

**OTSEGO COUNTY  
PLANNING COMMISSION  
SPECIAL MEETING  
October 26, 2015  
6:00 PM**

**MEETING WILL BE IN THE PLANNING AND ZONING MEETING ROOM LOCATED AT 1322 HAYES ROAD**

1. CALL TO ORDER
2. ROLL CALL
3. PLEDGE OF ALLEGIANCE
4. APPROVAL OF MINUTES: None
5. CONSENT AGENDA: None
6. OTHER: None
7. PUBLIC PARTICIPATION FOR ITEMS NOT ON THE AGENDA:  
(Please identify yourself for the record. All comments will be limited to two (2) minutes)
8. PUBLIC HEARINGS:

*1. Wolverine Power Supply Cooperative Inc, owner is requesting a site plan review for property located in Hayes Township:*

*5542 Van Tyle Rd/071-003-400-030-00*

*071-003-300-020-00*

*071-003-300-025-04*

*Property is located in a FR/Forest Recreation Zoning District  
PZPR15-002- proposed use of the property is the installation of a transmission substation*

9. ADVERTISED CASES:

*1. Wolverine Power Supply Cooperative Inc, owner is requesting a site plan review for property located in Hayes Township:*

*5542 Van Tyle Rd/071-003-400-030-00*

*071-003-300-020-00*

*071-003-300-025-04*

*Property is located in a FR/Forest Recreation Zoning District  
PZPR15-002- proposed use of the property is the installation of a transmission substation*

10. UNFINISHED COMMISSION BUSINESS:

*1. Verizon Wireless Tower/247 Old State Rd/PSUP14-003 Extension*

11. NEW BUSINESS
12. REPORTS AND COMMISSION MEMBER'S COMMENTS
13. ADJOURNMENT

***VANTYLE TRANSMISSION STATION PROJECT***



**Application for Site Plan Review**

**Narrative and Supplemental Information to**

**Otsego County Zoning Ordinance**

Submitted October 7, 2015  
Prepared by Joe Hughes  
Land Management Supervisor



**Section 23.2: APPLICATION FOR SITE PLAN REVIEW**

**Section 23.2.1. \_\_: The application shall include the following information:**

**1. Applicant's name, address, telephone:**

Wolverine Power Supply Cooperative, Inc.  
Joe Hughes, Land Management Supervisor  
10125 W. Watergate Rd.  
Cadillac MI 49601  
T: 231-775-5700  
E: jhughes@wpsci.com

**2. Proof of property ownership.**

The subject parcels are owned by Wolverine. Closings on the property purchases were held in June, 2015. Deeds for the subject parcels are included in Appendix 1. There are no liens on the properties as evidenced by the included copies of the Schedule B from each title commitment policy in Appendix 1 with each Deed.

**3. Signed statement that applicant is the owner of the property or officially acting on the owner's behalf.**

I hereby swear that Wolverine Power Supply Cooperative is the owner of the subject property, as evidenced by the attached warranty deeds in Appendix 1, and that I am submitting this application for a site plan review on behalf of Wolverine Power Supply Cooperative, Inc:

\_\_\_\_\_  
Joseph W. Hughes  
Land Management Supervisor

**4-8. Name and addresses and Project Title:**

Project Title: VanTyle Transmission Station.

Owner, Applicant, Developer: Wolverine Power

Property Info:

Address: 5542 VanTyle Road, Hayes Twp.

Parcel ID Nos: Parcel 1: 003-400-030-00

Parcel 2: 003-300-020-00

Parcel 3: 003-300-025-01 (addressed parcel)

**Professionals Involved:**

Electrical Engineer

Jon Johnson

Wolverine Power

10125 W. Watergate Rd.

Cadillac MI 49601

Civil Engineer

Charles Christy, P.E.

Wade-Trim, Inc.

46 Haywood Street, Suite 334

Asheville, NC 28801

9. **Project Description:**

The **LOCATION** of the proposed *VanTyle Transmission Station* in Hayes Township, Otsego County is located in Section 3 and northeast of the VanTyle and Coppins Road intersection. The driveway would be off of VanTyle Road from *Parcel 3* and the physical location of the transmission station would be on *Parcels 1 and 2* and be approximately 1,700 feet north of VanTyle Road and over one-half mile east of Coppins Road. It would also be approximately 1,900 feet west of Hayes Tower Road and 1,500 south of Alba Road.

Several maps and aerial photos are also attached in Appendix 2 to help show current conditions and the proposed changes to the subject property. A set of Site Plan Review drawings are also attached to show the features specified in the Site Plan Review requirements of the Zoning Ordinance.

