



**PLANNING COMMISSION
MEETING AGENDA
REGULAR MEETING**

500 W. Big Beaver
Troy, MI 48084
(248) 524-3364
www.troymi.gov
planning@troymi.gov

Donald Edmunds, Chair, Philip Sanzica, Vice Chair
Ollie Apahidean, Karen Crusse, Carlton M. Faison, Michael W. Hutson
Tom Krent, Padma Kuppa and John J. Tagle

October 13, 2015

7:00 P.M.

Council Board Room

1. ROLL CALL
2. APPROVAL OF AGENDA
3. MINUTES – September 22, 2015
4. PUBLIC COMMENT – For Items Not on the Agenda

PRELIMINARY SITE PLAN REVIEW

5. PRELIMINARY SITE PLAN REVIEW (File Number SP 1003) – Proposed DTE Ariel Substation, South of Maple, East of Doyle (Parcel 88-20-31-226-029), Section 31, Currently Zoned IB (Integrated Industrial and Business) District

OTHER BUSINESS

6. MASTER PLAN UPDATE
7. PUBLIC COMMENT – Items on Current Agenda
8. PLANNING COMMISSION COMMENT

ADJOURN

NOTICE: People with disabilities needing accommodations for effective participation in this meeting should contact the City Clerk by e-mail at clerk@troymi.gov or by calling (248) 524-3317 at least two working days in advance of the meeting. An attempt will be made to make reasonable accommodations.

Chair Edmunds called the Regular meeting of the Troy City Planning Commission to order at 7:00 p.m. on September 22, 2015 in the Council Chamber of the Troy City Hall.

1. ROLL CALL

Present:

Ollie Apahidean
Karen Crusse
Donald Edmunds
Carlton M. Faison
Tom Krent
Padma Kuppa
Philip Sanzica
John J. Tagle

Absent:

Michael W. Hutson

Also Present:

R. Brent Savidant, Planning Director
Ben Carlisle, Carlisle/Wortman Associates, Inc.
Allan Motzny, Assistant City Attorney
Kathy L. Czarnecki, Recording Secretary

2. APPROVAL OF AGENDA

It was the consensus of the Board and staff to incorporate the Zoning Board of Appeals and Planning and Zoning reports under Agenda item #10, Planning Commission Comment.

3. APPROVAL OF MINUTES

Resolution # PC-2015-09-057

Moved by: Sanzica
Seconded by: Crusse

RESOLVED, To approve the minutes of the August 25, 2015 Regular meeting as submitted.

Yes: All present (8)
Absent: Hutson

MOTION CARRIED

4. PUBLIC COMMENT – Items not on the Agenda

There was no one present who wished to speak.

PLANNED UNIT DEVELOPMENT

5. **PLANNED UNIT DEVELOPMENT APPLICATION (PUD 014)** – Proposed Stonecrest Planned Unit Development, East side of Livernois between Big Beaver and Wattles, Section 22, Currently Zoned R-1E (One Family Residential) District

Mr. Carlisle gave an overall review of the proposed Stonecrest Assisted Living PUD development and the approval process of a Planned Unit Development application. He reported the application meets the PUD standards. He addressed the public benefit to include improvements for the development of a City park and trailhead. Mr. Carlisle recommended the Planning Commission recommend approval of the Preliminary Site Plan with the conditions as identified in his report dated September 11, 2015.

Mark Pomerence, Vice President of Operations for North Point Development, gave a summary of the project. He said meetings were held with City staff, homeowners' associations and property owners within a radius of 300 feet of the proposed development. Mr. Pomerence identified revisions to the site plan to address concerns of the property owner abutting directly to the south; additional screening, preservation of two existing trees, stormwater management, light and noise pollution.

Mr. Pomerence said the height of the building would not exceed 38 feet. He stated they would comply with all the conditions as identified in the Planning Consultant report.

PUBLIC HEARING OPENED

Joe Peterson, 118 Scottsdale, expressed opposition; not a good fit for the residential neighborhood, concerns with traffic, flooding, public notification.

Joyce Peterson, 118 Scottsdale, expressed opposition; not a good fit for the area, concerns with operations of such a facility, setback/screening from Livernois, public notification.

Duane Kristofice, 3404 Talbot, asked the applicant to acknowledge revisions to the site plan that was agreed to in their discussion.

Steve Toth, 2312 Niagara, spoke in favor.

PUBLIC HEARING CLOSED

Mr. Pomerence offered apologies to Duane Kristofice. He said additional evergreens would be planted, no less than five trees on the southeast corner, as promised; as well, noise and light pollution would be addressed.

Resolution # PC-2015-09-058

Moved by: Sanzica
Seconded by Krent

WHEREAS, The applicant NP Senior Living Development LLC submitted an application for a Planned Unit Development (PUD), located on the east side of Livernois, between Big Beaver and Wattles in Section 22; and

WHEREAS, The site abuts a City park site which is presently undeveloped but is proposed to include a trailhead and dog park; and

WHEREAS, The applicant is proposing a partnership with the City to increase the overall development potential of the subject site while also assisting the City with developing the park site; and

WHEREAS, The applicant intends to develop a 100-bed convalescent and nursing facility with thirty-seven (37) parking spaces on the subject property, while preserving a significant portion of wetlands on the eastern half of the site; and

WHEREAS, The applicant proposes a number of improvements to the City property including site grading work, sidewalks, construction of detention basin, and construction of eighty (80) shared parking spaces to be used by visitors to the facility and City park; and

WHEREAS, The proposed revision to the PUD meets the Standards for Approval set forth in Section 11.03.

BE IT RESOLVED, That the Planning Commission recommends to City Council that Concept Development Plan Approval and Preliminary Development Plan Approval for the proposed Stonecrest Planned Unit Development, including improvements and layout for the City park property, be granted, subject to the following:

1. Height of the structure shall not exceed 38 feet.
2. All area located outside of the “limits of tree removal” be placed in a conservation easement.
3. Applicant should add bike parking to the assisted living site and city park.
4. Submit a detailed landscape plan with species and sizes indicated.
5. Screen the southern row of parking from the adjacent single-family property.
6. Break up row of 28 spaces along south side of property with landscape peninsula.
7. Indicate trash enclosure screening.
8. Submit a lighting plan including fixtures and photometrics.
9. Additional evergreens on the southeast side of the property, as promised by applicant, to be provided for screening 3404 Talbot.

Discussion on the motion on the floor.

Mr. Krent identified buildings of similar height range (Zion Church, Walsh College) noting the proposed development is not an anomaly in this area.

Vote on the motion on the floor.

Yes: All present (8)
Absent: Hutson

MOTION CARRIED

- 6. PUBLIC HEARING - STREET VACATION REQUEST (SV 190) – Alley between Vermont and Birchwood, Abutting parcels 88-20-27-353-001, 002, 003, 004, 005, 006, 007, 008 and 029 on the west and parcels 88-20-27-353-012 and 021 on the east, Section 27, Currently Zoned MR (Maple Road) and R-1E (One Family Residential) Districts (abutting properties)

Mr. Savidant reported the vacation request is consistent with previous requests to vacate portions of the same alley. Mr. Savidant said City Management recommends approval of the alley vacation request as submitted, subject to the condition that an overhead utility easement is maintained.

Present were Dennis Cowan of Plunkett Cooney and Jerome Amber of Amber Properties Company.

Mr. Cowan said the proposed vacation has been discussed with the abutting property owner on Birchwood but they have not been successful making contact with the property owner on Vermont.

PUBLIC HEARING OPENED

No one was present to speak.

PUBLIC HEARING CLOSED

Resolution # PC-2015-09-059

Moved by: Krent
Seconded by: Tagle

RESOLVED, That the Planning Commission hereby recommends to the City Council that the street vacation request, as submitted, for an alley located east of Livernois, between Vermont and Birchwood, approximately 18 feet wide by 240 feet in length, abutting Lots 65 through 54 and lots 454 and 455 of Addison Height, Section 27, be approved, subject to the following:

- 1. An easement shall be maintained for overhead utilities.

Yes: All present (8)
Absent: Hudson

MOTION CARRIED

SITE CONDOMINIUM DEVELOPMENT REVIEW

- 7. PRELIMINARY SITE PLAN REVIEW – Proposed Casca Villa Site Condominium, 4 units/lots, North side of Andrew Drive between Crooks and Granger, Section 4, Currently Zoned R-1B (One Family Residential) District

Mr. Carlisle reviewed the application for Casca Villa. He recommended approval of the Preliminary Site Condominium Plan with the conditions as identified in his report dated September 8, 2015. He clarified that the berming and screening is along the western property line, not southern, as indicated in his report.

The applicant Anthony Randazzo was present.

There was discussion on the proposed landscaping and notations of the berm and plantings on the landscape plan prior to Final Site Plan approval.

Chair Edmunds opened the floor for public comment. There was no one present; the floor was closed for public comment.

Resolution # PC-2015-09-060

Moved by: Kuppa
Seconded by: Krent

RESOLVED, That Preliminary Site Condominium Approval, pursuant to Article 8 and Section 10.02 of the Zoning Ordinance, as requested for Casca Villa Site Condominium, 4 units/lots, north side of Andrew Drive between Crooks and Granger, Section 4, currently zoned R-1B (One Family Residential) District, be granted, subject to the following:

- 1. Clarify berming and screening on the Landscape Plan along the western property line to indicate the planting of a berm and evergreen trees spaced 12 feet as shown on the Site Plan.
- 2. Clarify sidewalk location with Engineering.

Yes: All present (8)
Absent: Hutson

MOTION CARRIED

8. MASTER PLAN UPDATE – Boomers and Shakers Forum

Mr. Savidant gave a report on the Boomers and Shakers Forum and an update on adoption of the Master Plan.

9. PUBLIC COMMENT – Items on Current Agenda

There was no one present who wished to speak.

10. PLANNING COMMISSION COMMENT

Mr. Sanzica gave a report on the September 15, 2015 Zoning Board of Appeals (ZBA) meeting. He shared the following resolution passed by the Board.

Moved by Courtney
 Seconded by Eisenbacher

RESOLVED, to request the Planning Department and Planning Commission review the setbacks on major thoroughfares in the RT Zoning classification. It is the Board’s opinion that the front yard setback should be 25 feet, which it was in the past.

Yes: All

MOTION PASSED

It was asked of Mr. Savidant to provide members of the ZBA with the list of potential zoning ordinance amendment recommendations.

Mr. Motzny addressed settlement of the recent lawsuit related to the Transit Center.

Mr. Savidant addressed the following Planning and Zoning items.

- ZOTA 247 Oil and Gas Extraction
- ZOTA 248 Woodland Protection

There was discussion on the meeting room venue for scheduled public hearings and study items.

The Regular meeting of the Planning Commission adjourned at 8:26 p.m.

Respectfully submitted,

Donald Edmunds, Chair

Kathy L. Czarnecki, Recording Secretary

G:\Planning Commission Minutes\2015 PC Minutes\Draft\2015 09 22 Regular Meeting_Draft.doc

DATE: October 7, 2015

TO: Planning Commission

FROM: R. Brent Savidant, Planning Director

SUBJECT: PRELIMINARY SITE PLAN REVIEW (File Number SP 1003) – Proposed DTE Ariel Substation, South of Maple, East of Doyle (Parcel 88-20-31-226-029), Section 31, Currently Zoned IB (Integrated Industrial and Business) District

The petitioner DTE Energy submitted the above referenced Preliminary Site Plan application for the proposed DTE Ariel Substation on Doyle Drive, just north of the Transit Center on the west side of Doyle Drive.

The property is currently zoned IB (Integrated Industrial and Business) District. The Planning Commission is responsible for granting Preliminary Site Plan approval for this item.

The attached report prepared by Carlisle/Wortman Associates, Inc. (CWA), the City's Planning Consultant, summarizes the project. CWA prepared the report with input from various City departments including Planning, Engineering, Public Works and Fire. City Management supports the findings of fact contained in the report and the recommendations included therein.

Attachments:

1. Maps
2. Report prepared by Carlisle/Wortman Associates, Inc.

G:\SITE PLANS\SP 1003 DTE Ariel Substation Sec 31\SP-1003 PC Memo 10 06 2015.docx

PROPOSED RESOLUTION

PRELIMINARY SITE PLAN REVIEW (File Number SP 1003) – Proposed DTE Ariel Substation, South of Maple, East of Doyle (Parcel 88-20-31-226-029), Section 31, Currently Zoned IB (Integrated Industrial and Business) District

Resolution # PC-2015-10-

Moved by:

Seconded by:

RESOLVED, That Preliminary Site Plan Approval, pursuant to Article 8 of the Zoning Ordinance, as requested for the proposed DTE Ariel Substation, located south of Maple, East of Doyle (Parcel 88-20-31-226-029), Section 31, within the IB (Integrated Industrial and Business) District, be granted, subject to the following:

1. Clarify wall color as part of Final Site Plan review.

_____) or

(denied, for the following reasons: _____) or

(postponed, for the following reasons: _____)

Yes:

No:

MOTION CARRIED/FAILED



Legend:

Aerial

- Red: Band_1
- Green: Band_2
- Blue: Band_3

333 0 167 333 Feet

Scale 1: 2,000



CARLISLE

WORTMAN
associates, inc.

605 S. Main Street, Ste. 1
Ann Arbor, MI 48104

(734) 662-2200
(734) 662-1935 Fax

Date: October 6, 2015

Site Plan For City of Troy, Michigan

Applicant:	DTE Energy
Project Name:	DTE Substation
Plan Date:	February 31, 2015
Location:	Doyle Drive
Zoning:	IB, Integrated Industrial and Business
Action Requested:	Preliminary Site Plan Approval

PROJECT AND SITE DESCRIPTION

DTE Energy is requesting preliminary site plan approval to construct a new substation on Doyle Drive. Doyle Drive is connected perpendicular to Maple Road and serves the Transit Center. The applicant is taking the southernmost triangle of the existing self-storage facility that is adjacent to Doyle Drive and is located behind the LA Fitness (and soon to be Whole Foods) on Maple Drive.

Construction traffic to the site will be via an easement through the existing self-storage building facility. Post construction, permanent access will be via a new curb cut on Doyle Drive. The section of Doyle Drive where the new curb cut is proposed is public. Once construction is complete overall traffic to the site is minimal and only for servicing and maintenance.

The DTE equipment includes six (6) poles that are approximately 78-feet in height and the remaining equipment is approximately 22-feet in height. The site will be screened with a 12-foot tall concrete slat wall and landscaping.

The table below summarizes the zoning districts and land uses surrounding the subject site.

	North	South	East	West
Zoning District	IB	IB (Consent Judgement)	IB (Consent Judgement)	Birmingham
Land Use	Commercial	Transit Center	Commercial	Utilities/industrial

An aerial photograph of the subject site is shown below.

Figure 1
Aerial Image of Subject Site and Vicinity



NATURAL RESOURCES

The site has been cleared and previously developed as a self-storage facility. The proposed changes will not affect the sites natural resources.

