Appleton
Community and Economic Development

REPORT TO CITY PLAN COMMISSION

Plan Commission Hearing Meeting Date: October 6, 2014

Common Council Public Meeting Date: November 5, 2014

Item: Special Use Permit #12-14 – We Energies East Northland Avenue Utility Substation

Case Manager: Don Harp

GENERAL INFORMATION

Owner/Applicant: Betty Plach, owner, / Wisconsin Energy Power Company (We Energies), applicant

Location/Parcel #: East Northland Avenue and Longview Drive / 31-1-6551-07, 31-1-6551-08, 31-1-6551-09 and 31-1-6551-14

Petitioner's Request: The applicant is requesting a Special Use Permit for the construction of a new 34.5-12kV electric utility substation which replace the current Northland Avenue substation (east of the subject site and located on Parcel #31-1-6551-22) and support voltage conversion of the surrounding line distribution area from 4kV to 12kV. This is the initial project in a series planned projects over the next several years to convert the City of Appleton aging 4kV system to operate at the modern 12kV standard. ***(See attached Plan of Operation Northland Substation, Northland Substation Project Summary and Conversion Plan Map)***

BACKGROUND

- In 1977, North Owaissa Street right-of-way between Northland Avenue and Longview Drive was vacated.
- In 2011, Butch's Auto Body and Repair Shop and a single family were demolished.
- Rezoning #8-14 for a portion of the subject site is also being presented at this October 6, 2014 Plan Commission.

STAFF ANALYSIS

Zoning Ordinance Requirements: The City's Zoning Ordinance requires that in order to construct a utility essential service facility (utility substation); the owner/applicant must obtain a Special Use Permit from the City of Appleton.

Site Characteristics: The land area utilized by the proposed utility substation project is approximately 43,250 square feet. The land is currently undeveloped.

Project Summary: The applicant is requesting a Special Use Permit for the construction of a new 34.5-12kV electric utility substation to replace the current Northland Avenue substation (east of the subject site and located on Parcel #31-1-6551-22) and support voltage conversion of the surrounding distribution area from 4kV to 12kV. The approximate one acre utility substation parcel will have equipment enclosed in a

fenced yard, approximately 145 feet by 145 feet, or 0.5 acres. In addition to the transformers, the substation yard will also include the following equipment:

1. A pre-assembled, metal-clad power distribution center ("PDC"). The PDC switchgear houses indoor type circuit breakers and associated controls along with other electrical equipment and instruments. The PDC and other pole-type structures will be a neutral gray color, either painted or galvanized steel.
2. Two lightning masts (one with antennas for substation control and monitoring); and other associated equipment and structures.
3. The utility substation facility will be screened with a mix of arborvitae, white spruce, red cedar and crabapple plantings.
4. Downward shining exterior flood lighting will be located above the two entry doors of the PDC and on both lightning masts. The lights will operate as motion-controlled or manually as necessary for construction, security, and maintenance purposes.
5. Security fencing will surround the substation yard – 7'6'' in height, using "no-cut" expanded metal fencing material. For additional screening, safety and security, 12'' of barbed wire will also be strung at the top of the fence.
6. One sign, identifying the substation and emergency contact information. The sign is expected to be 24'' by 32'' and will be hung on the fence adjacent to the northwest entrance gate.
7. A site access gate will also be placed on the driveway leading to Longview Drive. This will be placed to prevent unauthorized drive-through between Longview Drive to Northland Avenue. Access to the substation will occur primarily from the entrance off of Northland Avenue, with the Longview Drive access typically remaining gated.
8. The final grade within the substation yard will be crushed aggregate.

Surrounding zoning and land uses:

North: P-I Public Institution District – Memorial Park
R-1A Single-Family District – Residential uses
South: R-1B Single-Family District – Residential uses
R-2 Two-Family District – Residential uses
East: Proposed C-2 General Commercial District – Proposed undeveloped lot
West: PD/C-2 Planned Development General Commercial District- Medical Office

Appleton Comprehensive Plan 2010-2030: The City of Appleton 2010-2030 Comprehensive Plan Map identifies this parcel for future Commercial land uses. The following goals set forth in the comprehensive plan are relevant to this rezoning.

Overall Community Goals

Goal 1 – Community Growth (Chapter 10 – Land Use)

Appleton will continue to provide opportunities for residential, commercial and industrial growth, including appropriate redevelopment sites within the downtown and existing neighborhoods and greenfield development sites at the City's edge.

Goal 5 – Utilities and Community Services (Chapter 7)

Appleton will provide excellent public utility and community services at a reasonable cost, and will work with private utility companies to ensure quality service delivery.

Goal 8 – Economic Development (Chapter 9)

Appleton will pursue economic development that brings good jobs to the area and supports the vitality of its industrial areas, downtown, and neighborhood business districts.

9.4 OBJECTIVE: Encourage new development and redevelopment activities that create vital and attractive neighborhoods and business districts.

9.4.1. Ensure a continued adequate supply of industrial and commercial land to sustain new business development.

9.4.3. Ensure quality development by requiring that all new construction meets or exceeds the minimum design criteria determined appropriate for the area in which the site/building is located.