The **NEED** for the proposed VanTyle Transmission Station is due to Wolverine's new Alpine Power Plant currently under construction in Elmira Township, Otsego County. The new power plant will supply power at 138,000 volts via two transmission lines which will connect with the proposed VanTyle Transmission Station. The new transmission lines would be built on Wolverine's existing right-of-way corridor that runs from the existing Elmira Distribution Substation and across the proposed site for the VanTyle Transmission Station.

The **PRIMARY FUNCTIONS** of the proposed VanTyle Transmission Station will be to connect the Alpine Power Plant to Wolverine's existing electric transmission system. Its second function will be to connect the power plant to an existing International Transmission Company ("ITC") 138,000 transmission line which crosses Parcel 3 south of the proposed transmission station. The interconnection to the ITC transmission system will provide improved transmission reliability for both utility companies.

The new transmission station **DIMENSIONS** around the perimeter security fence will be 372 feet x 380 feet which equates to approximately 3.25 acres. The total acreage of Parcels 1 and 2 on which the transmission station will be built is 63.5 acres. The driveway crosses Parcel 3 from VanTyle Road which adds an additional 56.5 acres.

The transmission station will be built in accordance with Wolverine's current design standards which incorporates greater equipment spacing and large vehicle access lanes for improved personnel safety and electrical reliability. This design standard creates a larger substation footprint than Wolverine's existing older stations but reduces the height of the substation equipment. Nearly all of the structures and equipment will be less than 26 feet high. The **TALLEST STRUCTURES** in the substation will be two lightning protection columns that will be approximately 70 feet tall plus a 2" mast that extends an additional 9.75 feet.

There will also be several structures for the transmission line terminations inside the transmission station fence. These "H-frame" structures will be approximately 55 feet tall plus a 9.75 foot long lightning mast (2" dia.) above the H-frame column. The Site Plan Review drawings show the height and locations of the substation equipment on Sheets 3 and 5.

There will be an equipment enclosure building called the "Control House", as shown on the attached Site Plans. The dimensions of this enclosure will be 28'W x 60'L x 14.6'H and is used protect electrical metering and other control equipment from the weather. The typical color of the corrugated steel siding is tan. No other buildings will be located on the property. Utility personnel will routinely visit the substation twice per month for inspections and meter reading. No personnel will be stationed at the substation.

**10. Vicinity Map**

The Site Plans include a Vicinity Map on Sheet C-0.0.

**11. Gross and Net Acreage of the Project:**

The total acreage of the subject property is 120 acres for the three parcels. The acreage of the developed area, including the grading areas, temporary construction laydown area along the driveway, and the graveled driveway and parking pad at the transmission station, and turf grass areas, is 16.9 acres.

**12. Land Uses, zoning classification, and existing structures on the subject and adjoining parcels:**

Subject Parcels:

The three subject parcels are all zoned Forestry Recreation and are vacant except for gas production wells and pipelines and Wolverine's existing 69kV transmission line. Parcels 1 and 2 have been historically used for timber production by the previous owner. There is a portion of the Otsego County Zoning Map and an aerial photo map with property lines that show the general area in Appendix 2.

Adjoining Parcels:

The adjoining parcels north of VanTyle Road are all zoned Forestry Recreation. There is a small parcel of State Land north of Parcel 1 and large parcel of State Land south of Parcel 3 and VanTyle Road, as shown on the attached Zoning Map. the land uses of the adjoining parcels are either vacant or rural residential. There is also a natural gas injection well property surrounded by Parcel 3. The attached aerial photo map identifies the vacant and residential properties surrounding the subject property.

**13. Project completion schedule:**

The construction work would commence in the fall of 2015 and be completed by July of 2016. Site Restoration would primarily include spreading topsoil and grass seeding would be completed by the summer of 2016 after construction activities have finished.

**Section 23.2.2 – Site Plan Requirements**

The following narrative provides additional information for items listed in Section 23.2.2 of the Otsego County Zoning Ordinance that are not shown on *Site Plan Review* drawings or that are not applicable to the proposed use of the subject parcel for an electric transmission substation. Additional maps, drawings, and photos are also included in the Appendix to provide supplemental information that may not be shown on the *Site Plan – Proposed Changes*.

**1. Proposed and existing property lines, dimensions, setback lines, monument locations are all shown on the Site Plan.**

This information is shown on the included *Site Plan Review* drawings.

**2. Topographic elevations are shown on the Site Plan in one- foot intervals.**

This information is shown on the included *Site Plan Review* drawings.

**3. Type of existing soils at proposed storm water retention basins.**

The following is an excerpt from the geotechnical site evaluation performed by SME, Inc., at the subject property.