Items to be Addressed: None

SITE ACCESS

Construction traffic to the site will be via an easement through the existing self-storage building facility. The applicant will vacate the easement through the self-storage building facility once construction is completed.

Post construction, permanent access will be via a new curb cut on Doyle Drive. The section of Doyle Drive where the new curb cut is proposed is public.

Items to be Addressed: none

LANDSCAPING & SCREENING

The applicant proposes a 12-foot high precast concrete slat wall. The provided rendering appears to show the wall as brown. The applicant should clarify.

The applicant will supplement the wall with a variety of evergreen and ornamental trees. Tree varieties include Douglas Fir, White Spruce, Blue Spruce, Snowdrift Crab, and Flowering Crab. The ornamental crabs are located along Doyle Drive to provide decorative screening from the wall.

Items to be Addressed: Clarify wall color.

LIGHTING

The applicant notes a limited amount of site lighting; however such lighting will only be used during an emergency switching or maintenance operations.

Items to be Addressed: none

RECOMMENDATIONS

We recommend that the Planning Commission grant preliminary site plan approval provided that the applicant resubmit the following items as part of the final site plan review:

1. Clarify wall color.



CARLISLE/WORTMAN ASSOC., INC.
Benjamin R. Carlisle, LEED AP, AICP

LEGEND

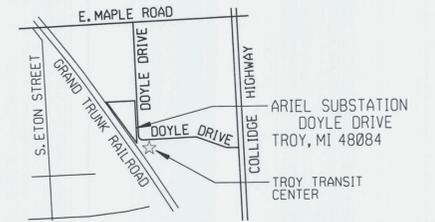
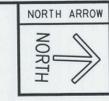
---	000	EXISTING CONTOUR LINES
---	000	ABANDONED CONTOUR LINES
---	000	NEW CONTOUR LINES
x	000.00	EXISTING SPOT ELEVATION
---	000.00	NEW SPOT ELEVATIONS
---		CENTER LINES (C/L)
x-x		STATION FENCE LINES
---		PROPERTY LINE
SF		SEDIMENTATION CONTROL FABRIC FENCE (SF)
●		DTE POLE
○		DTE POLE (REMOVED)
---		GUY ANCHOR
---		OVERHEAD CONDUCTORS (E)
---		UNDERGROUND ELECTRICAL DUCT (UE)
○		EXISTING TREES
○		EXISTING TREES (REMOVED)
○		FIRE HYDRANT
○		WATER SHUT OFF
☆		LIGHT POLE

LEGAL DESCRIPTION

PART OF THE NORTHEAST 1/4 OF SECTION 31, T. 2 N., R. 11 E., CITY OF TROY, OAKLAND COUNTY, MICHIGAN, DESCRIBED AS COMMENCING AT THE NORTHEAST CORNER OF SAID SECTION 31; THENCE ALONG THE NORTH LINE OF SAID SECTION 31, N. 88°09'00" W. 1412.60 FEET; THENCE S. 01°59'00" W. 1203.31 FEET TO THE POINT OF BEGINNING; THENCE S. 01°59'00" W. 459.11 FEET TO A NON-TANGENT CURVE AND THE NORTHEASTERLY RIGHT OF WAY LINE OF GRAND TRUNK RAILROAD; THENCE 540.96 FEET ALONG A CURVE TO THE LEFT, RADIUS 22961.83 FEET, CENTRAL ANGLE 1°20'59", CHORD BEARING AND DISTANCE OF N. 30°04'40" W. 540.94 FEET; THENCE S. 88°09'00" E. 287.15 FEET TO THE POINT OF BEGINNING, CONTAINING 1.500 ACRES OF LAND MORE OR LESS.

SURVEY NOTE:
THIS DRAWING IS SET UP IN THE MICHIGAN STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, INTERNATIONAL FOOT. THE HORIZONTAL DATUM IS NAD 83 (2011). THE ELEVATIONS ARE IN FEET AND DECIMALS THEREOF AND ARE REFERENCED TO THE NAVD 88 DATUM. CONTOURS INDICATED ARE AT 1 FOOT INTERVALS. BEARING STRUCTURE IS BASED ON ALTA/ACSM LAND TITLE SURVEY BY PROFESSIONAL ENGINEERING ASSOC., JOB NO. 2006-146, DATED FEB. 8, 2008. THE PROPERTY LINES INDICATED HEREON ARE FOR REFERENCE ONLY. NO BOUNDARY SURVEY WORK HAS BEEN PERFORMED AT THIS DATE.

- ### REFERENCE DRAWINGS:
- 5A1419-2 PLOT PLAN
 - 5A1419-3 SERVICE DRIVE PLAN AND DETAILS
 - 5A1419-4 POWER DELIVERY CENTER (PDC) PLAN AND ELEVATIONS
 - 5A1419-5 LANDSCAPE PLAN
 - 5A1419-6 SITE SECTIONS



LOCATION MAP
NO SCALE

GENERAL NOTES

1. FIELD VERIFY THE CONDITIONS THAT AFFECT THE WORK. INFORM THE ARCHITECTS/ENGINEERS OF ANY DISCREPANCIES IN DIMENSIONS, SIZE, LOCATIONS AND CONDITIONS BEFORE PROCEEDING WITH THE WORK.
2. ALL EXISTING INFORMATION SHOWN IS OBTAINED FROM THE SURVEY DRAWING PREPARED BY DTE ENERGY'S SURVEYING SERVICE, DWG. 55E 1419-001, DATED: 8-25-14.
3. CALL "MISS DIG" (811) 3 WORKING DAYS PRIOR TO START OF CONSTRUCTION.
4. ARIEL SUBSTATION IS AN UNMANNED ELECTRIC DISTRIBUTION SUBSTATION. AFTER CONSTRUCTION IS COMPLETE, AN OPERATOR WILL VISIT THE SITE APPROXIMATELY ONCE A MONTH TO PERFORM ROUTINE MAINTENANCE AND DATA COLLECTION.
5. STATION LIGHTING: EXTERIOR LIGHTING CONSISTS OF 60W COMPACT FLUORESCENT LIGHT (CFL) FIXTURES MOUNTED ON THE PDC & CONTROL CENTER WALL NEAR THE DOORWAY AND 100W HIGH PRESSURE SODIUM (HPS) FIXTURES MOUNTED ON THE EQUIPMENT SUPPORT STEEL. ALL LIGHTS ARE SWITCHED; NO PHOTO CELLS ARE USED. ALL LIGHTS ARE NORMALLY OFF EXCEPT DURING EMERGENCY SWITCHING OR MAINTENANCE OPERATIONS.
6. THERE WILL BE NO TRASH RECEPTACLES ON SITE, NO TRASH WILL BE LEFT ON SITE OVERNIGHT.
7. THIS FACILITY WILL NOT BE USED FOR OUTDOOR STORAGE.
8. REMOVE ALL EXISTING CONCRETE SLABS, FOOTINGS, ASPHALT PAVINGS, DIRT PILES AND DEBRIS FROM THIS SITE PRIOR TO CONSTRUCTION. SEE DEMOLITION PLAN DWG. 5C1419-3.
9. BACKFILL MATERIAL TO MEET MOST CLASS II SPECIFICATION. COMPACT BACKFILL IN 8" LIFTS TO 95% MAX. DENSITY AS DETERMINED BY MODIFIED PROCTOR TEST (ASTM D 1557).
10. PROVIDE SEDIMENTATION CONTROL FABRIC FENCE WHERE, AND AS, REQUIRED. SEE DETAIL 2/A3.
11. SEE DETAIL 6/A3 FOR TYPICAL CONCRETE SLAT WALL DETAILS.
12. ALL LAWN AREAS ARE EXISTING. IF LAWN AREAS ARE DISTURBED DURING CONSTRUCTION, OPERATOR SHALL FINE GRADE, FERTILIZE, SEED (WITH APPROVED SEED MIX) AND MULCH ON A MINIMUM 3", WELL-DRAINED, SCREENED, ORGANIC TOPSOIL.
13. SUBSTATION PARCEL ZONED: IB (INTEGRATED INDUSTRIAL AND BUSINESS DISTRICT) AND CONTAINS 1.5+ ACRES.
14. TEMPORARY TREE PROTECTION BARRIER FENCE IS TO BE ERECTED AROUND 7 TREES ALONG DOYLE ROAD/DTE EAST PROPERTY LINE PRIOR TO ANY EARTHWORK OR CONSTRUCTION AND IS TO REMAIN IN PLACE UNTIL CONSTRUCTION IS COMPLETE (SEE DETAIL 1/A5).
15. REMOVE 3 EXISTING TREES (7" DBH AND 15' TALL) AT DTE DRIVE APPROACH. REMAINING TREES ALONG DOYLE DRIVE/DTE PROPERTY LINE ARE 7" DBH AND 15' TALL.
16. NEW BENCH MARK TO BE ESTABLISHED AFTER NEW HYDRANT IS LOCATED.
17. ALL 12" HIGH PRECAST CONCRETE SLAT WALL DIMENSIONS ARE FROM CENTER LINE OF POST/WALL TO CENTER LINE OF POST/WALL EXCEPT AT GATE OPENING (20'-0" WIDE).

MAPLE ROAD 120 FEET WIDE

NORTH LINE OF SECTION 31

PROPERTY OWNER/APPLICANT/DEVELOPER:

DTE ELECTRIC COMPANY/MARK FAIRLESS
ONE ENERGY PLAZA
DETROIT, MICHIGAN 48226-1279
(313) 235-8269 FAX (313) 235-0478

ARCHITECTURAL:

DTE ELECTRIC COMPANY/GORDON YEE
ONE ENERGY PLAZA, 560 S.B.
DETROIT, MICHIGAN 48226-1279
(313) 235-9214 FAX (313) 235-0478

ADDRESS:

ARIEL SUBSTATION
DOYLE DRIVE
TROY, MICHIGAN 48084



NOTE TO FIELD

FIELD IS NOT AUTHORIZED TO CHANGE OR MODIFY THIS DESIGN WITHOUT FIRST CONTACTING THE ENGINEER.

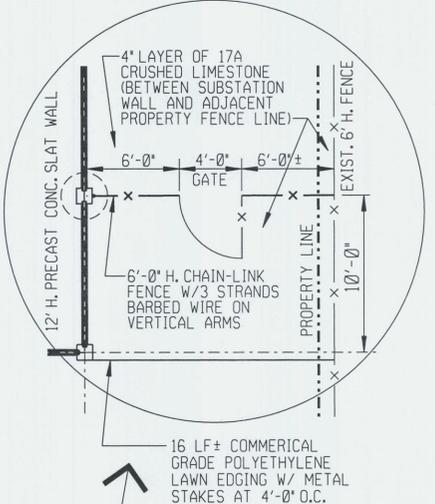
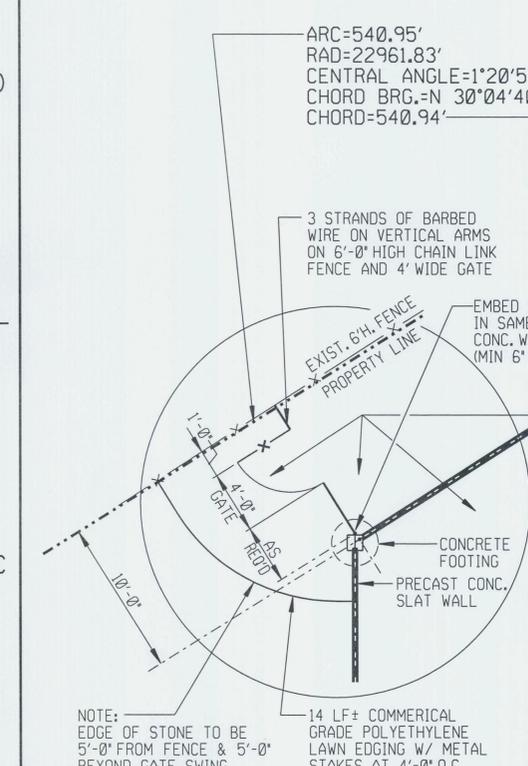
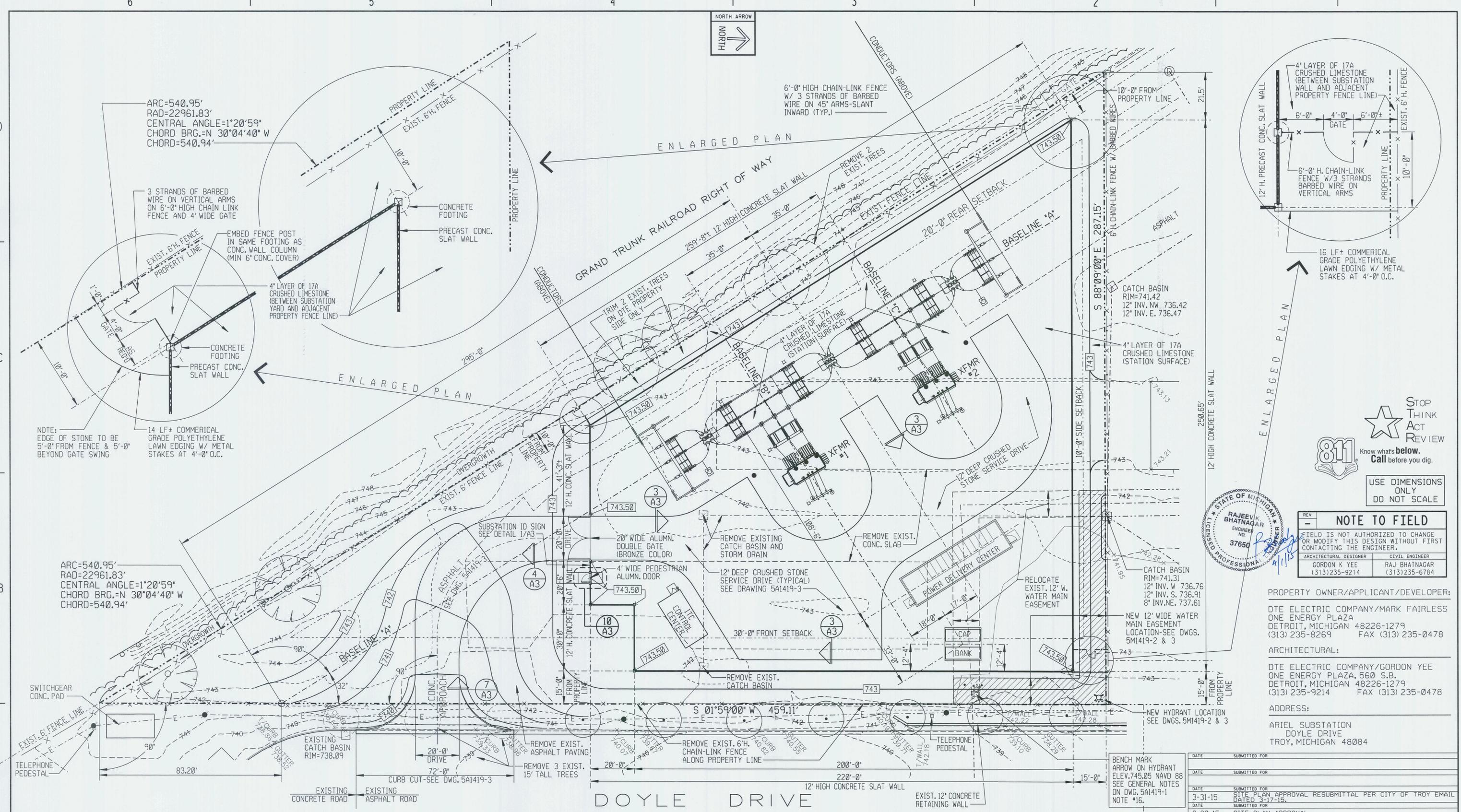
ARCHITECTURAL DESIGNER	GORDON K YEE (313) 235-9214
CIVIL ENGINEER	RAJ BHATNAGAR (313) 235-6784