Appleton Comprehensive Plan 2010-2030 Findings: The proposed Essential Service Facility (Utility Substation) supports the goals and objectives with the Appleton Comprehensive Plan 2010-2030. The proposed Utility Substation is a Special Use within both the C-2 General Commercial and M-2 General Industrial Districts. This proposal is to construct a new utility substation which will replace the aging 4kV system to operate at the modern 12kV standard. The new substation will include modern technology, such as microprocessor based protective devices and other equipment which will allow remote substation control and monitoring. This equipment will also be adaptable to future distribution automation schemes. As the conversion proceeds, significant portions of the area's distribution poles and overhead conductors will be replaced. The rebuilt poles and overhead conductor will be more resilient to weather events. Ultimately, converting the distribution system to 12 kV will increase reliability, decrease maintenance, and provide for residential, commercial and industrial growth in the City.

Zoning Ordinance Finding of Fact: Prior to the granting of any special use permit, the Plan Commission may recommend and the Common Council may place such conditions and restrictions upon the establishment, location, construction, maintenance and method or hours of operation of the special use as is deemed necessary for the protection of the public interest and to secure compliance with the standards specified in Section 23-66 (e)(1-6) and Section 23-66 (h)(2)(a-g). This request was reviewed in accordance with the standards for granting a Special Use Permit under Section 23-66 (e)(1-6) and Section 23-66 (h)(2)(a-g), which were found in the affirmative.

According to the applicant's proposed development plan, the plan delineates the proposed enclosed power distribution center building (PDC), transformers and related equipment. All identified buildings, transformers and related equipment are located outside of any required setbacks specified in C-2 or M-2 Zoning District.

The utility substation equipment will be fence on all sides using "no-cut" expanded metal fencing material for visual screening and safety. In addition, landscaping will be added for visual screening from adjacent properties. No service or storage yard is being proposed with this request. Noise calculations were submitted by the applicant identifying the anticipated noise levels of the proposed transformers. The noise levels of both transformers running simultaneously under standard conditions would be approximately 41.30 dB at the north lot line, 42.17 dB at the south lot line, 41.10 dB at the east lot line, and 34.82 dB at the west lot line. The level of noise emanating from the utility substation shall not exceed 60 dB measured at any lot line of the subject property per the Zoning Ordinance. The circuit breakers and associated controls along with other electrical equipment will be shielded by a 15' x 46' galvanized steel structure, identified as the power distribution center building (PDC). The proposed utility substation operating under standard conditions should not create negative impact on adjacent properties or appears to be incompatible with the neighborhood character/commercial corridor, purpose and intent of the Zoning Ordinance or the 2010-2030 Comprehensive Plan. Conditions are drafted for this request to offset any potential impacts to the public interest (safety, welfare or well-being of the general public) and potential incompatibility impacts with surrounding neighborhood.

Technical Review Group Report (TRG): This item was discussed at the September 30, 2014 Technical Review Group Report meeting.

- **Engineering Division Comments:** The Engineering Division reviewed the Rezoning and indicated the following:
    - *A Stormwater Management Plan for the construction of the new substation site may need to be prepared and reviewed through the site plan review process.*
    - *Any access modifications to Northland Avenue must be approved by Outagamie County.*

Neighborhood Input: We have not received any concerns, questions or comments from the surrounding neighborhood.

Future Actions:

- Site Plan review and approval is required pursuant to Section 23-570 of the Zoning Ordinance prior to the issuance of a building permit by the Inspections Division.
- A Certified Survey Map shall be prepared and submitted to review by City Staff prior to Site Plan Approval to combine two (2) or more lots into one (1) lot.
- A minor change to the Special Use Permit may be requested in writing by the applicant to be reviewed and voted on by the Plan Commission. If the Plan Commission determines the modification is a major change, the applicant will be required to file a new Special Use Permit application.

RECOMMENDATION

Staff recommends, based on the above and attached materials, that Special Use Permit #12-14 for an Essential Service Facility (Utility Substation) located on Tax Parcel Numbers 31-1-6551-07, 31-1-6551-08, 31-1-6551-09 and part of 31-1-6551-14, to run with the land, **BE APPROVED** and subject to the following conditions:

1. A security fence around the perimeter of the enclosed power distribution center (PDC), transformers and related equipment shall be continuously maintained that is consistent with the location and style of fencing illustrated on attached plans for visual screening and safety.
2. Evergreen and/or deciduous plantings around the outside perimeter of security fence, except for gates shall be installed and continuously maintained for visual year-round screening from adjacent property.
3. The driveway accessing the subject site shall be paved from the lot line and up to the entrance gates of the utility substation compound to be compatible with adjacent paved driveway surfaces and to control dust, drainage, and weeds.
4. The level of noise emanating from the utility substation shall not exceed sixty (60) decibels measured at any lot line of the utility substation property.
5. The applicant is responsible for compliance with all applicable local, state and federal rules and regulations, and must obtain all appropriate permits and approvals.

NOTE: Special Use Permit #12-14 will be reported out at the same Common Council meeting as the proposed Rezoning #8-14 to accurately reflect the change in: (1) zoning classification from R-1B Single-family District and M-2 General Industrial District to C-2 General Commercial District for the subject site.

Northland Substation Project Summary

Project Description:

Construction of a new 34.5-12 kV electric distribution substation to replace the current Northland Ave substation and support voltage conversion of the surrounding line distribution area from 4kV to 12kV.

This is the initial project in a series planned over the next 5-10 years to fully convert the City of Appleton aging 4kV system to operate at the modern 12kV standard.

Project Drivers:

- The existing 4kV substation and equipment is nearing the end of its design life.
- The transformer and switchgear at the existing Northland SS is more than 50 years old.
- A large percentage of poles in the distribution area served by this substation are more than 50 years old, many of them more than 60 years old.
- Converting the distribution system to 12kV operation will provide for the installation of modern technology that will allow remote substation control and monitoring, increase reliability, and increase capacity to provide for future growth.