**SOIL CONDITIONS**

The soil conditions generally consisted of about 10 to 13 inches of topsoil underlain by natural sands to the explored depths of the borings. The natural sands exhibited very loose to dense conditions. However, beginning about 18 to 23 feet beneath the ground surface, the sands exhibited medium dense to dense conditions. The soil profile described above and included on the attached boring logs is a generalized description of the conditions encountered. The stratification depths described above and shown on the boring logs indicate a zone of transition from one soil type to another and do not show exact depths of change from one soil type to another. Soil conditions may vary between and away from the boring locations.

**GROUNDWATER CONDITIONS**

Groundwater was not encountered during or upon completion of drilling at the borings. Groundwater was not encountered about 24 hours after completing borings B1 and B2. Based on the granular nature of the subgrade soils at the site, we judge the site groundwater level to be beneath the explored depth of the borings at the time of our field exploration.

**4. Location and type of existing significant vegetation.**

The vegetation cover is a combination of mature red pine and hardwoods which both have a dense understory regrowth of tree brush. Parcel 1 and 2 are entirely wooded with a combination of mature red pine or hardwoods. Parcel 3

has approximately five acres of mature hardwoods north of the adjoin gas injection well property, scattered pines ranging from 10 to 50 feet tall across the majority of the property with the remainder being open fields that the pines are slowly repopulating. **There are also rows of mature red pine at the VanTyle Road driveway entrance parallel to the entire length of the driveway that will access the transmission station.**

**There will be a minimum of a two hundred foot buffer of existing mature red pine and hardwood trees left remaining around the proposed transmission station development area on Parcel 1.** The pines are hardwoods were previously harvested from the interior portions Parcel 1, except for the 200' perimeter buffer. Also, all existing mature red pine trees will remain in the triangular north of the Wolverine transmission line and the proposed transmission station.

**5. Location and elevations of existing water courses and water bodies.**

There are no regulated water courses or water bodies on the proposed site or within 50 feet of the site.

**6. Location of existing and proposed buildings and intended uses.**

A new control house in the substation is shown on the *Site Plan Review Set, Sheet C-2.1*. Its dimensions are 28'W x 60'L x 14.6'H and is used protect electrical metering and other control equipment from the weather. The typical color of the corrugated steel siding is tan. No other buildings will be located on the property. *Sheet 38559-L3* provides elevation and dimension specifications for the control house.

**7. Proposed location of accessory structures, buildings and uses.**

No other accessory structures or buildings will be used.

**8. Location of existing public and private easements.**

This information is shown on the included *Site Plan Review* drawings.

**9. Location and dimensions of proposed streets, drives, curb cuts, access easements.**

This information is shown on the included *Site Plan Review* drawings.

**10. Location, design, and dimensions of existing and/or proposed curbing, barrier free access, carports, parking areas, and fire lanes.**

Only a parking area is included in the site use and it is shown on the included *Site Plan Review* drawings. This area is used for large vehicle and equipment parking during maintenance activities within the substation. Typical vehicles and equipment can include bucket trucks, flat bed semi-trailers, crane, pickup trucks, etc.

- 11. Location, size and characteristics of all loading and unloading areas.**  
No such areas are included in the proposed use.
- 12. Location and design of sidewalks, walkways, bike paths, and areas for public use.**  
No such facilities or areas are included in the proposed use.
- 13. Location of water supply lines and/or wells, and the location of retention ponds.**  
A storm water retention basin is shown on the *Site Plan Review Set, Sheet C-2.1*.
- 14. Location of other utilities, including but not limited to, natural gas, electric, cable TV, fiber optics, and telephone.**  
This information is shown on the included *Site Plan Review* drawings.
- 15. Proposed location, dimensions and details of common open spaces and common facilities, etc.**  
No such facilities or areas are included in the proposed use.
- 16. Location, size and specifications of all signs.**  
Wolverine will install a 20" x 30" No Trespassing sign at the driveway entrance at VanTyle Road on a wood post that will be approximately four feet above grade. See Sheet 991 in the attached drawing set for the sign specifications.
- 17. Exterior lighting locations with area of illumination illustrated, type of fixtures and downward shielding to be used.**  
There will only be two yard lights on at night located on the north and south sides of the control house building. The light fixture will be an LED, flat-glass design with full cut-off optics to prevent the horizontal spread of light. Sheet C-2.1 shows the yard light locations on the sides of the Control House and mounted approximately nine feet above grade. The specific fixture has not been selected yet so the illumination pattern is not available at this time.
- 18. Location and type of fencing, walls, or other screening devices.**  
A four-strand smooth wire fence that is approximately 48 inches high will be installed along the property lines. A seven foot high chain link fence with barb wire cradles will be installed around the perimeter of the substation equipment, as shown on Sheets 5E6000-84 and -88 provides the security fence specifications.
- 19. Location and specifications of all perimeter and internal landscaping and other buffer features.**  
No new landscaping is proposed for the subject property. Because Parcel 1 has mature trees throughout the entire parcel and a minimum two hundred foot buffer of remaining trees will surround the property perimeter, additional landscape plantings will not be utilized. The understory of the property is densely populated





with tree brush which will also screen the substation from view. The nearest houses to the substation are approximately 1,300 to the northwest and south, 1,600 feet to the east, and 2,800' to the west.