USE DIMENSIONS ONLY
DO NOT SCALE

PROJ. DESIGN				PROJ. MANAGER				OTHERS				APPROVALS			
DATE	DESIGNER	MANAGER	OTHERS	DATE	DESIGNER	MANAGER	OTHERS	DATE	DESIGNER	MANAGER	OTHERS	DATE	DESIGNER	MANAGER	OTHERS
PDL #												ENGINEERING			
MADE BY												GORDON K. YEE			
DATE												8-25-14			
A/C/T/UG/SUR												LAYOUT BY			
RELAY												DATE			
												3-24-15			
EP&M												CHECKED BY			
												MARK FAIRLESS			
ARCH CIVIL TOWERS UG/SUR												DATE			
												1-30-15			
PROJECT DESIGN/ELECT												A/C/T/UG/SUR			
												DATE			
												MARK FAIRLESS			
APPROVED FOR ISSUE												DATE			
												MARK FAIRLESS			

SITE PLAN AND NOTES

LOCATION NAME	REGION	SCALE
ARIEL SUBSTATION		1"=30'-0"
DRAWING NUMBER	NO NUMBER	PROJECT DOCUMENT LIST
5A1419-1	41577803	



NOTE: EDGE OF STONE TO BE 5'-0" FROM FENCE & 5'-0" BEYOND GATE SWING

NOTE:
ALL 12' HIGH PRECAST CONCRETE SLAT WALL DIMENSIONS ARE FROM CENTER LINE OF POST/WALL EXCEPT AT GATE OPENING (20'-0" WIDE).



NOTE TO FIELD	
FIELD IS NOT AUTHORIZED TO CHANGE OR MODIFY THIS DESIGN WITHOUT FIRST CONTACTING THE ENGINEER.	
ARCHITECTURAL DESIGNER GORDON K YEE (313) 235-9214	CIVIL ENGINEER RAJ BHATNAGAR (313) 235-6784

PROPERTY OWNER/APPLICANT/DEVELOPER:
DTE ELECTRIC COMPANY/MARK FAIRLESS
ONE ENERGY PLAZA
DETROIT, MICHIGAN 48226-1279
(313) 235-8269 FAX (313) 235-0478

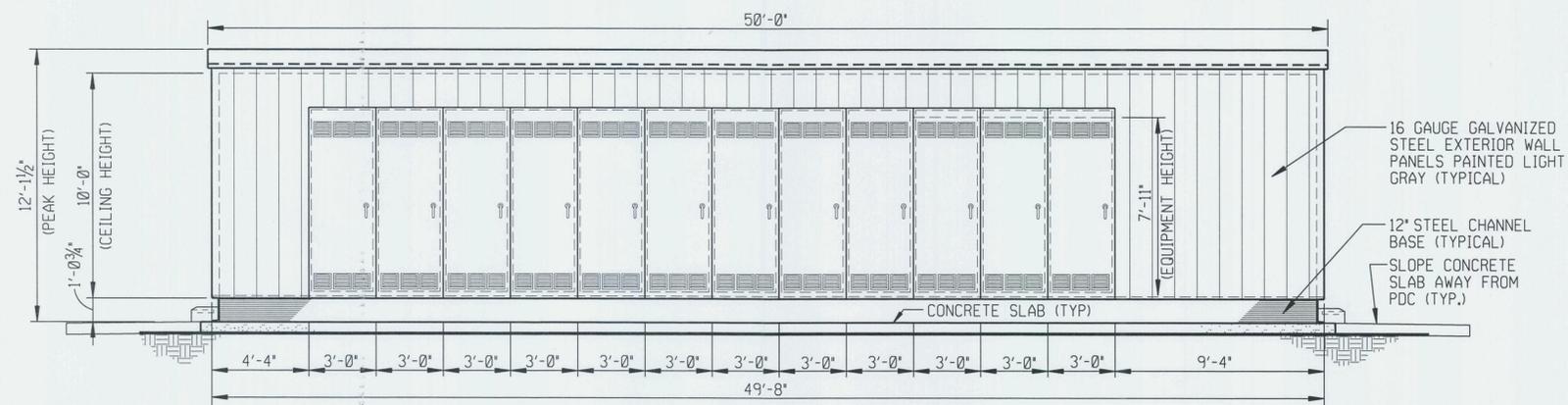
ARCHITECTURAL:
DTE ELECTRIC COMPANY/GORDON YEE
ONE ENERGY PLAZA, 560 S.B.
DETROIT, MICHIGAN 48226-1279
(313) 235-9214 FAX (313) 235-0478

ADDRESS:
ARIEL SUBSTATION
DOYLE DRIVE
TROY, MICHIGAN 48084

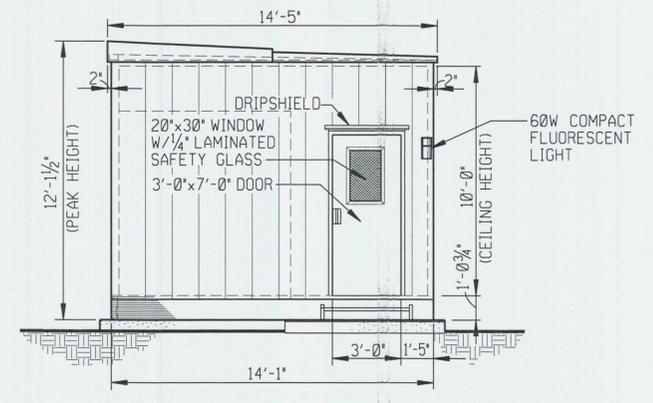
DATE	SUBMITTED FOR
3-31-15	SITE PLAN APPROVAL RESUBMITTAL PER CITY OF TROY EMAIL DATED 3-17-15.
2-20-15	SITE PLAN APPROVAL.

		DTE Electric Company Central Design	
PROJECT MANAGER GORDON K. YEE 11-14-14		ENGINEERING MADE BY GORDON K. YEE 11-14-14	
ARCHITECTURAL DESIGNER GORDON K. YEE 11-14-14		CIVIL ENGINEER RAJ BHATNAGAR 1-30-15	
PROJECT DESIGN/ELECT MARK FAIRLESS 1-30-15		DATE 3-24-15	
LOCATION NAME ARIEL SUBSTATION		REGION 	
DRAWING NUMBER 5A1419-2		NO NUMBER 41577803	
SCALE 1"=20'-0"		PROJECT DOCUMENT LIST	

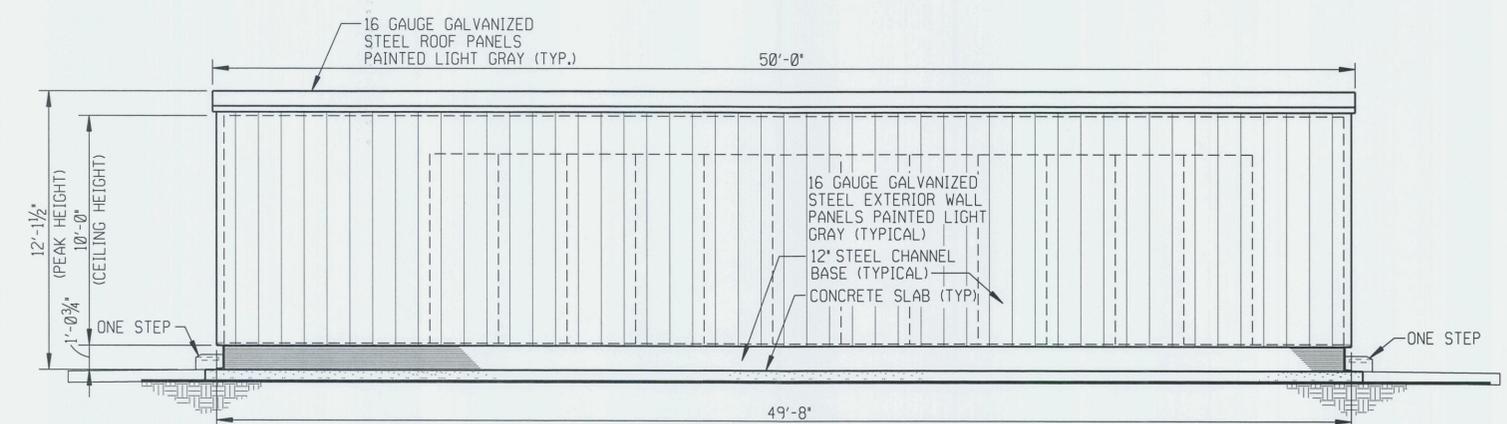
PROJ DESIGN	PROJ MANAGER	OTHERS	PROJ DESIGNER	PROJ MANAGER	OTHERS	PROJ DESIGNER	PROJ MANAGER	OTHERS	APPROVALS	
DATE			DATE			DATE			OTHER	DATE
									PROJECT MANAGER	DATE
									ENGINEERING	DATE
									MADE BY	DATE
									LAYOUT BY	DATE
									CHECKED BY	DATE
									MARK FAIRLESS	1-30-15
									PROJECT DESIGN/ELECT	DATE
									A/C/T/UG/SUR	DATE
									MARK FAIRLESS	DATE
									APPROVED FOR ISSUE	DATE
									MARK FAIRLESS	DATE



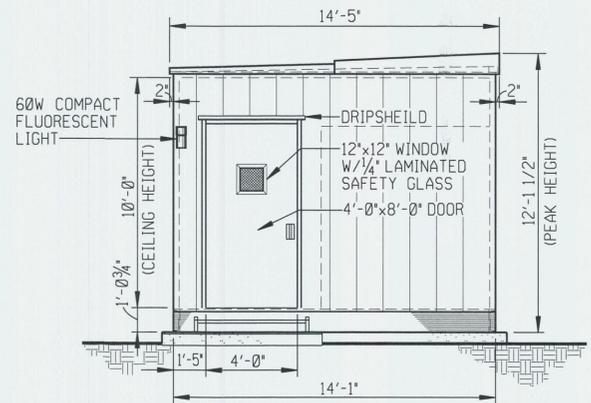
SOUTHWEST ELEVATION



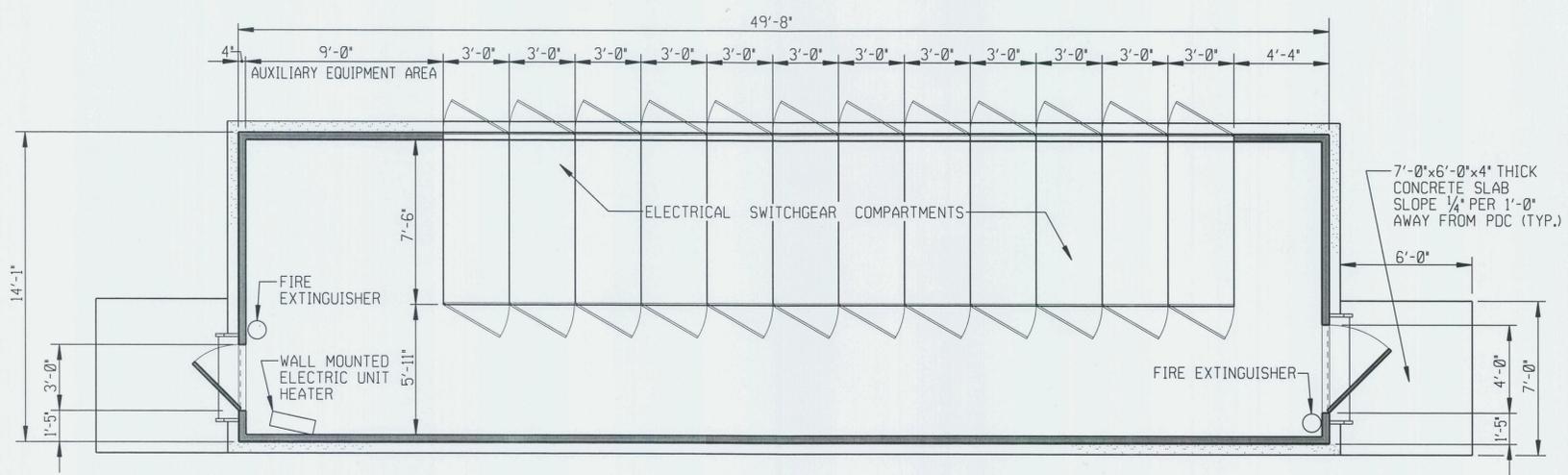
SOUTHEAST ELEVATION



NORTHEAST ELEVATION



NORTHWEST ELEVATION



FLOOR PLAN



PROPERTY OWNER/APPLICANT/DEVELOPER:
 DTE ELECTRIC COMPANY/MARK FAIRLESS
 ONE ENERGY PLAZA
 DETROIT, MICHIGAN 48226-1279
 (313) 235-8269 FAX (313) 235-0478

ARCHITECTURAL:
 DTE ELECTRIC COMPANY/GORDON YEE
 ONE ENERGY PLAZA, 674 S.B.
 DETROIT, MICHIGAN 48226-1279
 (313) 235-9214 FAX (313) 235-0478

ADDRESS:
 ARIEL SUBSTATION
 DOYLE DRIVE
 TROY, MICHIGAN 48084



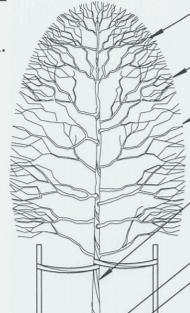
REV	DATE	DESCRIPTION	DATE	SUBMITTED FOR
-		NOTE TO FIELD		
		FIELD IS NOT AUTHORIZED TO CHANGE OR MODIFY THIS DESIGN WITHOUT FIRST CONTACTING THE ENGINEER.		
	3-31-15	SITE PLAN APPROVAL RESUBMITTAL PER CITY OF TROY EMAIL DATED 3-17-15.		
	2-20-15	SITE PLAN APPROVAL.		