New Substation construction overview:

- We Energies has entered into an Option to Purchase agreement for a 1.57-acre open land parcel just west of the existing Northland Avenue substation.
- The land consists of four individual parcels currently zoned M-2. We Energies is requesting that the property be rezoned C-2, consistent with the City's 2010-2030 Comprehensive Plan, and subdivided into two parcels.
- We plan to utilize about 1 acre of the property for the substation itself with the remaining approximate 0.6 acres available for future redevelopment.
- The substation will initially include installation of a 25MVA transformer, enclosed power distribution center (PDC), and lightning mast.
- The substation will occupy an area of approximately 145 feet by 145 feet and will be surrounded by a 7' 6" "no-cut" expanded metal fence with an additional 12" of barbed wire at the top.
- Modern substation design significantly limits the amount of above-ground construction compared to older substation designs, resulting in improved aesthetics. We Energies will also provide a detailed landscaping plan for this project to assist in this effort.
- Two drives will access the substation, one from Northland Avenue and one from Longview Drive. The Northland Avenue drive will be the primary entrance, and the Longview Drive access will be gated when not in use.

Associated line distribution work to be performed concurrently:

- Poles, transformers, overhead conductors, and other service equipment in the surrounding area will also be replaced as part of the broader 34.5 to 12kV conversion project.

Project Schedule:

- We Energies will seek necessary approvals and permits during the remainder of 2014 and anticipates beginning construction in the spring of 2015.
- Construction would be complete prior to the end of 2015.

Communication Plan:

- We Energies plans multiple contacts with nearby residents that include door to door visits in the immediate vicinity of the planned station and directed mailings that include project manager contact information to those impacted by the related line work.

PLAN OF OPERATION
NORTHLAND SUBSTATION

Overview: Wisconsin Electric Power Company, under the trade name We Energies, is proposing to build a new electric distribution substation in the City of Appleton, which we refer to as Northland Substation. It will replace an existing substation of the same name. This electric distribution substation takes high voltage electricity from 34.5 kV sub-transmission lines and decreases or "steps down" the voltage to 12 kV. 12 kV feeders from Northland Substation will be used to deliver electricity to area homes and businesses.

Significant portions of the City of Appleton are currently fed from 4 kV distribution lines extended from eight 34.5 to 4 kV substations located throughout the City. The existing 4 kV substations and equipment are nearing the end of their design life. As part of We Energies' "Deliver the Future" plan, we intend to address all of the 4 kV facilities in Appleton within the next ten years.

Construction of the new Northland Substation, which will replace the existing substation located just east of the project site, is the first step in converting the City of Appleton 4 kV system to operate at 12 kV. The new substation will include modern technology, such as microprocessor-based protective devices and other equipment which will allow remote substation control and monitoring. This equipment will also be adaptable to future distribution automation schemes.

As the conversion proceeds, significant portions of the area's distribution poles and overhead conductors will be replaced. The rebuilt poles and overhead conductor will be more resilient to weather events.

Ultimately, converting the distribution system to 12 kV operation will increase reliability, decrease maintenance, and provide for future growth.

Site Summary: Initially, the new substation will consist of one 25 MVA transformer with four 12 kV feeders. Provisions will be made for a future second 25 MVA transformer and four additional feeders. As part of the overall 4 kV conversion plan for this area, Northland Substation will replace three smaller 34.5 to 4 kV substations. When the entire Appleton 4 kV conversion project is completed, we expect to make several of the retired 4 kV substation sites available for sale or redevelopment.

The approximate one acre substation parcel will have equipment enclosed in a fenced yard, approximately 145 feet by 145 feet, or 0.5 acres. In addition to the transformers, the substation yard will also include the following equipment: a pre-assembled, metal-clad power distribution center ("PDC"); high voltage switches and reclosers; high voltage bus equipment; two lightning masts (one with antennas for substation control and monitoring); and other associated equipment and structures. Antennas are needed for communication between We Energies sites only, no other companies are allowed to co-locate. The PDC switchgear houses indoor type circuit breakers and associated controls along with other electrical equipment and instruments. The PDC and other pole-type structures will be a neutral gray color, either painted or galvanized steel.

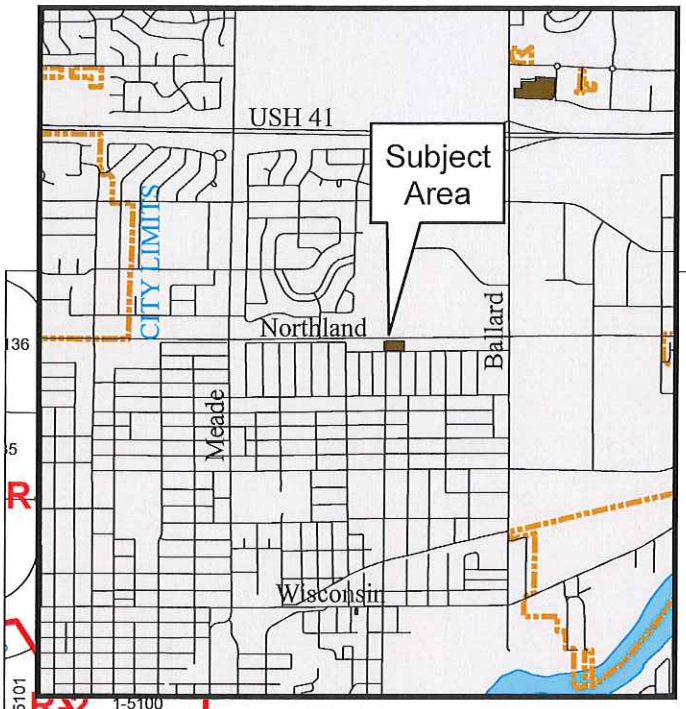
Downward shining exterior flood lighting will be located above the two entry doors of the PDC and on both lightning masts. The lights will operate as motion-controlled or manually as necessary for construction, security, and maintenance purposes. Security fencing will surround the substation yard - 7'6" in height, using "no-cut" expanded metal fencing material. For additional safety and security, 12" of barbed wire will also be strung at the top of the fence. There will be one sign, identifying the substation and emergency contact information. The sign is expected to be 24" by 32" and will be hung on the fence adjacent to the northwest entrance gate. A picture is included depicting typical substation signage for We Energies.