**20. Location and size of trash receptacles.**

No such equipment will be used or needed for the proposed use.

**21. Location and specifications for any existing or proposed above or below ground storage facilities for any chemicals, salts, flammable or hazardous materials.**

There will be no storage facilities used or required for chemicals, salts, flammable or hazardous materials at the proposed use.

**22. Identification of any significant site amenities or unique natural features.**

It is Wolverine's belief that there are no such amenities or unique natural features at the subject parcel. The site is characterized by mature red pines, hardwoods, immature scotch pines, and open fields.

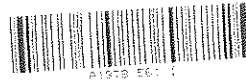
**23. Identification of any significant views onto or from the site or from adjoining areas.**

It is Wolverine's belief that there are no such views given the common tree cover types and flat terrain.

## APPENDIX SECTION

**APPENDIX 1 – DEEDS AND TITLE COMMITMENTS (Sch. B)**

7/1/15



I hereby certify that according to our records all taxes returned to this office are paid for five years preceding the date of this instrument. This does not include taxes in the process of local collection, board of review, PRE denial or tax tribunal.

Linda Sargent, Deputy COUNTY TREASURER



OTSEGO COUNTY MICHIGAN  
RECEIVED FOR RECORD  
SUSAN DEPLEYER, CLERK/REGISTER OF DEEDS  
07/01/2015 9:35:43 AM

ROUD JUL 15 9:32



OTSEGO COUNTY  
JULY 1, 2015  
RECEIPT #23552

STATE OF MICHIGAN \$ 147.40-CO  
REAL ESTATE \$ DS 1005.00-ST  
TRANSFER TAX STAMP # 9484

## WARRANTY DEED

**KNOW ALL MEN BY THESE PRESENTS:** That Thomas A. Drysdale and Sally Jo Hodgdon, husband and wife, whose address is 5510 Renner Road, Shawnee, KS 66217

Convey(s) and Warrant(s) to Wolverine Power Supply Cooperative, Inc., a Michigan nonprofit corporation, whose address is 10125 W. Watergate Road, Cadillac, MI 49601

the following described premises:

Land situated in the Township of Hayes, County of Otsego, State of Michigan described as:

Commencing at the South 1/4 corner of Section 3, Township 30 North, Range 4 West; thence North 00°08'02" East 1343.16 feet along the North-South 1/4 line to the Point of Beginning; thence North 87°40'05" West 1299.16 feet along the South 1/8 line of said Section 3; thence North 00°17'03" East 776.08 feet along the West 1/8 line of said Section 3; thence South 87°55'07" East 1296.91 feet; thence North 00°08'02" East 561.32 feet along the North-South 1/4 line to the Center of said Section 3; thence South 87°55'07" East 1314.20 feet along the East-West 1/4 line of said Section 3; thence South 00°13'30" West 1337.65 feet along the East 1/8 line of said Section 3; thence North 88°09'20" West 1311.90 feet along the South 1/8 line of said Section 3 to the Point of Beginning.

Tax Parcel No.: 071-003-300-020-00 and 071-003-400-030-00

For the sum of One Hundred Thirty Three Thousand Eight Hundred Dollars and No Cents (\$133,800.00) subject to the existing building and use restrictions, easements, and zoning ordinances of record, if any.

Seller reserves all oil, gas and mineral rights. However, Seller shall not have the right to disturb the surface of the Premises in any way to develop or explore for such oil, gas and minerals. Specifically, and not by way of limitation, neither Seller nor its assigns shall have the right to place additional wells, pipelines, roadways or other equipment or facilities on or under the surface, or disturb the surface of the Premises in any way.

The grantor grants to the grantee the right to make All Available division(s) under section 108 of the Land Division Act, Act. No. 288 of the Public Acts of 1967. This property may be located within the vicinity of farmland or a farm operation. Generally accepted agricultural and management practices which may generate noise, dust, odors, and other associated conditions may be used and are protected by the Michigan Right to Farm Act.

Dated June 24, 2015

Signed

Thomas A. Drysdale  
Thomas A. Drysdale

Sally Jo Hodgdon  
Sally Jo Hodgdon

State of Michigan )  
                                  ) SS  
County of Otsego )

On this 23 day of June, 2015, before me personally appeared Thomas A. Drysdale to me known to be the person described in and who executed the foregoing instrument and acknowledged that he executed the same as his free act and deed.