USE DIMENSIONS ONLY DO NOT SCALE

APPROVALS																																																																																																																																																																						
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TREE STAKING

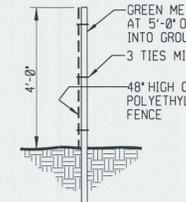
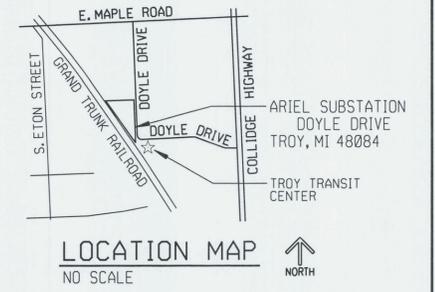
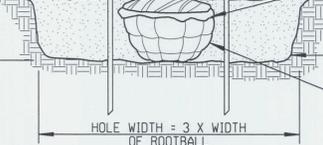
- STAKE WITH 2x2 HARDWOOD STAKES OR APPROVED EQUAL DRIVEN 6'-8" OUTSIDE OF ROOTBALL. EXTEND STAKES TO 18" BELOW BOTTOM OF HOLE.
- LOOSELY STAKE TREE TRUNK TO ALLOW FOR TRUNK FLEXING.
- USE 2-3" WIDE BELT-LIKE, NYLON OR PLASTIC STRAPS (2 PER TREE, ON OPPOSITE SIDES OF TREE, CONNECT FROM TREE TO STAKE HORIZONTALLY. DO NOT USE ROPE OR WIRE THROUGH A HOSE.) ATTACH STRAPS JUST BELOW FIRST BRANCH ON DECIDUOUS TREES. ATTACH STRAPS 2/3 UP ON EVERGREEN TREES.
- REMOVE ALL STAKING MATERIALS AFTER ONE YEAR.



- REMOVE SECONDARY LEADERS. DO NOT PRUNE TERMINAL LEADER OR BRANCH TIPS.
- PRUNE AWAY DEAD OR BROKEN BRANCHES ONLY. DO NOT PRUNE TO SHAPE CANOPY.
- REMOVE ALL TAGS, STRINGS, PLASTIC AND ANY OTHER NON-BIODEGRADABLE MATERIAL.
- WRAP TRUNK WITH TREE WRAP AND SECURE WITH BIODEGRADABLE MATERIAL AT TOP AND BOTTOM. REMOVE AFTER FIRST WINTER.
- PRUNE SUCKERS OFF.
- SET ROOTBALL LEVEL TO GRADE OR SLIGHTLY ABOVE GRADE (1/2") IF IN CLAY SOIL.
- 4" DEEP SHREDDED HARDWOOD BARK MULCH. LEAVE 3" CIRCLE OF BARE SOIL AROUND TRUNK OF TREE.
- 4" HIGH EARTH BERM TO FORM WATER BASIN
- FOLD DOWN ALL BURLAP FROM TOP 1/3 OF ROOTBALL. REMOVE ALL NON-BIODEGRADABLE MATERIALS. DO NOT REMOVE SOIL FROM ROOTBALL.
- BREAK UP (SCARIFY) SIDES OF PLANTING HOLE.
- CENTER ROOTBALL IN PLANTING HOLE. LEAVE BOTTOM OF PLANTING HOLE FIRM. DO NOT AMEND SOIL UNLESS PLANTING IN POOR OR SEVERELY DISTURBED SOIL OR BUILDING RUBBLE. USE WATER TO SETTLE SOIL AND REMOVE AIR POCKETS AND FIRMLY SET TREE. GENTLY TAMP IF NEEDED.

DECIDUOUS TREE PLANTING DETAIL

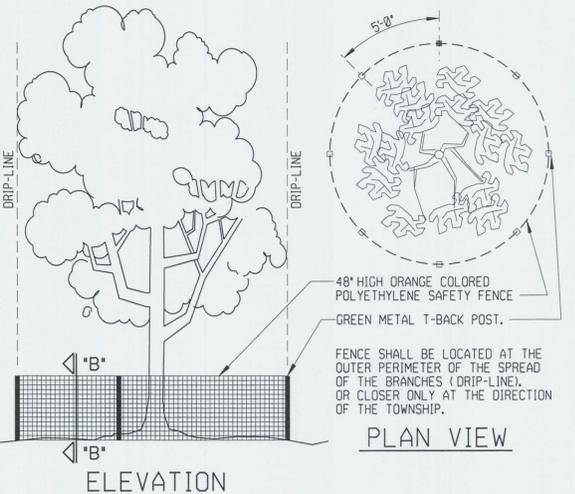
NOT TO SCALE



SECTION "B-B"

TREE PROTECTION NOTES

1. ALL TREES TO BE REMOVED WILL BE IDENTIFIED BY RED FLAGGING.
2. TREE PROTECTION FENCING IS TO BE ERRECTED PRIOR TO ANY EARTHWORK OR CONSTRUCTION AND IS TO REMAIN IN PLACE UNTIL CONSTRUCTION GRADING IS COMPLETE.
3. ALL DEBRIS, FILL, EQUIPMENT OR MATERIAL IS TO BE KEPT CLEAR OF AREA WITHIN PROTECTIVE FENCE. NO CLEANING OF EQUIPMENT OR MATERIAL OR STORAGE OR DISPOSAL OF ANY MATERIAL WITHIN THE DRIP LINE OF ANY TREES TO BE SAVED.



1 A5 TEMPORARY TREE PROTECTION BARRIER FENCE DETAIL

NO SCALE

LANDSCAPE NOTES:

1. ALL EXISTING AND PROPOSED UTILITIES SHALL BE FIELD LOCATED AND FLAGGED PRIOR TO ANY LANDSCAPE CONSTRUCTION ON-SITE.
2. ALL SPECIFIED AND INSTALLED LANDSCAPE MATERIAL SHALL SATISFY THE AMERICAN ASSOCIATION OF NURSERYMAN STANDARDS (LATEST EDITION) AND BE:
 - A. NURSERY GROWN.
 - B. STATE DEPARTMENT OF AGRICULTURE INSPECTED AND APPROVED.
 - C. NO.1 GRADE WITH STRAIGHT UNSCARED TRUNKS AND WELL DEVELOPED UNIFORM CROWNS ON ALL TREES (PARK GRADE TREES WILL NOT BE ACCEPTED).
3. PROPOSED SHREDDED HARDWOOD BARK MULCH SHALL BE SEASONED FOR A MINIMUM SIX MONTHS, DARK BROWN IN COLOR, AND INSTALLED 4" DEEP IN ALL CIRCLES AROUND EACH PROPOSED TREE (INCLUDED IN THE UNIT PRICE OF EACH TREE).
4. TREES & SHRUBS SHALL BE REPLACED IF UNACCEPTABLE (DISEASED, DAMAGED OR DEAD MATERIALS) WITHIN FIRST YEAR.
5. LAWN AREAS INDICATED ON THIS LANDSCAPE PLAN; CONTRACTOR SHALL FINE GRADE, FERTILIZE, SEED (SEE SEEDING MIXTURES BELOW) AND MULCH ON A MINIMUM 3", WELL-DRAINED, SCREENED, ORGANIC TOPSOIL.
6. TEMPORARY TREE PROTECTION BARRIER FENCE IS TO BE ERRECTED AROUND 7 TREES ALONG DOYLE ROAD/DTE EAST PROPERTY LINE PRIOR TO ANY EARTHWORK OR CONSTRUCTION AND IS TO REMAIN IN PLACE UNTIL CONSTRUCTION IS COMPLETE (SEE DETAIL 1/A5).

SEEDING MIXTURES			
GRASS KIND	PURITY	GERMINATION	PROPORTIONS BY WEIGHT
PERENNIAL RYEGRASS	98%	90%	30%
KENTUCKY BLUE	90%	75%	30%
CREEPING RED FESCUE	98%	80%	40%

PROVIDE CLEAN, DRY AND NEW CROP GRASS SEED. WEED CONTENT SHALL NOT EXCEED 0.3 PERCENT.

STATE OF MICHIGAN
RAJEEV K. BHATNAGAR
 ENGINEER
 NO. 37650
 LICENSED PROFESSIONAL ENGINEER

STOP THINK ACT REVIEW

811 Know what's below. Call before you dig.

PROPERTY OWNER/APPLICANT/DEVELOPER:

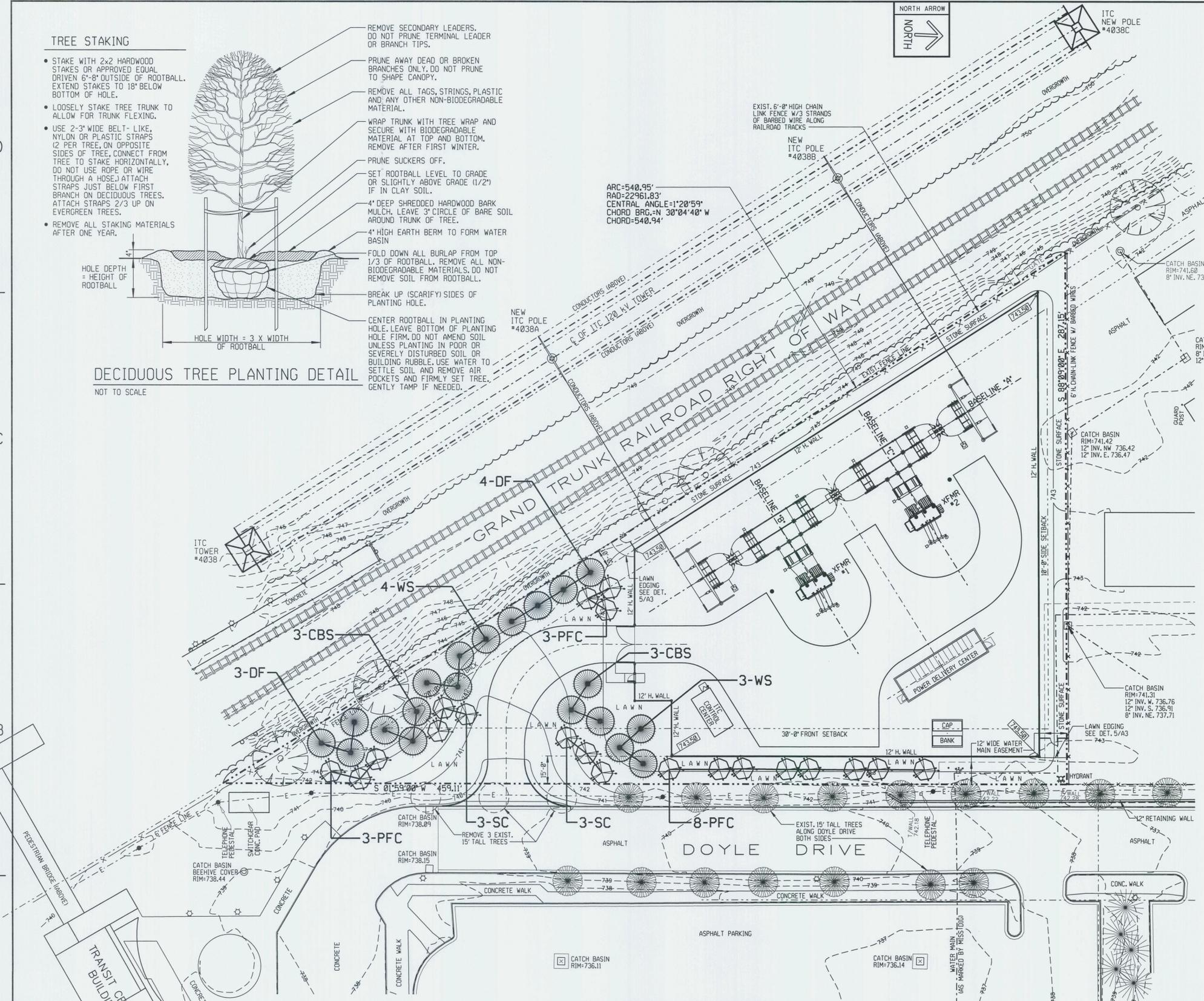
DTE ELECTRIC COMPANY/MARK FAIRLESS
 ONE ENERGY PLAZA
 DETROIT, MICHIGAN 48226-1279
 (313) 235-8269 FAX (313) 235-0478

ARCHITECTURAL:

DTE ELECTRIC COMPANY/GORDON YEE
 ONE ENERGY PLAZA, 674 S.B.
 DETROIT, MICHIGAN 48226-1279
 (313) 235-9214 FAX (313) 235-0478

ADDRESS:

ARIEL SUBSTATION
 DOYLE DRIVE
 TROY, MICHIGAN 48084



PLANT MATERIAL LIST

KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	REMARKS
DF	7	PSEUDOTSUGA	DOUGLAS FIR	8-10' HT.	B & B, BRANCHED TO GROUND, UNSHEARED, SPACE 15' O.C.
WS	7	PICEA GLAUCA	WHITE SPRUCE	8-10' HT.	B & B, BRANCHED TO GROUND, UNSHEARED, SPACE 15' O.C.
CBS	6	PICEA PUNGENS 'GLAUCA'	COLORADO BLUE SPRUCE	8-10' HT.	B & B, BRANCHED TO GROUND, UNSHEARED, SPACE 15' O.C.
SC	6	MALUS 'SNOWDRIFT'	SNOWDRIFT CRAB	2 1/2" CAL.	B & B, SINGLE-STEM (10' O.C.)
PFC	14	MALUS 'PRAIRIFIRE'	PRAIRIFIRE FLOWERING CRAB	2 1/2" CAL.	B & B, SINGLE-STEM (10' O.C.)
	40	TOTAL TREES			

USE DIMENSIONS ONLY
DO NOT SCALE

NOTE TO FIELD

FIELD IS NOT AUTHORIZED TO CHANGE OR MODIFY THIS DESIGN WITHOUT FIRST CONTACTING THE ENGINEER.

ARCHITECTURAL DESIGNER GORDON K YEE (313)235-9214	CIVIL ENGINEER RAJ BHATNAGAR (313)235-6784
---	--

REV	DATE	SUBMITTED FOR
1	3-31-15	SITE PLAN APPROVAL RESUBMITTAL PER CITY OF TROY EMAIL DATED 3-17-15.
2	2-20-15	SITE PLAN APPROVAL.