Two gates will be installed on the west side of the substation fencing. A site access gate will also be placed on the driveway leading to Longview Drive. This will be placed to prevent unauthorized drive-through between Longview Drive to Northland Avenue. Access to the substation will occur primarily from the entrance off of Northland Avenue, with the Longview Drive access typically remaining gated. The final grade within the substation yard will be crushed aggregate. The substation access road will be gravel and includes a paved asphalt entrance off of Northland Ave (County Highway OO) and a concrete paved entrance off of Longview Drive.

Construction: Construction of the substation is expected to begin in the spring of 2015, with the initial construction activities completed by the end of 2015. Addition of the second transformer and related equipment as well as an extension to the PDC are currently anticipated to occur in 2016 but the specific timing of this second phase of construction is dependent upon the significant amount of distribution system upgrades that must occur in surrounding neighborhoods. Materials and equipment will be delivered directly to the site, by truck, periodically during the periods of construction. Construction activity will occur Monday through Friday, 7:00 a.m. to 5:00 p.m. and as needed on Saturdays 7:00 a.m. to 5:00 p.m. During construction, dust controls will be utilized as needed. Additionally, measures will be taken to keep both Longview Drive and Northland Avenue clear of construction-related debris. Refuse, generated from the construction activity, will be removed from the site regularly during construction and completely after construction.

Operation: After the substation is placed in-service, the substation will be an unmanned facility. No permanent employees will be located or report to the substation on a daily basis. Employees may access the substation for routine maintenance (non-emergency), normally between the hours of 7:00 a.m. and 5:00 p.m. In addition, substation inspections are performed quarterly by a one or two person crew. In the unlikely event of an emergency, employees may report to the station as necessary. The employees performing maintenance and inspections of the substation typically drive light vans or pick-up trucks. The normal operation of the substation will not produce any future refuse or contaminants to the environment.

East Northland Avenue
Special Use Permit - WE Energies
Utility Substation
Zoning Map



P-I

R-2

R-3

R-1A

R-1B

C-2

PD/C-2

M-2

Subject Area

E Northland Ave

Longview Dr

Wood Ct

Kirkland Ct

Owaissa St

Brookdale Ct

Ullman St

Fairfield Ct

1-5100 1-5101 1-6531-2 1-6531-3 1-6531-4 1-6534-6 1-6534-7 1-6534-2 1-6534-4 1-6534-5 1-6553-2 1-6553-1 1-6553 1-6553-3 1-6553-4 1-6553-6 1-6551-2 1-6551-3 1-6551-7 1-6551-9 1-6551-14 1-6551-8 1-6551-20 1-6551-22 1-6551-23

1208 1216 1224 1304 1312 1424 1434 1444 221 1225 1301 1331 1216-18 1224-26 1420 1500

1-4229 1-4228 1-4227 1-4226 1-4225 1-4484 1-4483 1-4482 1-4481 1-4480 1-4479 1-4478 1-4477 1-4476 1-4475 1-4474 1-4473 1-4472 1-4471 1-4470 1-4469 1-4468 1-4467 1-4506 1-4505 1-4504 1-4503 1-4502 1-4501 1-4500 1-4499 1-4498 1-4497 1-4496 1-4495 1-4494 1-4493 1-4492 1-4491 1-4490 1-4489 1325-27 1-4627 1-4626 1-4625 1-4624 1-4623 1-4622 1-4621 1-4620 1-4619 1-4618 1-4617 1-4616 1-4615 1-4614 1-4613 1-4612 1-4611 1-4610 1-4628 1-4629 1-4630 1-4631 1-4632 1-4633 1-4634 1-4635 1-4636 1425-27 1-4520 1-4519 1-4518 1-4517 1-4516 1-4515 1-4514 1-4513 1501-03 1507-09 1-4532 1-4531 1-4530 1-4529 1-4528 1-4527 1-4526 1-4525 1-4640 1-4641 1-4642 1-4643 1-4644 1-4645 1-4646 1-4647 1-4648