ASHLEE ALVESTEFFER  
Notary Public-State of Kansas

\_\_\_\_\_, Notary Public  
\_\_\_\_\_, SMichiganate of

## SCHEDULE B

File No.: 412237

Policy No.: O-9301-003435496

### EXCEPTIONS FROM COVERAGE

This policy does not insure against loss or damage, and the Company will not pay costs, attorneys' fees, or expenses that arise by reason of:

1. Taxes or special assessments which are not shown as existing liens by the public records or which constitute a lien, but are not yet due and payable.
2. Any and all oil, gas, mineral, exploration and extraction rights, and/or reservations thereof which may or may not be recorded.
3. Taxes and assessments that become a lien against the property after date of closing. The Company assumes no liability for tax increases occasioned by retroactive revaluation, changes in the land or usage or loss of any homestead exemption status for the insured premises.
4. Loss or damages sustained or incurred by the Insured by reason of a lack of a right of access to and from said land.
5. Lease as set forth in Miscellaneous Liber 7, Page(s) 387, Otsego County Records.
6. Right of Way granted to Northern Michigan Electric Cooperative, Incorporated, and recorded in Miscellaneous Liber K, Page 513, Otsego County Records.
7. Oil and Gas Lease granted to W. B. Phillips as set forth in Liber 127, Page(s) 260 -263, Otsego County Records.
8. Oil and Gas Lease granted to Transocean Oil, Inc. as set forth in Liber 280, Page(s) 68-69, Otsego County Records.
9. Oil and Gas Lease granted to Peak Petro Title Service as set forth in Liber 504, Page(s) 837-838, Otsego County Records.
10. Release and Right-Of-Way granted to Mercury Exploration Company as set forth in Liber 561, Page(s) 595- 597, Otsego County Records.

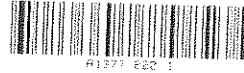
Stewart Title Guaranty Company



6-25-15

I hereby certify that according to our records all taxes returned to this office are paid for five years preceding the date of this instrument. This does not include taxes in the process of local collection, board of review, PRE denial or tax tribunal.

*Brodie M. Jynes* Deputy COUNTY TREASURER



LIBER 1377 PAGE 820



OTSEGO COUNTY MICHIGAN  
RECEIVED FOR RECORD  
SUSAN DEFEYTER, CLERK OF COUNTY OF DEEDS  
06/25/2015 1:52:34 PM



OTSEGO COUNTY  
JUNE 25, 2015  
RECEIPT #5449

STATE OF MICHIGAN \$ 169.40-CL  
REAL ESTATE \$ 1155.00-ST  
TRANSFER TAX STAMP # 9461

### WARRANTY DEED

**KNOW ALL MEN BY THESE PRESENTS:** That Gerald D. Ebeling and Virginia L. Ebeling, as Trustee(s) of the Gerald D. Ebeling and Virginia L. Ebeling Trust u/a dated April 19, 2002, whose address is 2999 Lake George Rd, Oxford, MI 48370 Convey(s) and Warrant(s) to Wolverine Power Supply Cooperative, Inc., a Michigan nonprofit corporation, whose address is 10125 West Watergate Road, Cadillac, MI 49601

the following described premises:

SEE EXHIBIT "A" ATTACHED HERETO

Tax Parcel No.: Part of 071-003-300-028-01 (071-003-300-025-01 New Number for 2016)

For the sum of One Hundred Fifty Three Thousand Seven Hundred Dollars and No Cents (\$153,700.00) subject to the existing building and use restrictions, easements, and zoning ordinances of record, if any.

Seller reserves all oil, gas and mineral rights. However, Seller shall not have the right to disturb the surface of the Premises in any way to develop or explore for such oil, gas and minerals. Specifically, and not by way of limitation, neither Seller nor its assigns shall have the right to place additional wells, pipelines, roadways or other equipment or facilities on or under the surface, or disturb the surface of the Premises in any way without written permission from Buyer, which shall not be unreasonable withheld, conditioned, or delayed.

The grantor grants to the grantee the right to make all available division(s) under section 108 of the Land Division Act, Act. No. 288 of the Public Acts of 1967. This property may be located within the vicinity of farmland or a farm operation. Generally accepted agricultural and management practices which may generate noise, dust, odors, and other associated conditions may be used and are protected by the Michigan Right to Farm Act.