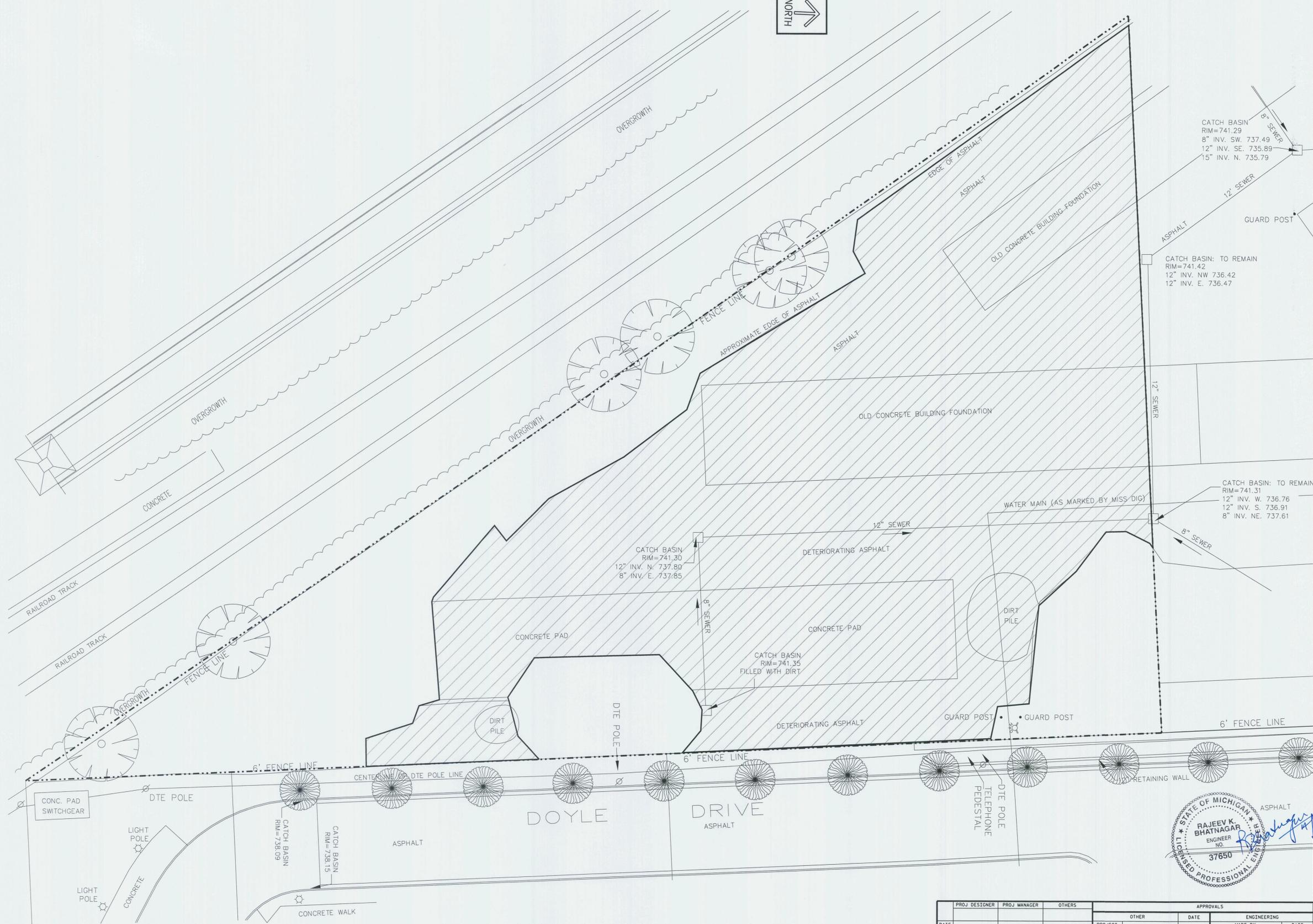
PROJ DESIGNER			PROJ MANAGER			OTHERS		
DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE

APPROVALS			
PROJECT MANAGER	ENGINEERING	DATE	TITLE
	MADE BY GORDON K. YEE	10-17-14	LANDSCAPE PLAN
	LAYOUT BY	3-24-15	
	CHECKED BY MARK FAIRLESS	1-30-15	
	PROJECT DESIGN/ELECT		

DTE Energy		DTE Electric Company	Central Design
LOCATION NAME	ARIEL SUBSTATION	REGION	SCALE 1"=30'-0"
DRAWING NUMBER	5A1419-5	WO NUMBER	41577803
PROJECT DOCUMENT LIST			



D
C
B
A



LEGEND



SOIL EROSION AND SEDIMENTATION CONTROL

FIELD TO BE RESPONSIBLE FOR ALL CONTROL MEASURES NECESSARY TO PREVENT DAMAGE RESULTING FROM EROSION AND SEDIMENTATION TO ON-SITE AND OFF-SITE AREAS IN ACCORDANCE WITH THE REQUIREMENTS SET BY THE SOIL EROSION AND SEDIMENTATION CONTROL ACT OF 1972 (ACT 347, P.A. 1972, AS AMENDED)

FIELD NOTES FOR SITE DEMOLITION (2015):

1. COMPLETELY EXCAVATE AND REMOVE EXISTING CONCRETE PADS, OLD CONCRETE BUILDING FOUNDATIONS, MANHOLES, U/G DRAIN PIPES, WATER MAIN, ASPHALT PAVED SURFACES, AND ALL EXCESS SOIL/DEBRIS
2. FIELD TO VERIFY ALL QUANTITATIVE VALUES OF MATERIALS TO BE EXCAVATED AND REMOVED
3. COORDINATE AND ASSES WORK SITE'S ENVIRONMENTAL CONDITIONS WITH EM&R GROUP BEFORE STARTING DEMOLITION AND EXCAVATION
4. PROVIDED NECESSARY SHORING, BRACING/SUPPORTING, IF REQUIRED, TO PREVENT THE MOVEMENT, SETTLEMENT OR COLLAPSE OF ANY STRUCTURE TO BE DEMOLISHED AND FOR THE SAFETY OF ADJACENT FACILITIES TO REMAIN
5. PREFORM SITE DEMOLITION WORK USING METHODS THAT WILL MINIMIZE NOISE AND OTHER ANNOYANCES TO THE LOWEST LEVEL AS POSSIBLE FOR THE CONDITIONS OF THE WORK

POLLUTION CONTROLS:

1. USE SUITABLE METHODS AS NECESSARY TO LIMIT THE AMOUNT OF DUST AND DEBRIS TO THE LOWEST LEVELS OF AIR POLLUTION AS POSSIBLE FOR THE CONDITIONS OF THE WORK

SALVAGED MATERIAL:

1. COORDINATE WITH DTE ENERGY INVESTMENT RECOVERY GROUP FOR DISPOSAL OF SALVAGED MATERIALS NOT DESIGNATED FOR REUSE

CONSTRUCTION NOTES (2015):

1. PRIOR TO BACKFILLING, ALL AREAS SHALL BE FREE OF STANDING WATER, TRASH AND DEBRIS, ECT.
2. USE BACKFILL & COMPACTION AS PER NTH CONSULTANT'S RECOMMENDATIONS. (ATTACHED)
3. REF. PLOT PLAN DWG 5A1419-2 FOR NEW GRADE ELEVATION

REFERENCE DRAWINGS:

- ARCHITECTURAL PLOT PLAN-----5A1419-2
- MAT PLAN, CONTAINMENT, AND PIER DETAILS-----5C1419-4
- KEY PLAN-----6E1419-1
- PROPOSED PIPING ROUTE ALTERATIONS-----5M1419-2



REV	NOTE TO FIELD
-	FIELD IS NOT AUTHORIZED TO CHANGE OR MODIFY THIS DESIGN WITHOUT FIRST CONTACTING THE ENGINEER.
DRAWN BY: J. WIERENGA (313)235-4474	
CIVIL ENGINEER: RAJEEV BHATNAGAR (313)235-6784	

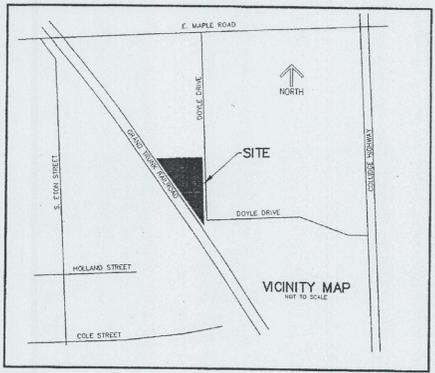
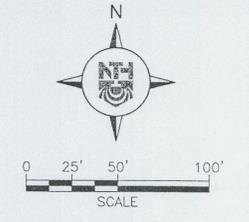
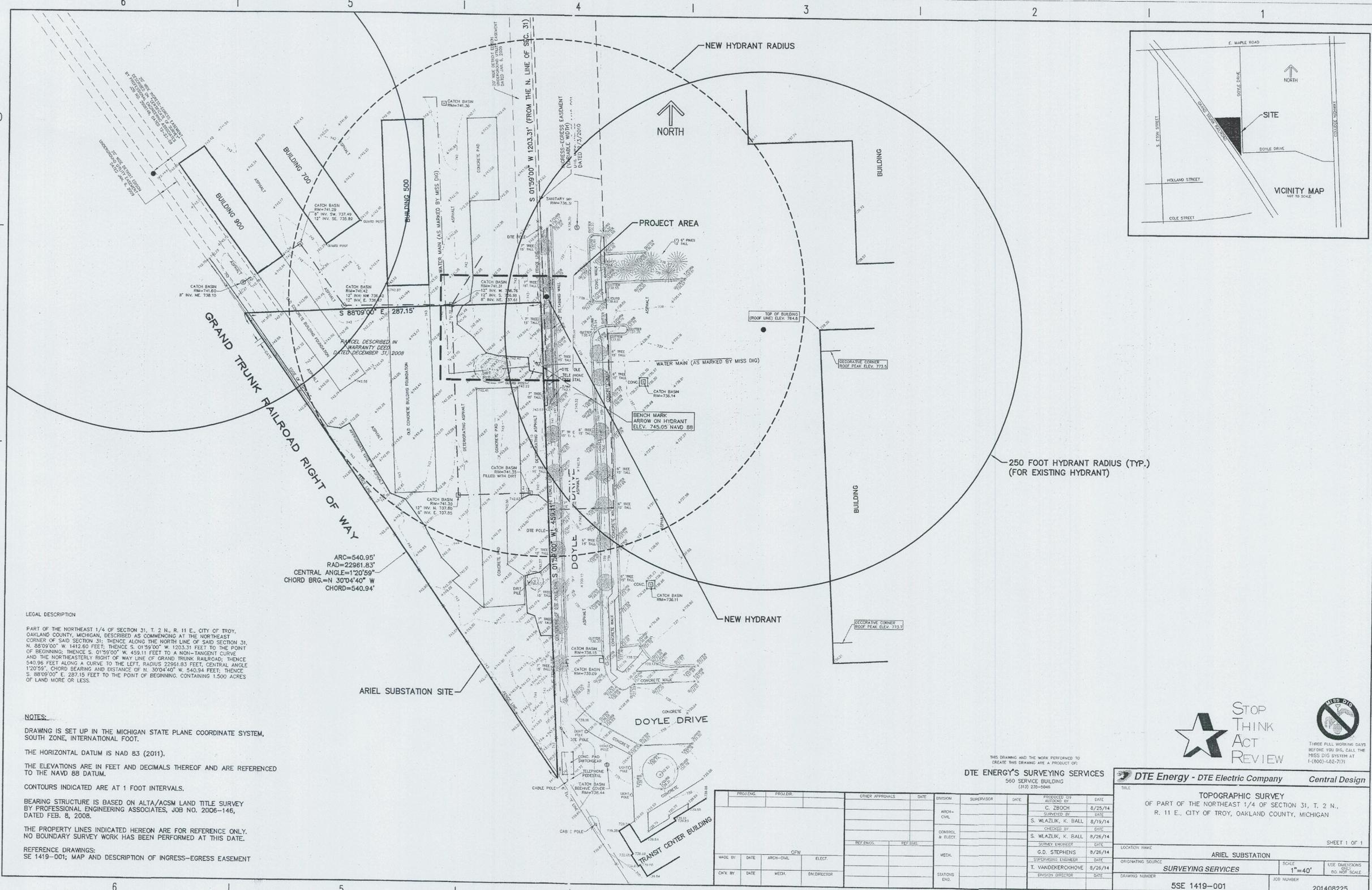
USE DIMENSIONS ONLY DO NOT SCALE



PROJ DESIGNER		PROJ MANAGER		OTHERS		APPROVALS	
DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE
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RELAY		MADE BY		PROJECT DESIGN/ELECT		DATE	
EP&PM		LAYOUT BY		CHECKED BY		DATE	
ARCH CIVIL TOWERS US/SUR		A/C/T/UG/SUR		APPROVED FOR ISSUE		DATE	
M.A. FAIRLESS		J. WIERENGA		M. FAIRLESS		01-30-15	

DATE	SUBMITTED FOR
03/31/15	SITE PLAN APPROVAL RESUBMITTAL PER CITY OF TROY EMAIL DATED 3/17/15
02/20/15	SITE PLAN APPROVAL

DTE Energy		DTE Electric Company	Central Design
EXISTING CONDITION DEMOLITION PLAN			
LOCATION NAME	REGION	SCALE	
ARIEL SUBSTATION		NONE	
DRAWING NUMBER	WO NUMBER	PROJECT DOCUMENT LIST	
5C1419-3	41577803	ARIEL-PDL-A-41577803	



LEGAL DESCRIPTION
 PART OF THE NORTHEAST 1/4 OF SECTION 31, T. 2 N., R. 11 E., CITY OF TROY, OAKLAND COUNTY, MICHIGAN, DESCRIBED AS COMMENCING AT THE NORTHEAST CORNER OF SAID SECTION 31; THENCE ALONG THE NORTH LINE OF SAID SECTION 31, N. 88°09'00" W. 1412.60 FEET; THENCE S. 01°59'00" W. 1203.31 FEET TO THE POINT OF BEGINNING; THENCE S. 01°59'00" W. 459.11 FEET TO A NON-TANGENT CURVE AND THE NORTHEASTLY RIGHT OF WAY LINE OF GRAND TRUNK RAILROAD; THENCE 540.96 FEET ALONG A CURVE TO THE LEFT, RADIUS 22961.83 FEET, CENTRAL ANGLE 1°20'59", CHORD BEARING AND DISTANCE OF N. 30°04'40" W. 540.94 FEET; THENCE S. 88°09'00" E. 287.15 FEET TO THE POINT OF BEGINNING, CONTAINING 1.500 ACRES OF LAND MORE OR LESS.