City Plan Commission
10-06-14

0 50 100 200 Feet

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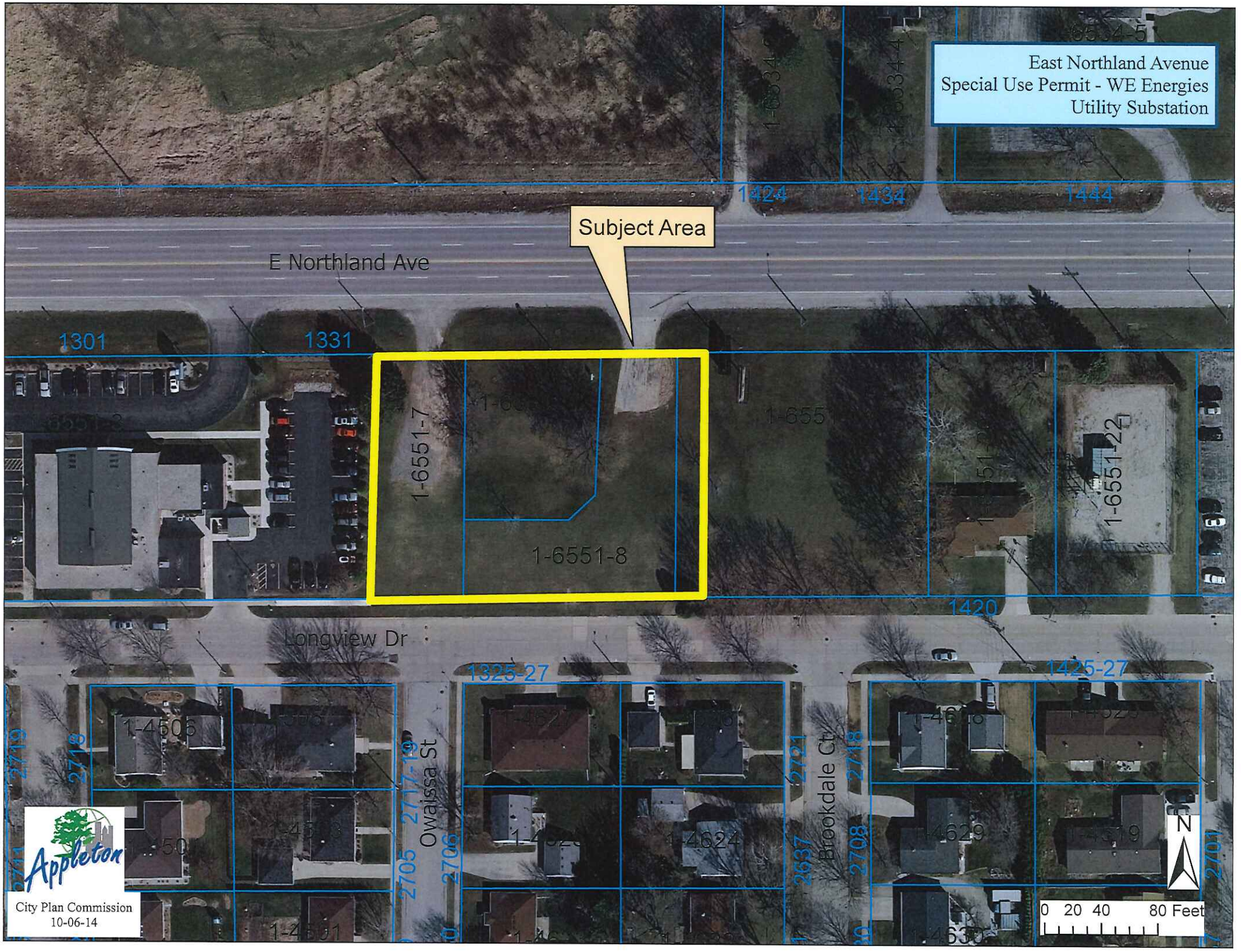
East Northland Avenue
Special Use Permit - WE Energies
Utility Substation
Subject Area
E Northland Ave
1424
1434
1444
1301
1331
1-6551-7
1-6551-8
1-655
1-6551-22
1420
Longview Dr