Dated June 24, 2015

Signed

GERALD D. EBELING AND VIRGINIA L. EBELING TRUST

*Gerald D. Ebeling*  
Gerald D. Ebeling  
Trustee

*Virginia L. Ebeling*  
Virginia L. Ebeling  
Trustee

ROUD JUN25 15 PM 1:50

State of Michigan )  
                                  ) SS  
County of Otsego )

On this 24 day of June, 2015, before me personally appeared Gerald D. Ebeling and Virginia L. Ebeling as Trustee(s) of the Gerald D. Ebeling and Virginia L. Ebeling Trust u/a dated April 19, 2002 to me known to be the person described in and who executed the foregoing instrument and acknowledged that they executed the same as their free act and deed.

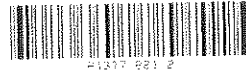
RITA L. JOHNSON  
NOTARY PUBLIC, STATE OF MICHIGAN  
COUNTY OF OTSEGO

*Rita L. Johnson*  
\_\_\_\_\_, Notary Public  
County Michigan

**EXHIBIT "A"**  
**LEGAL DESCRIPTION**

Land situated in the Township of Hayes, County of Otsego, State of Michigan described as:

Parcel 1- A parcel of land on part of the Southwest 1/4 of Section 3, Township 30 North, Range 4 West, being described as: Beginning at the South 1/4 corner of said Section 3; thence North 87°25'09" West, 802.45 feet along the South line of said Section 3; thence North 00°16'44" East, 871.27 feet; thence North 87°26'38" West, 500.37 feet; thence South 00°17'03" West, 871.05 feet along the West 1/8 line to said South Section line; thence North 87°25'09" West, 958.01 feet along said South line; thence North 00°25'51" East, 378.79 feet; thence North 87°24'56" West, 344.99 feet to the West line of said Section 3; thence North 00°26'09" East, 607.97 feet along said West line; thence South 87°40'05" East, 1300.07 feet; thence North 00°17'03" East, 344.83 feet along said West 1/8 line of said Section 3; thence South 87°40'05" East, 1299.16 feet along said South 1/8 line of said Section 3; thence South 00°08'02" West, 1343.16 feet along the North-South 1/4 line of said Section 3 to the Point of Beginning.



41,317 881 2

LIBER 1377

PAGE 821

## SCHEDULE B

File No.: 412242

Policy No.: O-9301-003435495

### EXCEPTIONS FROM COVERAGE

This policy does not insure against loss or damage, and the Company will not pay costs, attorneys' fees, or expenses that arise by reason of:

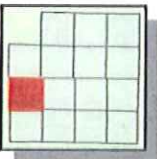
1. Taxes or special assessments which are not shown as existing liens by the public records or which constitute a lien, but are not yet due and payable.
2. Any and all oil, gas, mineral, exploration and extraction rights, and/or reservations thereof which may or may not be recorded.
3. Taxes and assessments that become a lien against the property after date of closing. The Company assumes no liability for tax increases occasioned by retroactive revaluation, changes in the land or usage or loss of any homestead exemption status for the insured premises.
4. Rights of the public and of any governmental unit in any part thereof taken, used or deeded for street, road or highway purposes.
5. Easement granted to Consumers Power Company as set forth in Liber 68, Page 562, Otsego County Records.
6. Oil and Gas Lease granted to W. B. Phillips as set forth in Liber 125, Page 480, Otsego County Records.
7. Oil and Gas Lease granted to Peak Exploration Company as set forth in Liber 528, Page 181, Otsego County Records.
8. Oil and Gas Lease granted to Northern Michigan Exploration Company as set forth in Liber 244, Page 617, Otsego County Records.
9. Oil and Gas Lease granted to Peak Petro Title Service as set forth in Liber 5094, Page 834, Otsego County Records.
10. Release and Right of Way granted to Mercury Exploration Company as recorded in Liber 561, Page 592, Otsego County Records.
11. Easement granted to Top O'Michigan Rural Electric Company as set forth in Liber 579, Page 497, Otsego County Records.
12. Overhead electric lines as depicted on Mortgage Report by WadeTrim, being Job #WLV2005-03G.