NOTES:
 DRAWING IS SET UP IN THE MICHIGAN STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, INTERNATIONAL FOOT.
 THE HORIZONTAL DATUM IS NAD 83 (2011).
 THE ELEVATIONS ARE IN FEET AND DECIMALS THEREOF AND ARE REFERENCED TO THE NAVD 88 DATUM.
 CONTOURS INDICATED ARE AT 1 FOOT INTERVALS.
 BEARING STRUCTURE IS BASED ON ALTA/ACSM LAND TITLE SURVEY BY PROFESSIONAL ENGINEERING ASSOCIATES, JOB NO. 2006-146, DATED FEB. 8, 2008.
 THE PROPERTY LINES INDICATED HEREON ARE FOR REFERENCE ONLY. NO BOUNDARY SURVEY WORK HAS BEEN PERFORMED AT THIS DATE.
 REFERENCE DRAWINGS:
 SE 1419-001; MAP AND DESCRIPTION OF INGRESS-EGRESS EASEMENT

ARC=540.95'
 RAD=22961.83'
 CENTRAL ANGLE=1°20'59"
 CHORD BRG.=N 30°04'40" W
 CHORD=540.94'

DTE ENERGY'S SURVEYING SERVICES
 560 SERVICE BUILDING
 (313) 235-5048



PROJ. DESIGN	PROJ. MGR.	OTHERS	PROJ. DESIGNER	PROJ. MGR.	OTHERS	PROJ. DESIGNER	PROJ. MGR.	OTHERS
DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE

DTE Energy - DTE Electric Company Central Design

TITLE: TOPOGRAPHIC SURVEY OF PART OF THE NORTHEAST 1/4 OF SECTION 31, T. 2 N., R. 11 E., CITY OF TROY, OAKLAND COUNTY, MICHIGAN

LOCATION NAME: ARIEL SUBSTATION

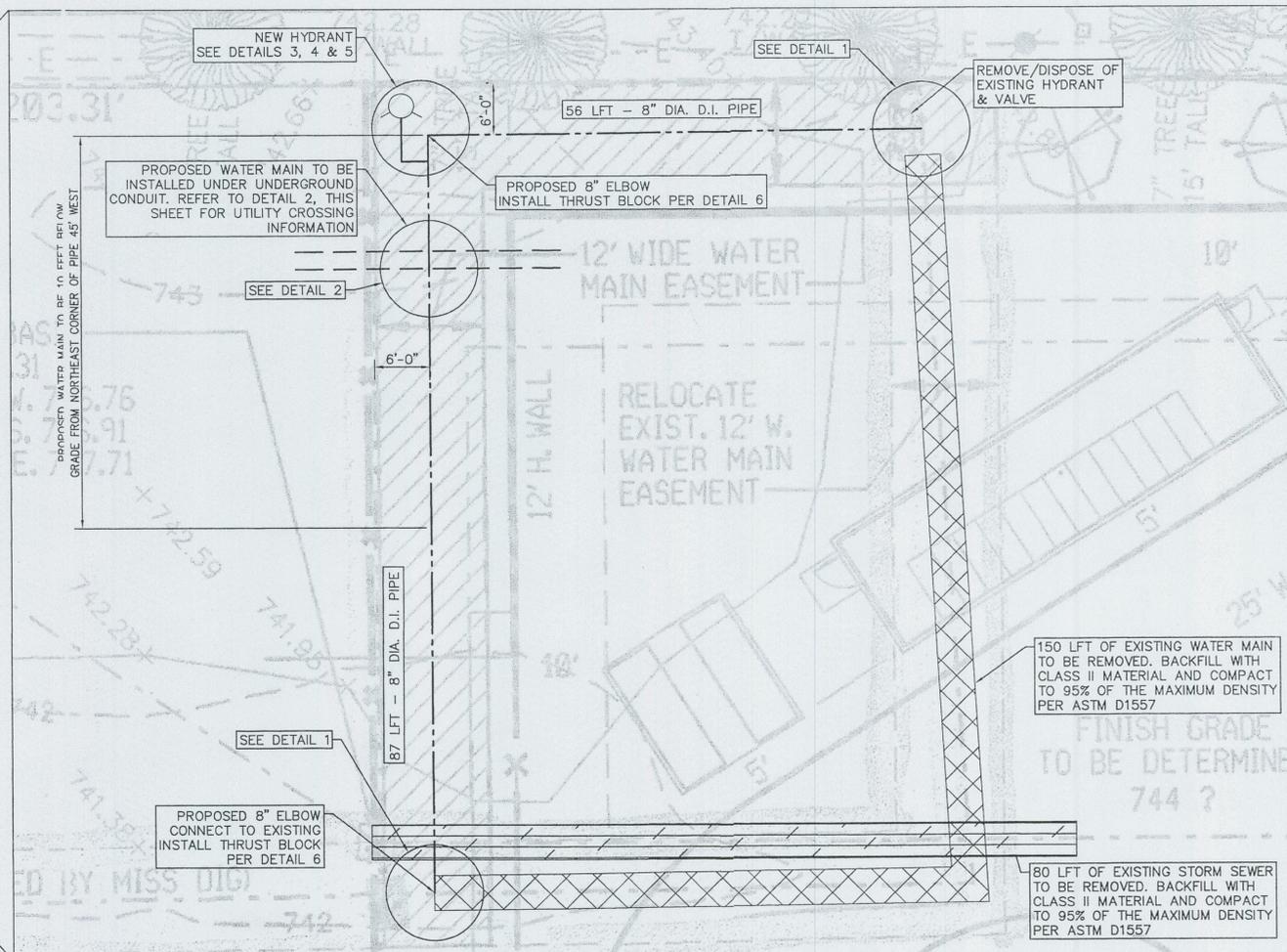
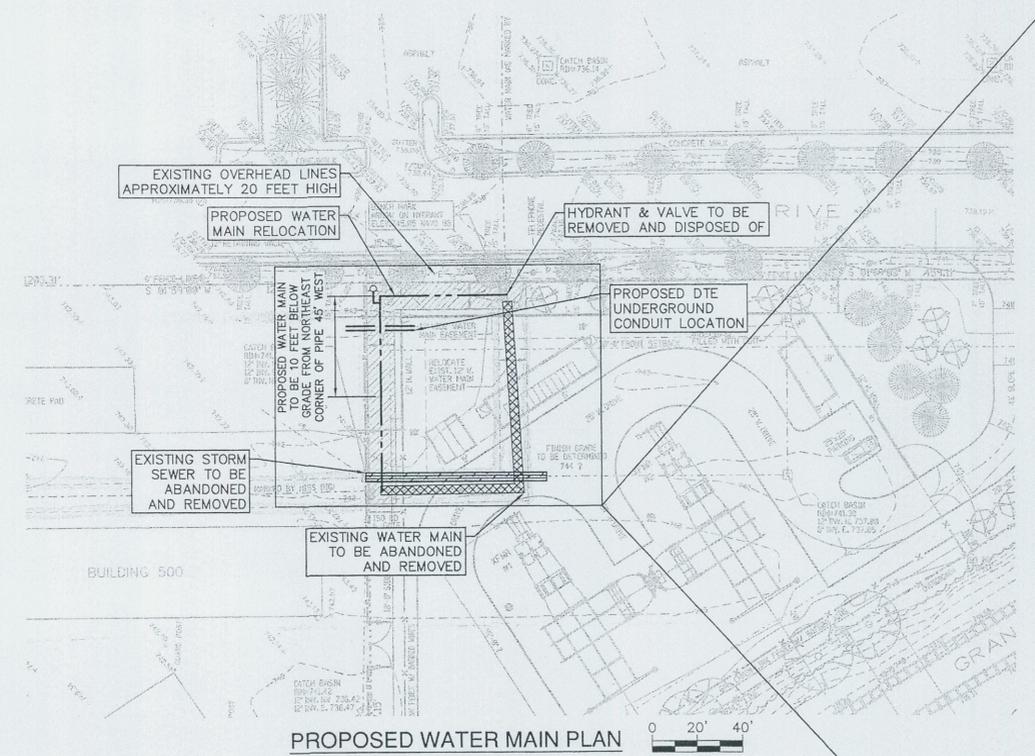
SCALE: 1"=40'

DRAWING NUMBER: SSE 1419-001

JOB NUMBER: 201408225

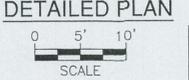
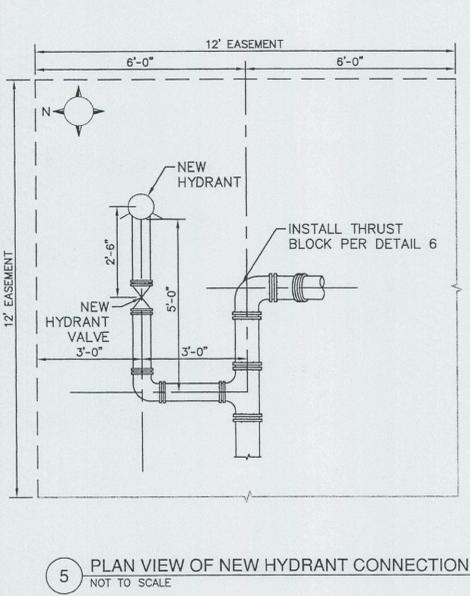
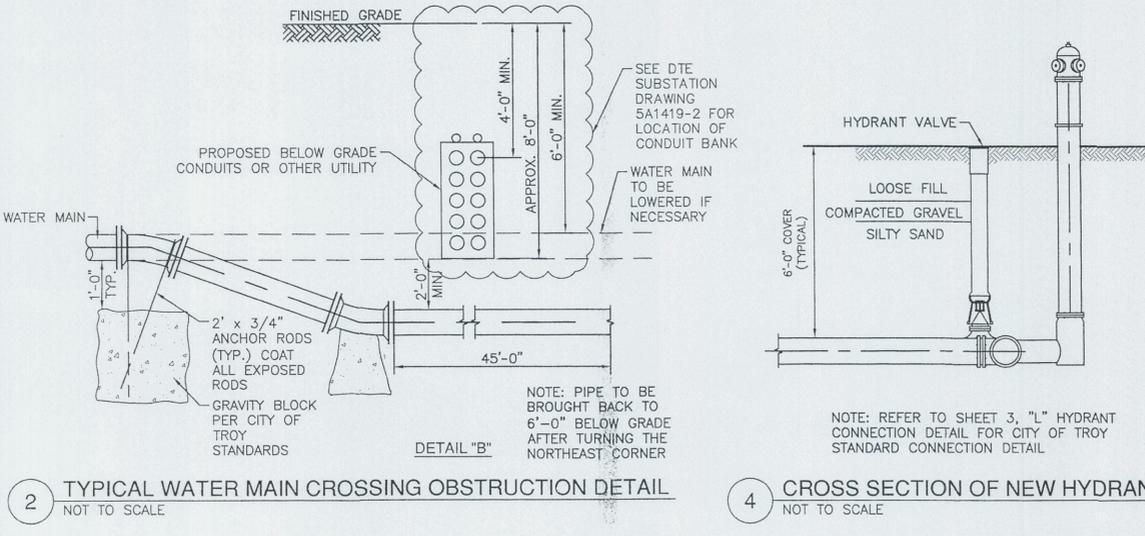
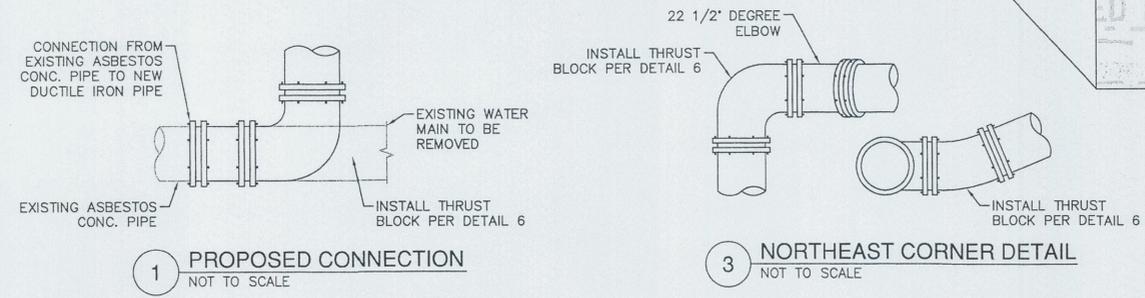
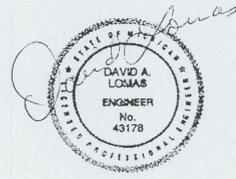


PROJ. DESIGN			PROJ. MGR.			OTHERS			APPROVALS			DTE Energy DTE Electric Company Central Design																				
DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE																		
<table border="1"> <tr> <td>PROJECT MANAGER</td> <td>MADE BY</td> <td>DATE</td> </tr> <tr> <td>RELAY</td> <td>K. DAVE</td> <td>2/18/15</td> </tr> <tr> <td>LAYOUT BY</td> <td>S. LOUX</td> <td>2/18/15</td> </tr> <tr> <td>EP&PM</td> <td>CHECKED BY</td> <td>DATE</td> </tr> <tr> <td>ARCH CIVIL TOWERS US/SUR</td> <td>D. LOMAS</td> <td>2/18/15</td> </tr> <tr> <td>OTHERS</td> <td>PROJECT DESIGN/ELECT</td> <td>DATE</td> </tr> </table>												PROJECT MANAGER	MADE BY	DATE	RELAY	K. DAVE	2/18/15	LAYOUT BY	S. LOUX	2/18/15	EP&PM	CHECKED BY	DATE	ARCH CIVIL TOWERS US/SUR	D. LOMAS	2/18/15	OTHERS	PROJECT DESIGN/ELECT	DATE	EXISTING CONDITIONS SURVEY & PROPOSED HYDRANT		
PROJECT MANAGER	MADE BY	DATE																														
RELAY	K. DAVE	2/18/15																														
LAYOUT BY	S. LOUX	2/18/15																														
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OTHERS	PROJECT DESIGN/ELECT	DATE																														
<table border="1"> <tr> <td>LOCATION NAME</td> <td>REGION</td> <td>SCALE</td> </tr> <tr> <td>ARIEL SUBSTATION</td> <td></td> <td>1" = 40'</td> </tr> <tr> <td>DRAWING NUMBER</td> <td>WO NUMBER</td> <td>PROJECT DOCUMENT LIST</td> </tr> <tr> <td>5M1419-1</td> <td>41577803</td> <td>ARIEL-PDL-A-41577803</td> </tr> </table>												LOCATION NAME	REGION	SCALE	ARIEL SUBSTATION		1" = 40'	DRAWING NUMBER	WO NUMBER	PROJECT DOCUMENT LIST	5M1419-1	41577803	ARIEL-PDL-A-41577803									
LOCATION NAME	REGION	SCALE																														
ARIEL SUBSTATION		1" = 40'																														
DRAWING NUMBER	WO NUMBER	PROJECT DOCUMENT LIST																														
5M1419-1	41577803	ARIEL-PDL-A-41577803																														



- LEGEND**
- PROPOSED 8" DIA. WATER MAIN
 - - - - PROPOSED UNDERGROUND CONDUIT
 - XXXXX WATER MAIN TO BE ABANDONED & REMOVED
 - XXXXX NEW 12' WATER MAIN EASEMENT
 - XXXXX STORM SEWER TO BE ABANDONED & REMOVED

- NOTES:**
1. LOCATE, CUT, & REMOVE EXISTING PIPE; RE-ROUTE WATER MAIN AROUND PERIMETER OF SUBSTATION PROPERTY.
 2. A PORTION OF THE EXISTING EASEMENT SHALL BE ABANDONED AND A NEW EASEMENT FOR THE RELOCATED PIPE SHALL BE CREATED.
 3. THE RELOCATED PIPE SHALL BE CLASS 54 DUCTILE IRON PIPE AND INSTALLED IN ACCORDANCE WITH CITY OF TROY SPECIFICATIONS AND STANDARD DETAILS ON SHEET 5M1419-3.
 4. CONNECTION BETWEEN EXISTING ASBESTOS CEMENT PIPE AND NEW DUCTILE IRON PIPE TO BE EJP FC2A OR EQUIVALENT.
 5. PRESSURE TESTING AND DISINFECTION TO BE PERFORMED PER CITY OF TROY SPECIFICATIONS.
 6. SEE CITY OF TROY STANDARD WATER MAIN DETAILS-NOTE 3 FOR PIPE WRAPPING.