1325-27
1425-27
Owaissa St
Brookdale Ct
2719
2718
2717-19
2705
2706
2721
2637
2708
2701
1-4506
1-4624
1-4629
City Plan Commission
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N
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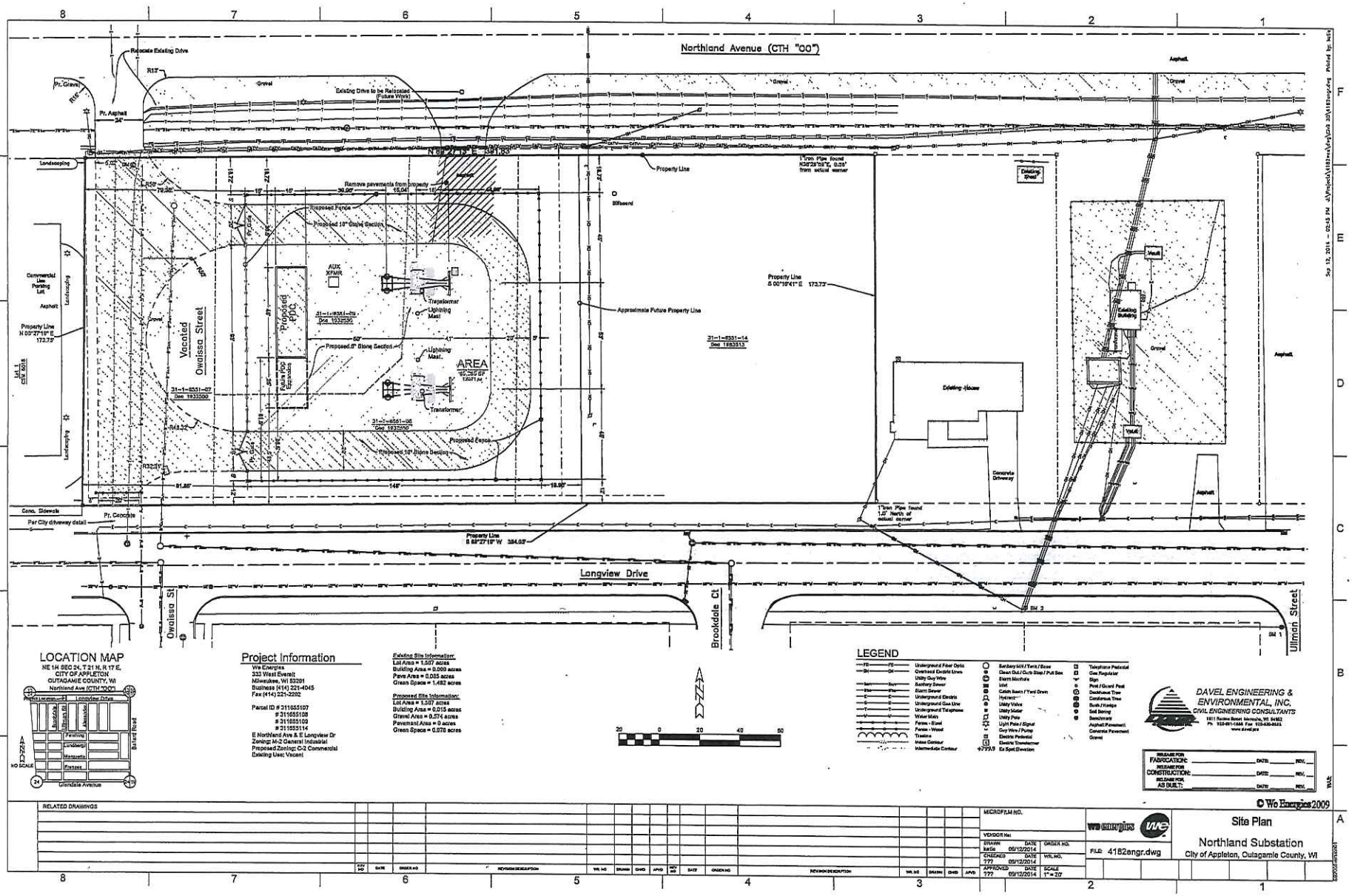
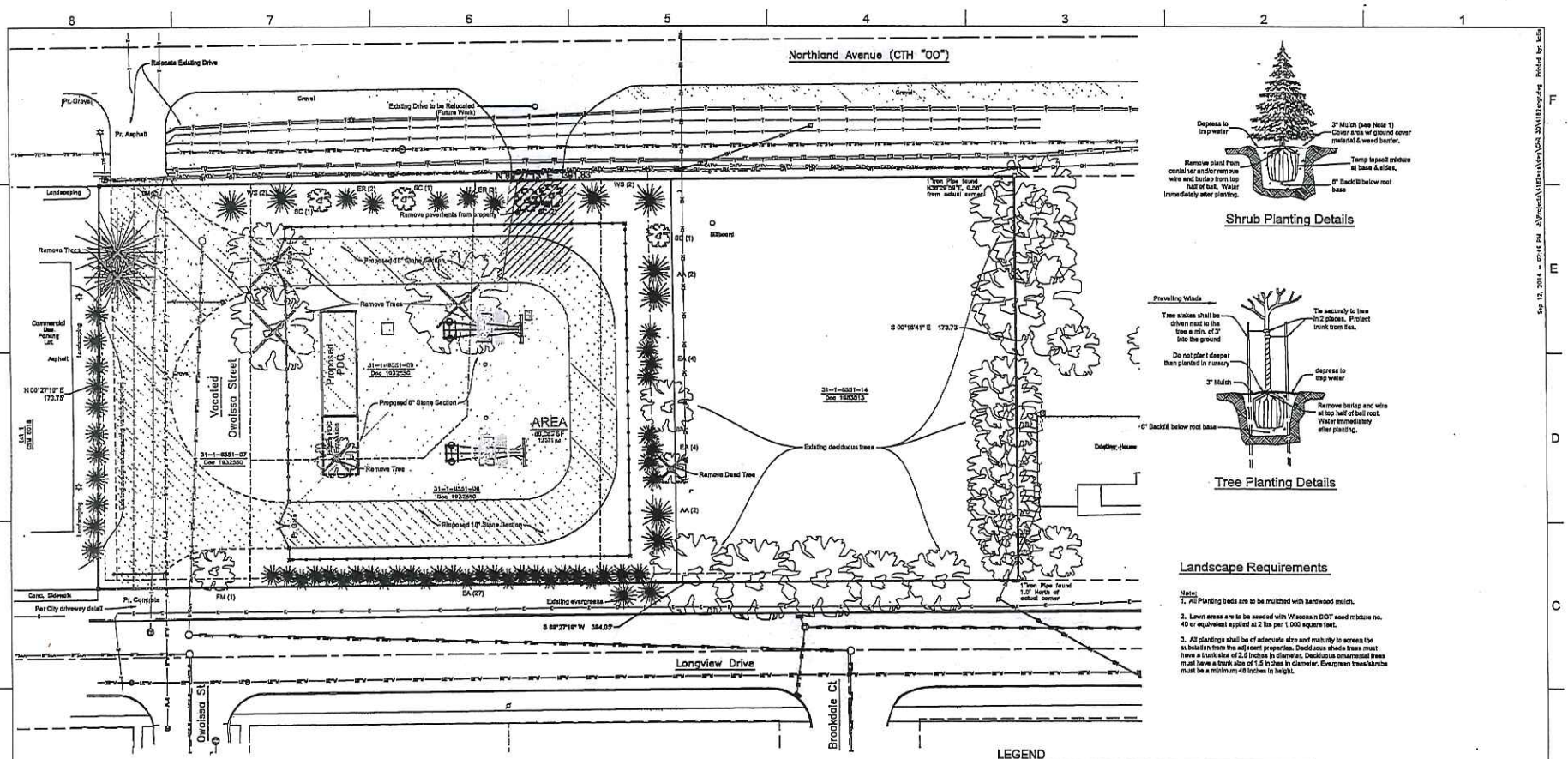


