primary contact for Grand Prairie questions/coordination
	Stan Breckenridge	stan.breckenridge@atmosenergy.com	(817) 375-7921	(469) 261-2014	1550 Tech Centre Parkway Arlington, TX 76014			Email/phone	Previous contact for Grand Prairie questions/coordination - can still contact if needed
	Gene O'Gorman	gene.ogorman@atmosenergy.com	(817) 207-2828		4348 Loop Central Dr, Suite 137 Houston, TX 77081			Email/phone	Supervisor - can be contacted, but Stan & Brad are the primary contacts for Grand Prairie questions/coordination
	Brad Stubbs	brad.stubbs@atmosenergy.com	(817) 375-7906	(214) 668-8566	1550 Tech Centre Parkway Arlington, TX 76014			Email/phone	Backup contact for Grand Prairie questions/coordination
Time Warner	Joe Toone (Kinetic Solutions)	joe_toone@kinetic-eng.com	(214) 714-0113					Email/phone	Consultant/engineering for TWC - include on all communications
	Phillip Gwin	phillip.gwin@twcable.com	(214) 869-9038					Email/phone	TWC employee overseeing Grand Prairie
	Forced Relocates (Kinetic Solutions)	ForceRelos@kinetic-eng.com						Email/phone	Consultant/engineering for TWC - include on all communications
	Tim Wenberg	tim.wenberg@twcable.com	(214) 687-1240					Email/phone	Former TWC supervisor for area - can contact if having trouble with responses from others but he is supposedly no longer involved in the day to day coordination work
Oncor (Street Lights)	Stephen York	stephen.york@oncor.com	(972) 230-5126		1220 E. Pleasant Run Rd., Desoto, TX 75115			Email/Phone	Please verify utility contacts prior to submitting plans
Oncor (Street Lighting Designer)	Mike Ziegenfuss	mike.ziegenfuss@oncor.com						Email/phone	Please verify utility contacts prior to submitting plans
Oncor (Street Lights)	Lloyd Brewster	Lloyd.Brewster@oncor.com						Email/phone	Please verify utility contacts prior to submitting plans
Oncor (Distribution)	Damon Green	damon.green@oncor.com	(972) 985-2046					Email/phone	Please verify utility contacts prior to submitting plans
Oncor (Distribution)	Allen Crawford	Allen.Crawford@oncor.com	(214) 486-6888					Email/phone	Please verify utility contacts prior to submitting plans

Date/Time: May 19, 2016 10:00 a.m. – 12:00 p.m.
Location: City of Grand Prairie
The Grand Conference Room

ENGINEERING

FRANCHISE UTILITY MEETING AGENDA

Topics: CIP Projects, Private Development Projects, and City Projects

City CIP Projects

Capetown Drive from Denmark Drive to Sweden Drive

- Replacement of concrete pavement, storm drain lines, and wastewater mair along Capetown Drive between Denmark Drive and Sweden Drive, and replacement of the wastewater main along Tripoli Trail from Tarrant Road t Capetown Drive.
- Project is currently in bid phase.
- Construction contract has been awarded to McMahon Contracting. Construction began on May 16,2016 with a scheduled completion date in M 2017.

City Project Manager: Mr. Craig Alexander, P.E.

Project Manager
Mr. Michael Salcedo, S.I.T., GISP
Salcedo Group, Inc.
110 SW 2nd St. Grand Prairie, TX 76006
(214) 412-3122 (office) (469) 693-1832 (cell)
misalcedo@salcedogroupinc.com

Private Development Projects

O'Neal Steel, Grand Lakes Business Park

- Project is located at the NE corner of Gifford St. and Grand Lakes Blvd. on approximately 17 acres. This will be a steel distribution facility with approximately 200,000 sq. ft. of warehouse space and approximately 15,00 sq. ft. of office for business operations.
- Floodplain Development Permit (FDP) is needed

City Project Manager (Development Coordinator): Mr. Brent O'Neal, P.E.

Project Engineer
Mr. Grayson Hughes, P.E.
BURY
(972) 991-0011
ghughes@buryinc.com

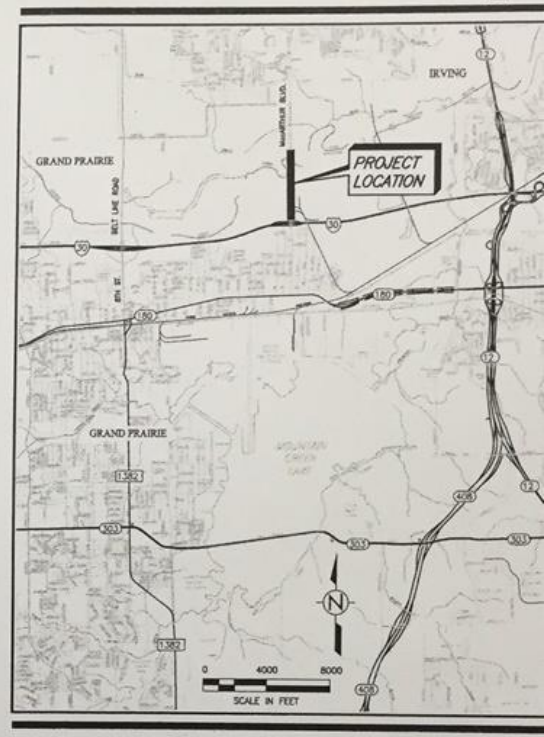
NEXT MEETING DATE: August 2016


N. TARRANT RD.
SWEDEN DRIVE
CARRIER PKWY.
DENMARK DRIVE
CAPETOWN DRIVE

Grand Prairie
TEXAS

MacArthur Blvd. Paving & Drainage Improvements From I.H. 30 to West Fork Trinity River (W.O. #550.68)

Location Map



JOHN W. BIRKHOFF 84197 REGISTERED PROFESSIONAL ENGINEER
John W Birkhoff 9/25/14

STATE OF TEXAS 87444 REGISTERED PROFESSIONAL ENGINEER
Steve Arnold 9/25/14

STATE OF TEXAS SCOTT R. ARNOLD 96782 LICENSED PROFESSIONAL ENGINEER
Scott Arnold, P.E. 9/30/14

MAYOR
RON JENSEN

CITY COUNCIL

RICHARD FREGOE	JORJA CLEMSON
TONY SHOTWELL	JEFF WOOLDRIGE
JIM SWAFFORD	JEFF COPELAND
GREG GIESSNER	LILA THORN

CITY MANAGER
TOM HART

RECOMMENDED FOR RELEASE:
10/1/14
PUBLIC WORKS DIR. DATE

RECOMMENDED FOR RELEASE:
10/2/14
DIR. OF TRANSP. SERVICES DATE

RELEASED FOR CONSTRUCTION:
10/3/14
CITY ENGINEER DATE

RECOMMENDED FOR RELEASE:
Duwayne E. Dyer 10/2/14
RIGHT-OF-WAY AGENT DATE

BIRKHOFF, HENDRICKS & CARTER, L.L.P.
PROFESSIONAL ENGINEERS
Texas Firm F526
11910 Greenville Ave., Suite 600
Dallas, Texas 75243 (214) 361-7900

Questions?

Romin A. Khavari, P.E., CFM
City Engineer
Rkhavari@gptx.org