Stewart Title Guaranty Company



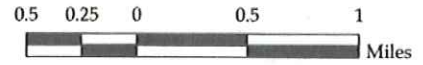


**APPENDIX 2 – MAPS AND AERIAL PHOTO OF PROPERTY**



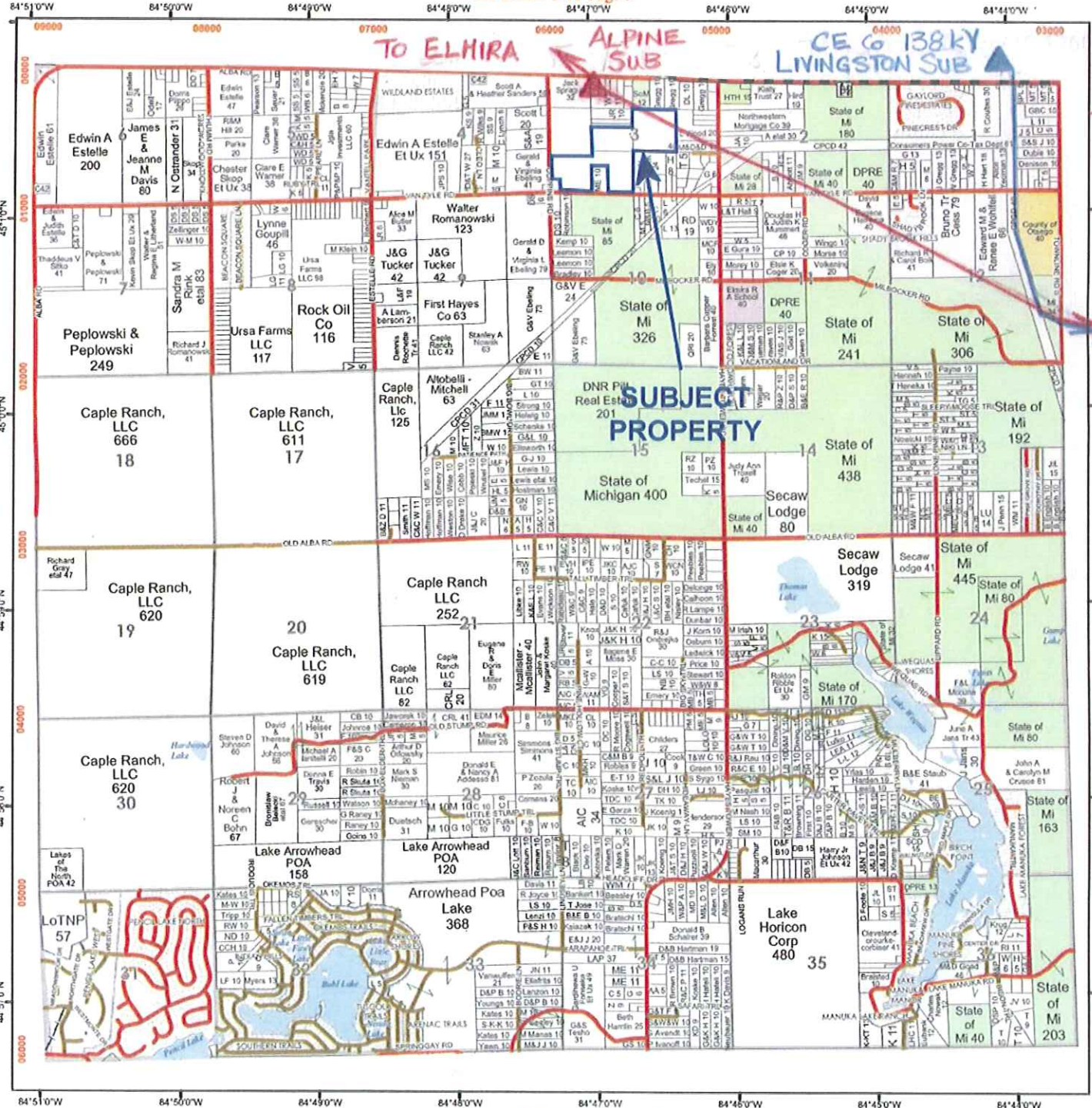
# Hayes TWP (North)