East Northland Avenue - WE Energies
Special Use Permit
Utility Substation
Development Plan

City Plan Commission
10-06-14



RELATED DRAWINGS

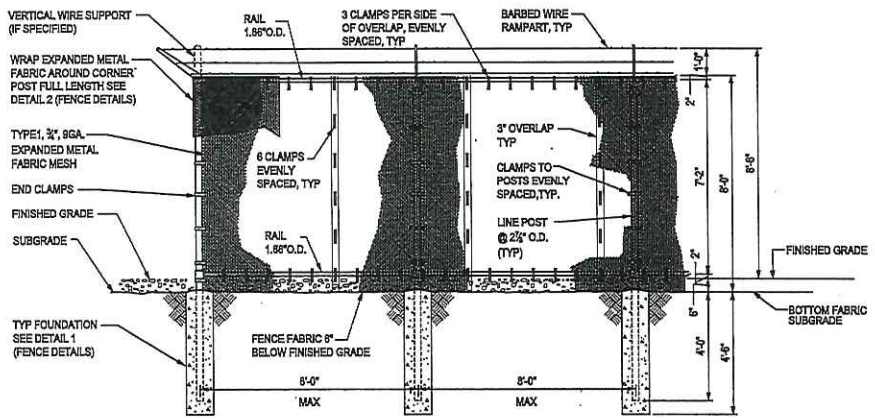
MICROFILM NO.
VENDOR No:
DRAWN kells 09/12/2014 ORDER NO.
CHECKED 777 09/12/2014 WR. NO.
APPROVED 777 09/12/2014 SCALE 1" = 20'

FILE: 4182engr.dwg

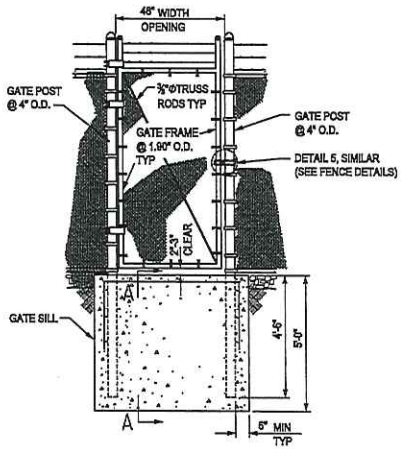
Landscape Plan
Northland Substation
City of Appleton, Outagamie County, WI

Appleton
City Plan Commission
10-06-14

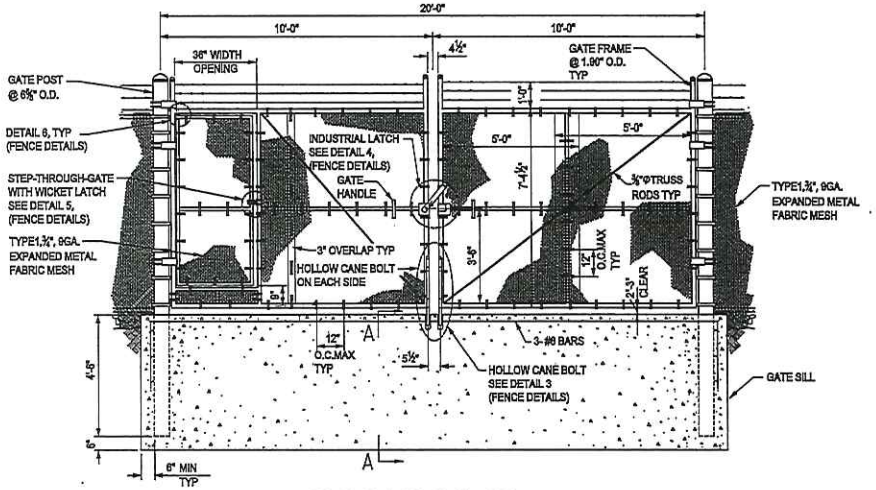
East Northland Avenue - WE Energies
Special Use Permit
Utility Substation
Landscaping Plan



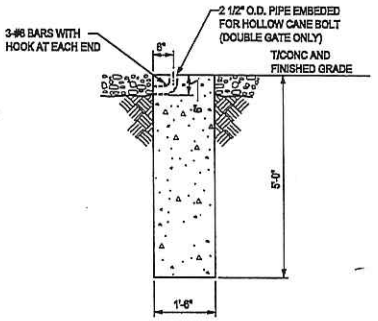
FENCE SPAN



MAN GATE ELEVATION
ACTUAL GATE SWING TO BE VERIFIED



DOUBLE GATE ELEVATION



SECTION A-A
(1 1/2 SCALE)

GENERAL NOTES

1. ELEVATIONS SHOWN AS VIEWED FROM PUTSIDE SUBSTATION FENCE.
2. INSTALL SHARP EDGE PROTECTION TO CUT EDGE OF STEEL MESH AROUND FATE AREAS.
3. FOR ADDITIONAL INFORMATION SEE We Energies "SPECIFICATION FOR SUBSTATION FENCE" DOCUMENT #02-2288.