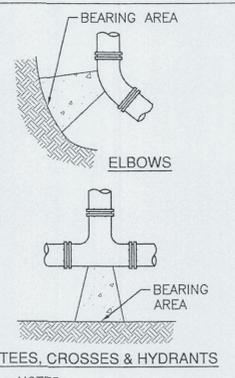
TEES, CROSSES & HYDRANTS		ELBOWS					
PIPE Ø INCHES	BEARING AREA SQUARE FEET	PIPE Ø INCHES	BEARING AREA SQUARE FEET				
			90°	45°	22 1/2°	11 1/4°	
4	1.5	4	2.1	1.1	0.6	0.3	
6	2.9	6	4.1	2.2	1.1	0.6	
8	4.8	8	6.8	3.7	1.9	0.9	
10	7.1	10	10.1	5.5	2.8	1.4	
12	10.0	12	14.1	7.6	3.9	2.0	
16	17.1	16	24.2	13.0	6.7	3.3	
18	21.0	18	30.0	16.3	8.3	4.2	
20	26.0	20	36.8	19.9	10.1	5.1	

SOIL CHARACTERISTICS FACTOR

(A) LOOSE COARSE OR MEDIUM SAND; COMPACT FINE SAND; COMPACT SAND-CLAY SOILS; STIFF CLAY	0.33
(B) FIRM FINE SAND; COMPACT INORGANIC SILT; FIRM SAND-CLAY SOILS; MEDIUM CLAY	0.50
(C) LOOSE FINE SAND; FIRM INORGANIC SILT	0.67
(D) LOOSE SAND-CLAY SOILS; LOOSE INORGANIC SILT; SOFT CLAY	1.00

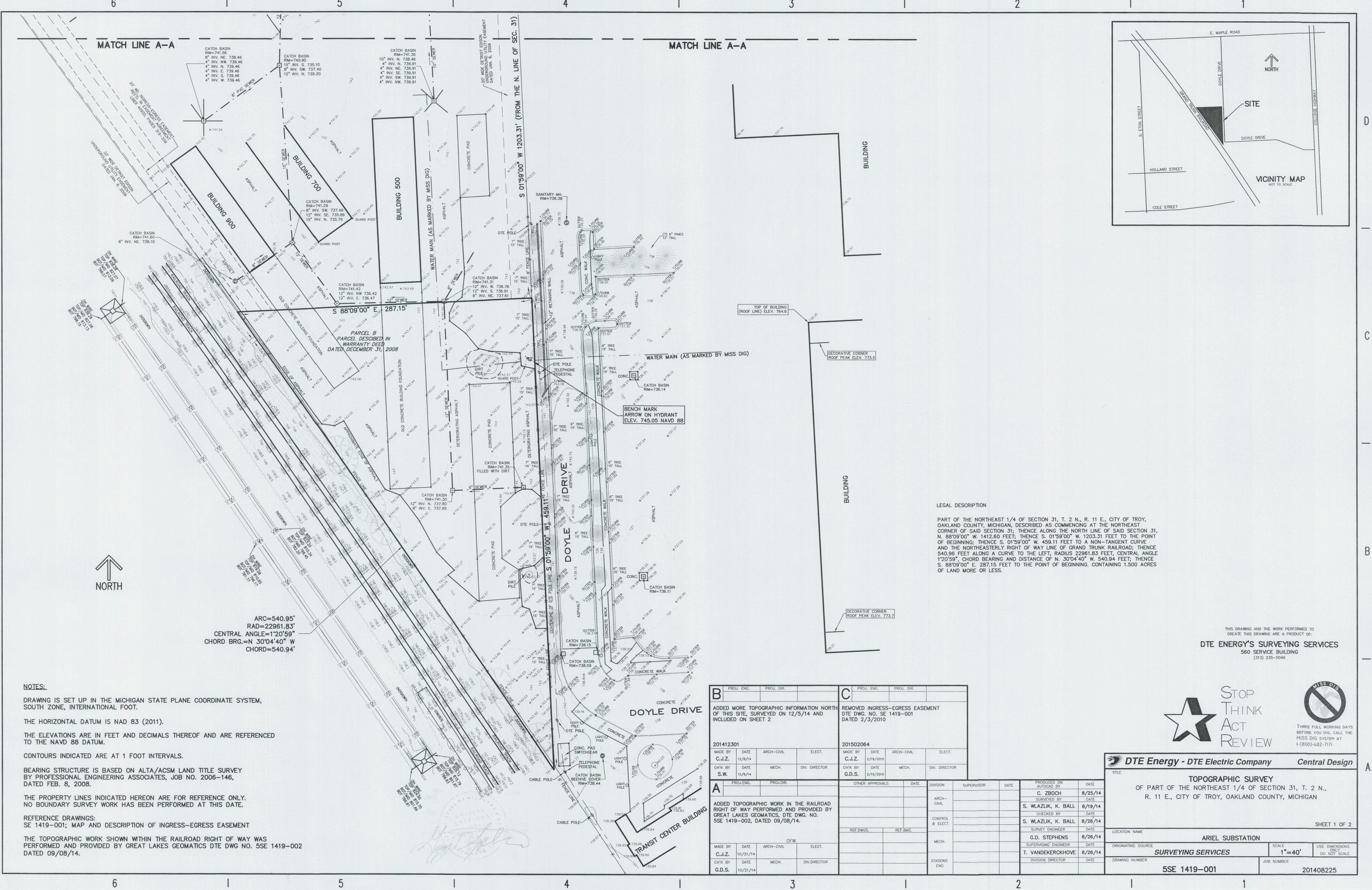
"BEARING AREA" x FACTOR = ACTUAL BEARING AREA 2.1 x .5 = 1.05 SQ. FT. BASED UPON 150# TEST PRESSURE

6 THRUST BLOCK REQUIREMENTS
NOT TO SCALE



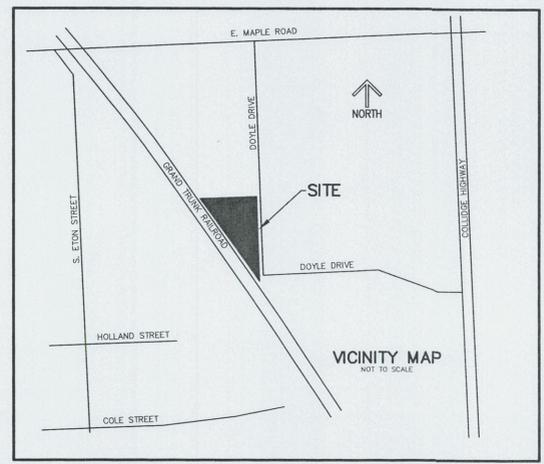
- NOTES:**
1. CONCRETE FOR ALL THRUST BLOCKS SHALL BE MIN. 3000 PSI, 28 DAY STRENGTH.
 2. ALL THRUST BLOCKS SHALL BE POURED AGAINST UNDISTURBED EARTH.
 3. BOLTS, FITTINGS & JOINTS SHALL BE KEPT CLEAR OF CONCRETE.
 4. A BEARING CAPACITY OF 2000# PER FOOT WAS USED IN DETERMINING THE MINIMUM "BEARING AREAS" IN THE ABOVE TABLE.
 5. THE CROSS SECTION OF THE THRUST BLOCKS SHALL BE SQUARE.

PROJ DESIGN			PROJ DESIGNER			PROJ DESIGNER			APPROVALS			DTE Energy					
DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE			
PDL:			PDL:			PDL:			OTHER:			PROJECT DESIGN/ELECT:					
MADE BY	DATE	A/C/T/UG/SUR	MADE BY	DATE	A/C/T/UG/SUR	MADE BY	DATE	A/C/T/UG/SUR	RELAY	MADE BY	DATE	A/C/T/UG/SUR	RELAY	MADE BY	DATE		
CHK BY	DATE	EP&M	CHK BY	DATE	EP&M	CHK BY	DATE	EP&M	APVD FOR ISSUE	CHK BY	DATE	EP&M	APVD FOR ISSUE	CHK BY	DATE		
APPROVALS												DTE Electric Company			Central Design		
PROJECT MANAGER												TITLE			PROPOSED PIPING ROUTE ALTERATIONS		
RELAY												LOCATION NAME			ARIEL SUBSTATION		
EP&M												REGION			SCALE		
ARCH CIVIL TOWERS UG/SUR												DRAWING NUMBER			5M1419-2		
OTHERS												WO NUMBER			41577803		
APPROVED FOR ISSUE												PROJECT DOCUMENT LIST			ARIEL-PDL-A-41577803		



MATCH LINE A-A

MATCH LINE A-A



ARC=540.95'
 RAD=22961.83'
 CENTRAL ANGLE=1°20'59"
 CHORD BRG.=N 30°04'40" W
 CHORD=540.94'



NOTES:
 DRAWING IS SET UP IN THE MICHIGAN STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, INTERNATIONAL FOOT.
 THE HORIZONTAL DATUM IS NAD 83 (2011).
 THE ELEVATIONS ARE IN FEET AND DECIMALS THEREOF AND ARE REFERENCED TO THE NAVD 88 DATUM.
 CONTOURS INDICATED ARE AT 1 FOOT INTERVALS.
 BEARING STRUCTURE IS BASED ON ALTA/ACSM LAND TITLE SURVEY BY PROFESSIONAL ENGINEERING ASSOCIATES, JOB NO. 2006-146, DATED FEB. 8, 2008.
 THE PROPERTY LINES INDICATED HEREON ARE FOR REFERENCE ONLY. NO BOUNDARY SURVEY WORK HAS BEEN PERFORMED AT THIS DATE.
 REFERENCE DRAWINGS:
 SE 1419-001; MAP AND DESCRIPTION OF INGRESS-EGRESS EASEMENT
 THE TOPOGRAPHIC WORK SHOWN WITHIN THE RAILROAD RIGHT OF WAY WAS PERFORMED AND PROVIDED BY GREAT LAKES GEOMATICS DTE DWG. NO. 5SE 1419-002 DATED 09/08/14.

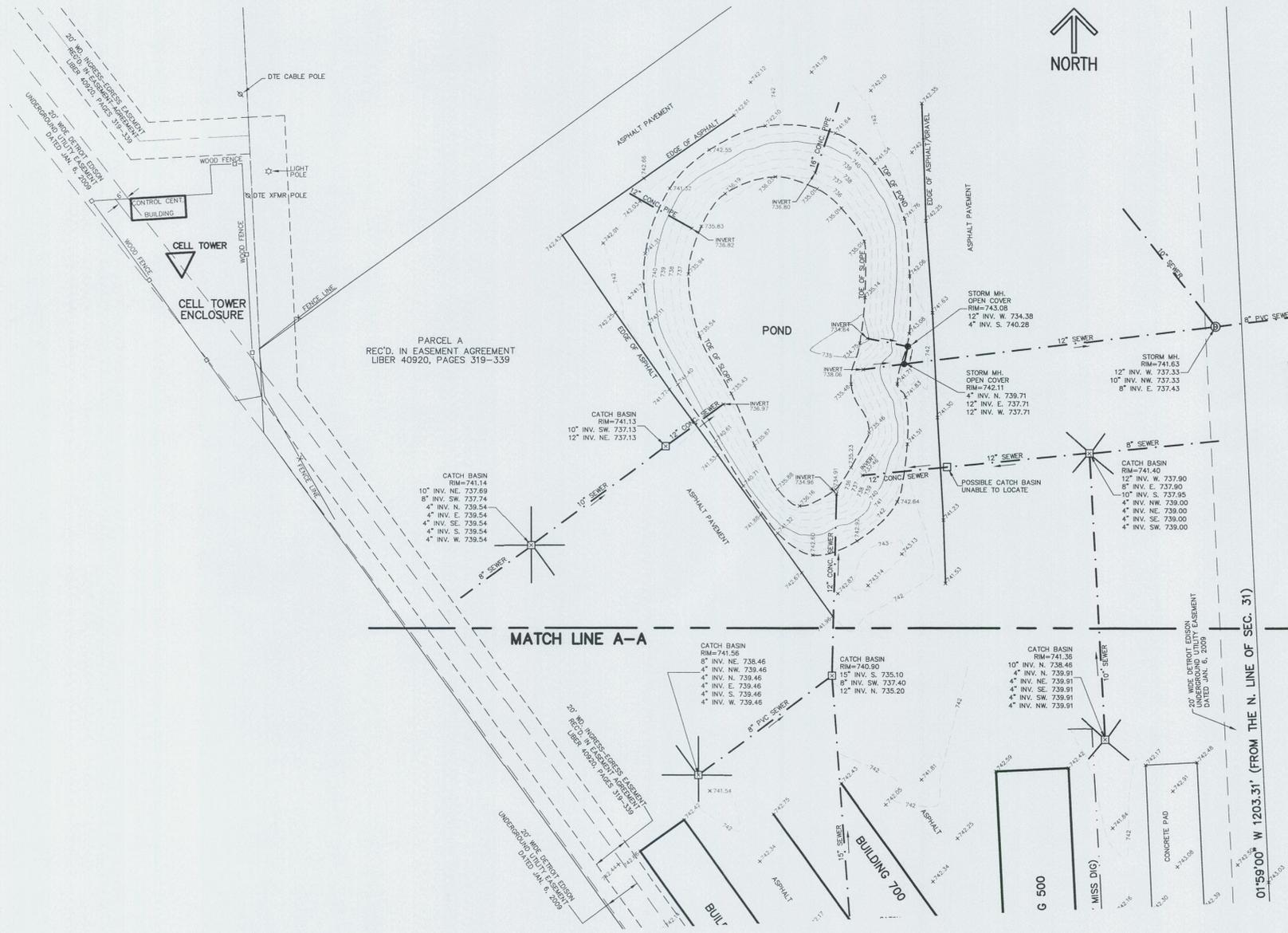
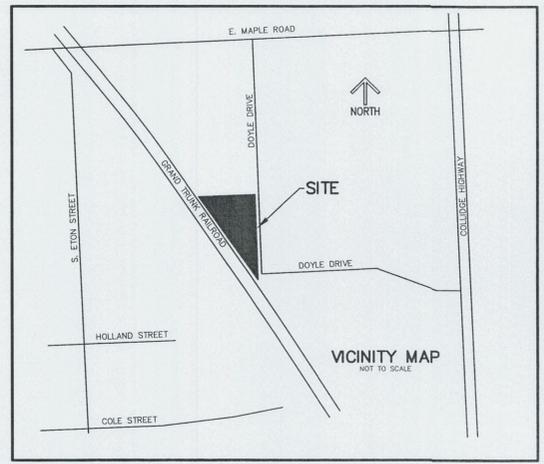
LEGAL DESCRIPTION
 PART OF THE NORTHEAST 1/4 OF SECTION 31, T. 2 N., R. 11 E., CITY OF TROY, OAKLAND COUNTY, MICHIGAN, DESCRIBED AS COMMENCING AT THE NORTHEAST CORNER OF SAID SECTION 31; THENCE ALONG THE NORTH LINE OF SAID SECTION 31, N. 88°09'00" W. 1412.60 FEET; THENCE S. 01°59'00" W. 1203.31 FEET TO THE POINT OF BEGINNING; THENCE S. 01°59'00" W. 459.11 FEET TO A NON-TANGENT CURVE AND THE NORTHEASTERLY RIGHT OF WAY LINE OF GRAND TRUNK RAILROAD; THENCE 540.95 FEET ALONG A CURVE TO THE LEFT, RADIUS 22961.83 FEET, CENTRAL ANGLE 1°20'59", CHORD BEARING AND DISTANCE OF N. 30°04'40" W. 540.94 FEET; THENCE S. 88°09'00" E. 287.15 FEET TO THE POINT OF BEGINNING, CONTAINING 1.500 ACRES OF LAND MORE OR LESS.