RELEASE FOR FABRICATION — DATE: — REV.:
RELEASE FOR CONSTRUCTION — DATE: — REV.:
RELEASE FOR AS BUILT — DATE: — REV.:

REFERENCE DRAWINGS		
SUBSTATION FENCE DETAILS	MF 706907	VVV000PANL000021
FENCE AND GATE TYPICAL GROUND DETAILS	MF 342475	VVV000PANL052007

REF FILES

MICROFILM No: 706906

VENDOR No: — DRAWN — DATE — ORDER NO.
CHECKED — DATE — WR. NO.
APPROVED — DATE — SCALE

FILE: 706906.dgn

SUBSTATION STANDARD
HIGH SECURITY FENCE SPAN & DOUBLE GATE ELEVATION

D | VVV | 000 | PANL | 000 | 020 | 00

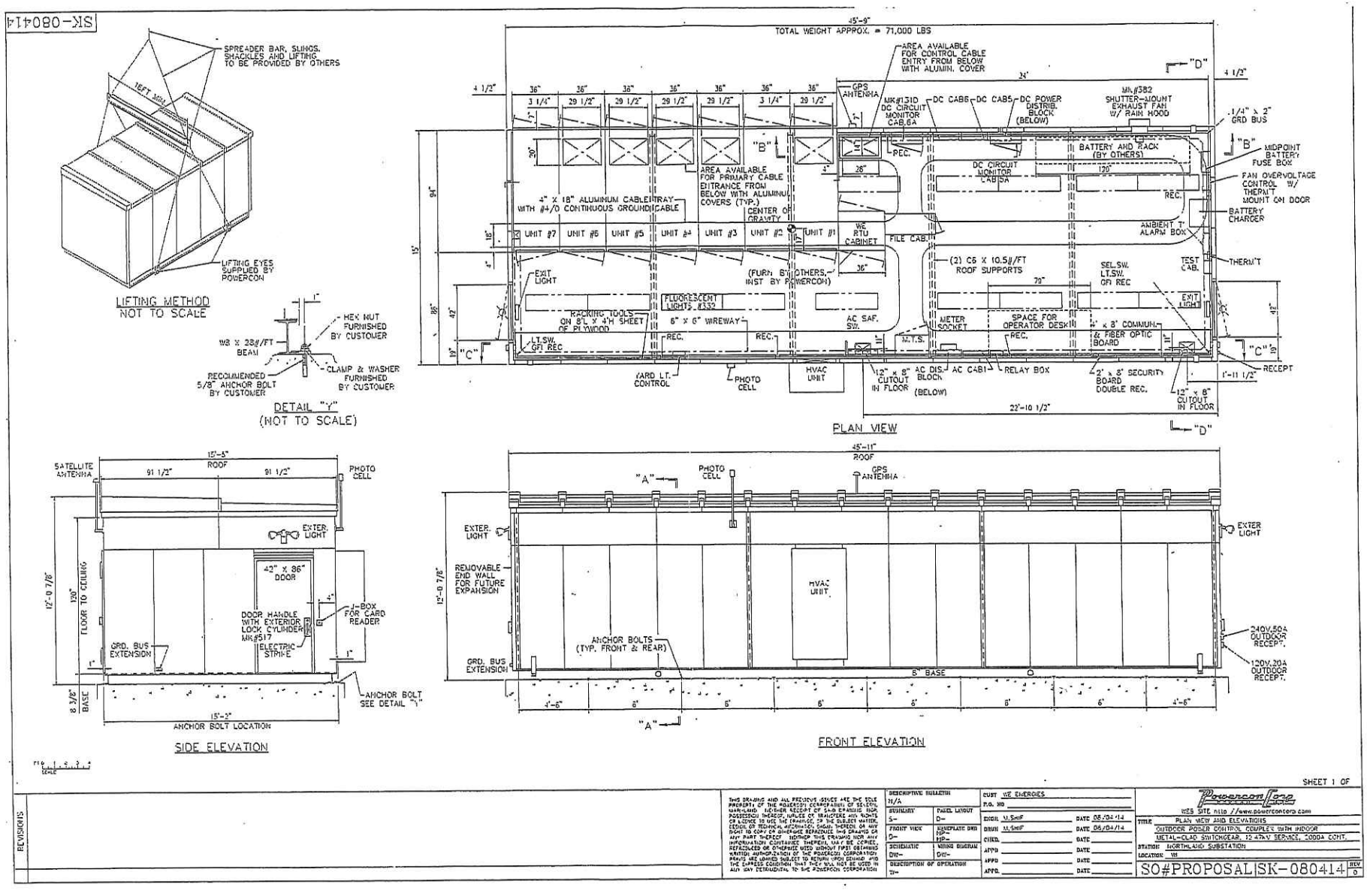
SERIES

REV. NO.	DATE	DESIGN NO.	REVISION DESCRIPTION	SHT. NO.	DRAWN	CHKD.	APVD.

REV. NO.	DATE	ORDER NO.	REVISION DESCRIPTION	SHT. NO.	DRAWN	CHKD.	APVD.

City Plan Commission
10-06-14

East Northland Avenue - WE Energies
Special Use Permit
Utility Substation
Security Fence Plan



City Plan Commission
10-06-14

East Northland Avenue - WE Energies
Special Use Permit
Utility Substation
Outdoor Power Control Complex with Indoor Switch Gear