THIS DRAWING AND THE WORK PERFORMED TO CREATE THIS DRAWING ARE A PRODUCT OF:
DTE ENERGY'S SURVEYING SERVICES
 560 SERVICE BUILDING
 (313) 235-5046



B		C	
PROJ. ENG.	PROJ. DIR.	PROJ. ENG.	PROJ. DIR.
ADDED MORE TOPOGRAPHIC INFORMATION NORTH OF THIS SITE, SURVEYED ON 12/5/14 AND INCLUDED ON SHEET 2		REMOVED INGRESS-EGRESS EASEMENT DTE DWG. NO. SE 1419-001 DATED 2/3/2010	
201412301		201502064	
MADE BY	DATE	ARCH-CIVIL	ELECT.
C.J.Z.	12/8/14	C.J.Z.	2/19/2015
CH'K BY	DATE	MECH.	DIV. DIRECTOR
S.W.	12/9/14	G.D.S.	2/19/2015
A		OTHER APPROVALS	
PROJ. ENG.	PROJ. DIR.	DATE	DIVISION SUPERVISOR
ADDED TOPOGRAPHIC WORK IN THE RAILROAD RIGHT OF WAY PERFORMED AND PROVIDED BY GREAT LAKES GEOMATICS, DTE DWG. NO. SSE 1419-002, DATED 09/08/14.		DATE	DATE
MADE BY	DATE	ARCH-CIVIL	ELECT.
C.J.Z.	10/21/14		
CH'K BY	DATE	MECH.	DIV. DIRECTOR
G.D.S.	10/21/14		

DTE Energy - DTE Electric Company		Central Design
TITLE		
TOPOGRAPHIC SURVEY		
OF PART OF THE NORTHEAST 1/4 OF SECTION 31, T. 2 N., R. 11 E., CITY OF TROY, OAKLAND COUNTY, MICHIGAN		
SHEET 1 OF 2		
LOCATION NAME		ARIEL SUBSTATION
ORIGINATING SOURCE	SURVEYING SERVICES	
DRAWING NUMBER	5SE 1419-001	JOB NUMBER
		201408225



NOTES:

DRAWING IS SET UP IN THE MICHIGAN STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, INTERNATIONAL FOOT.

THE HORIZONTAL DATUM IS NAD 83 (2011).

THE ELEVATIONS ARE IN FEET AND DECIMALS THEREOF AND ARE REFERENCED TO THE NAVD 88 DATUM.

CONTOURS INDICATED ARE AT 1 FOOT INTERVALS.

BEARING STRUCTURE IS BASED ON ALTA/ACSM LAND TITLE SURVEY BY PROFESSIONAL ENGINEERING ASSOCIATES, JOB NO. 2006-146, DATED FEB. 8, 2008.

THE PROPERTY LINES INDICATED HEREON ARE FOR REFERENCE ONLY. NO BOUNDARY SURVEY WORK HAS BEEN PERFORMED AT THIS DATE.

THE TOPOGRAPHIC WORK SHOWN WITHIN THE RAILROAD RIGHT OF WAY WAS PERFORMED AND PROVIDED BY GREAT LAKES GEOMATICS DTE DWG NO. 5SE 1419-002 DATED 09/08/14.

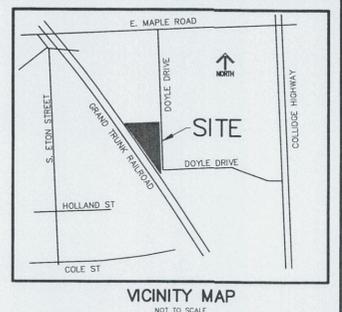
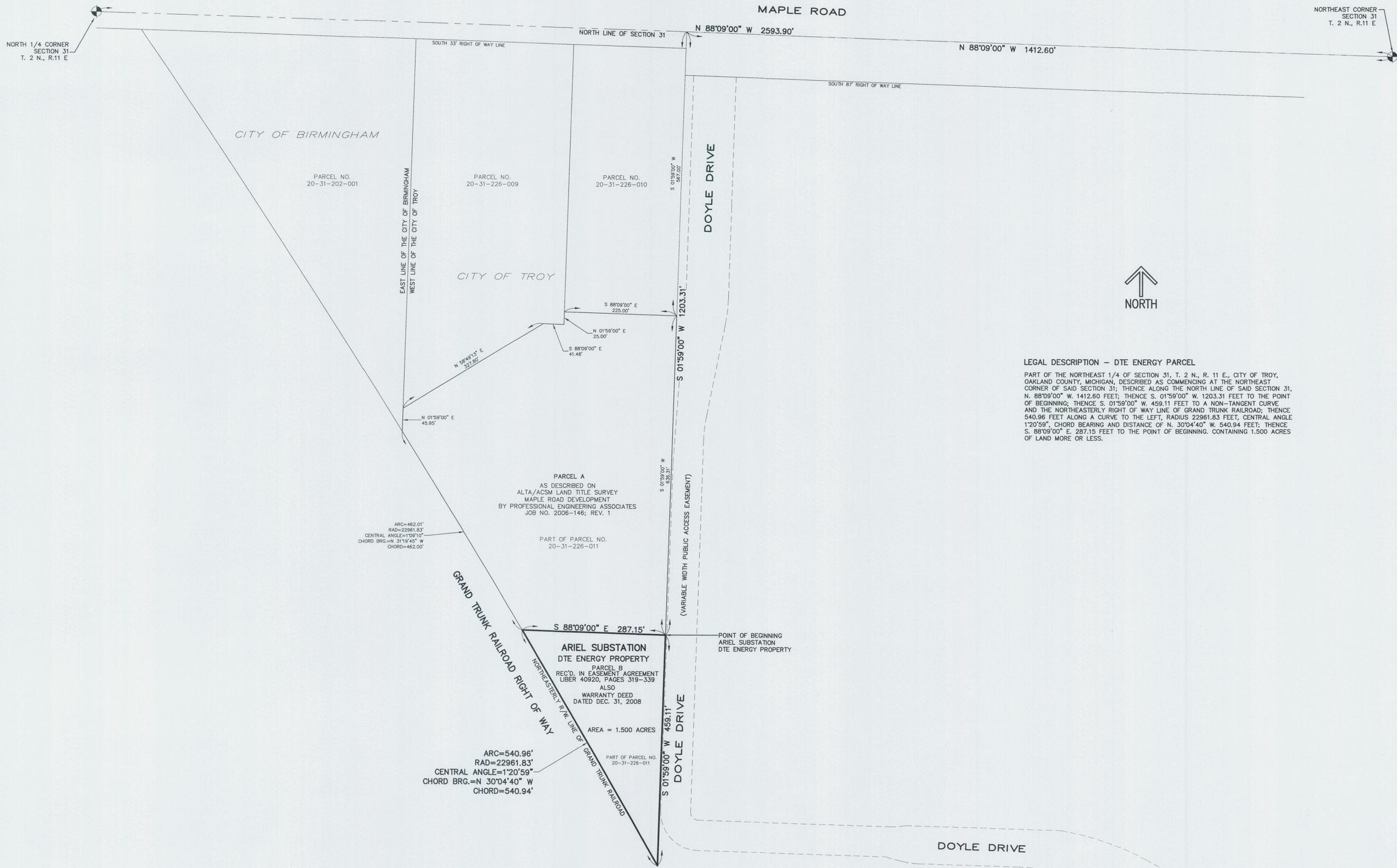


THIS DRAWING AND THE WORK PERFORMED TO CREATE THIS DRAWING ARE A PRODUCT OF:
DTE ENERGY'S SURVEYING SERVICES
 560 SERVICE BUILDING
 (313) 235-5046

DTE Energy - DTE Electric Company Central Design	
TITLE TOPOGRAPHIC SURVEY OF PART OF THE NORTHEAST 1/4 OF SECTION 31, T. 2 N., R. 11 E., CITY OF TROY, OAKLAND COUNTY, MICHIGAN	
LOCATION NAME ARIEL SUBSTATION	SHEET 2 OF 2
ORIGINATING SOURCE SURVEYING SERVICES	SCALE 1"=40'
DRAWING NUMBER 5SE 1419-001	USE DIMENSIONS ONLY DO NOT SCALE 201408225

C		B		A		OTHER APPROVALS		DATE	
PROJ. ENG.	PROJ. DIR.	PROJ. ENG.	PROJ. DIR.	PROJ. ENG.	PROJ. DIR.				
REMOVED INGRESS-EGRESS EASEMENT DTE DWG. NO. SE 1419-001 DATED 2/3/2010		ADDED MORE TOPOGRAPHIC INFORMATION NORTH OF THIS SITE, SURVEYED ON 12/5/14 AND INCLUDED ON SHEET 2		ADDED TOPOGRAPHIC WORK IN THE RAILROAD RIGHT OF WAY PERFORMED AND PROVIDED BY GREAT LAKES GEOMATICS, DTE DWG. NO. 5SE 1419-002, DATED 09/08/14.					
201502064		201412301		OFW					
MADE BY	DATE	ARCH-CIVIL	ELECT.	MADE BY	DATE	ARCH-CIVIL	ELECT.	MADE BY	DATE
C.J.Z.	2/19/2015			C.J.Z.	12/8/14			C.J.Z.	10/21/14
CH'K BY	DATE	MECH.	DIV. DIRECTOR	CH'K BY	DATE	MECH.	DIV. DIRECTOR	CH'K BY	DATE
G.D.S.	2/19/2015			S.W.	12/9/14			G.D.S.	10/21/14





LEGAL DESCRIPTION - DTE ENERGY PARCEL
 PART OF THE NORTHEAST 1/4 OF SECTION 31, T. 2 N., R. 11 E., CITY OF TROY, OAKLAND COUNTY, MICHIGAN, DESCRIBED AS COMMENCING AT THE NORTHEAST CORNER OF SAID SECTION 31; THENCE ALONG THE NORTH LINE OF SAID SECTION 31, N. 88°09'00\"/>



BASED ON MY KNOWLEDGE, INFORMATION AND BELIEF, I CERTIFY THAT AS A RESULT OF A SURVEY MADE ON THE GROUND TO THE NORMAL STANDARDS OF CARE OF PROFESSIONAL (LAND) SURVEYORS IN THE STATE OF MICHIGAN, THAT THE MAP DELINEATED HEREON CORRECTLY REPRESENTS SUCH SURVEY AND THAT RATIO OF CLOSURE OF THE UNADJUSTED FIELD OBSERVATIONS OF SUCH SURVEY WAS 1:_____ AND THAT ALL APPLICABLE REQUIREMENTS OF P.A. 132 OF 1970, AS AMENDED BY P.A. 24 OF 1986, HAVE BEEN COMPLIED WITH.

GREGORY D. STEPHENS
 PS NO. 29252
 DATE 2-19-2015

THIS DRAWING AND THE WORK PERFORMED TO CREATE THIS DRAWING ARE A PRODUCT OF:
DTE ENERGY'S SURVEYING SERVICES
 545 SERVICE BUILDING
 (313) 235-5046



PROJ. ENG.	PROJ. DIR.	OTHER APPROVALS	DATE	DIVISION	SUPERVISOR	DATE	PRODUCED ON AUTOCAD BY	DATE
				ARCH-CIVIL			C. ZBOCH	2/19/2015
				CONTROL & ELECT.			S. WLAZLIK, K. BALL	8/19/2014
				MECH.			G.D. STEPHENS	2/19/2015
				STATIONS ENG.			G.D. STEPHENS	2/19/2015
							M. FAIRLESS	

DTE Energy - DTE Electric Company Central Design

TITLE: **BOUNDARY SURVEY**
 OF DTE ENERGY PROPERTY
 IN PART OF THE NORTHEAST 1/4 OF SECTION 31,
 T. 2 N., R. 11 E., CITY OF TROY, OAKLAND COUNTY, MICHIGAN

LOCATION NAME: **ARIEL SUBSTATION**

ORIGINATING SOURCE: **SURVEYING SERVICES**

DRAWING NUMBER: **5SE 1419-005**

JOB NUMBER: **201502064**

SCALE: **1" = 100'**

USE DIMENSIONS ONLY DO NOT SCALE

SHEET 1 OF 1

6 1 5 1 4 1 3 1 2 1 1



A

PROJ DESIGNER		PROJ MANAGER		OTHERS		PROJ DESIGNER		PROJ MANAGER		OTHERS		APPROVALS		DATE		SUBMITTED FOR				
DATE		DATE		DATE		DATE		DATE		DATE		DATE		DATE		DATE		2-20-15	SITE PLAN APPROVAL.	
												PROJECT MANAGER	OTHER	DATE	ENGINEERING		TITLE			
												RELAY			MADE BY	DATE	DTE Energy		DTE Electric Company	Central D
												EP&PM			LAYOUT BY	DATE	SITE PERSPECTIVE RENDERING			
												ARCH CIVIL TOWERS UG/SUR			CHECKED BY	DATE	LOOKING NORTH WEST			
												PROJECT DESIGN/ELECT			GORDON YEE	02-20-15	ARIEL SUBSTATION		REGION	SCALE
PDL #		WO NO #		PDL #		WO NO #		A/C/T/UG/SUR		DATE		LOCATION NAME		DRAWING NUMBER		WO NUMBER		PROJECT DOCUMENT		
MADE BY	DATE	A/C/T/UG/SUR	RELAY	MADE BY	DATE	A/C/T/UG/SUR	RELAY	MARK FAIRLESS		02-20-15		ARIEL SUBSTATION		5A1419-2X		41577803				
CH'K BY	DATE	EP&PM	APVD FOR ISSUE	CH'K BY	DATE	EP&PM	APVD FOR ISSUE	OTHERS		MARK FAIRLESS		02-20-15								

6 1 5 1 4 1 3 1 2 1 1