## T.30N. - R.4W.



© Otsego County, 2008

See Elmira TWP Page 9



See Hayes TWP (South) Page 12

Antrim County

To GAYLORD  
To ALTAIR  
See Bagley TWP Page 16

TO ELHIRA

ALPINE SUB

CE G 138KY  
LIVINGSTON SUB

**SUBJECT PROPERTY**

Edwin A Estelle 200

Peplowski & Peplowski 249

Caple Ranch, LLC 666 18

Caple Ranch, LLC 620 19

Caple Ranch, LLC 620 30

LoTNP 57

James E & Jeanne M Davis 80

Ursa Farms LLC 117

Caple Ranch, LLC 611 17

Caple Ranch, LLC 619 20

Lake Arrowhead POA 158

Lake Arrowhead POA 120

Edwin A Estelle Et Ux 151

Rock Oil Co 116

Caple Ranch, LLC 126

Caple Ranch LLC 252 21

Lake Arrowhead POA 368

Walter Romanowski 123

First Hayes Co 63

State of Michigan 400

Caple Ranch LLC 62 22

Lake Arrowhead POA 120

J&G Tucker 42

State of Michigan 326

State of Michigan 201

Caple Ranch LLC 40

Lake Arrowhead POA 120

State of Michigan 85

State of Michigan 326

State of Michigan 400

Caple Ranch LLC 62 23

Lake Arrowhead POA 120

State of Michigan 180

State of Michigan 241

State of Michigan 438

Secaw Lodge 319

Lake Arrowhead POA 120

State of Michigan 192

State of Michigan 306

State of Michigan 192

Secaw Lodge 41

Lake Arrowhead POA 120

State of Michigan 192

State of Michigan 306

State of Michigan 192

Secaw Lodge 41

Lake Arrowhead POA 120

Lakes of the North POA 42

Lake Arrowhead POA 158

Lake Arrowhead POA 120

Lake Arrowhead POA 368

Lake Arrowhead POA 120

Lake Arrowhead POA 120

Lake Arrowhead POA 120

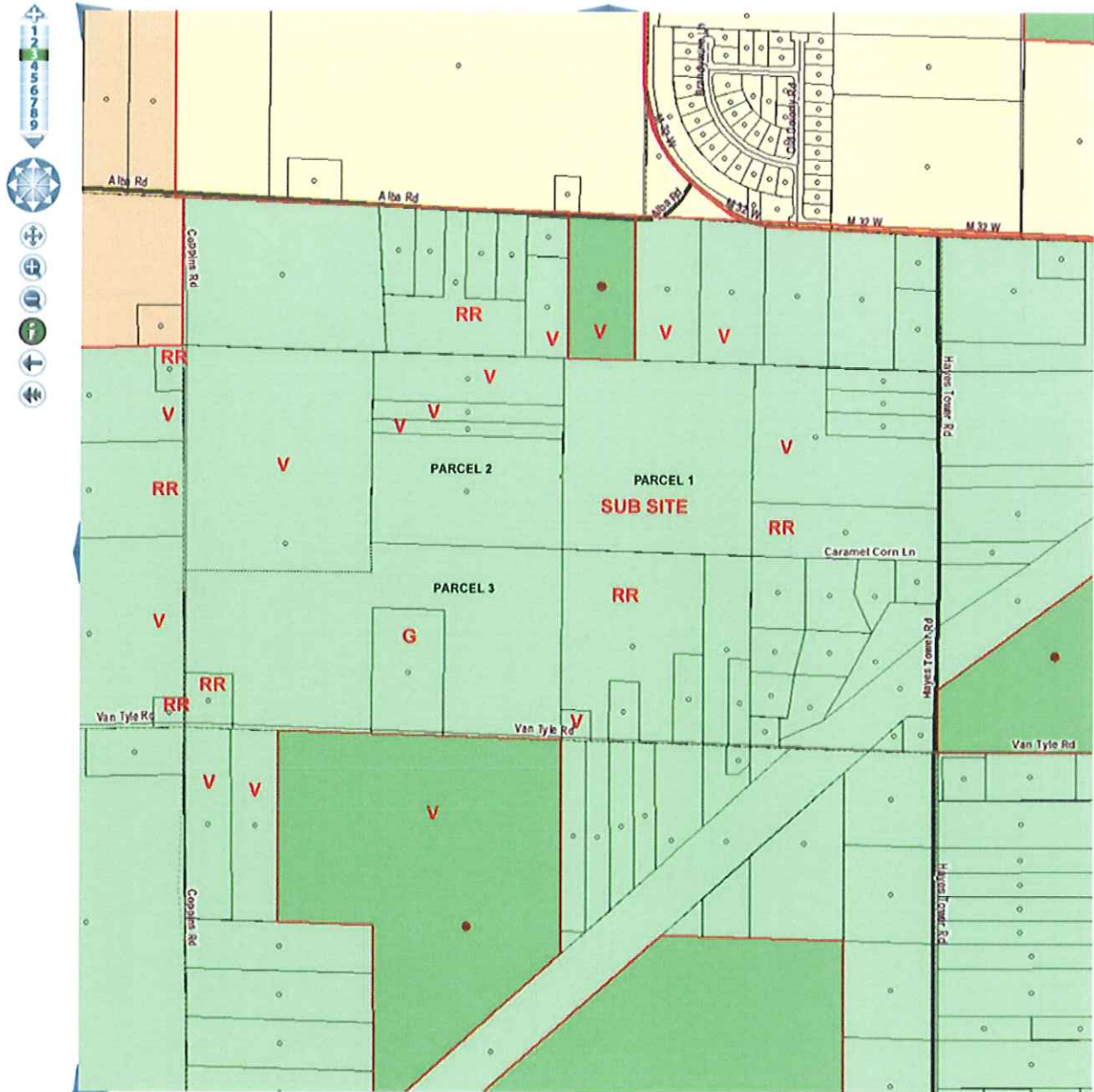
Lake Arrowhead POA 120

Lake Arrowhead POA 120

# ZONING MAP (Hayes Twp, Section 3 Area)

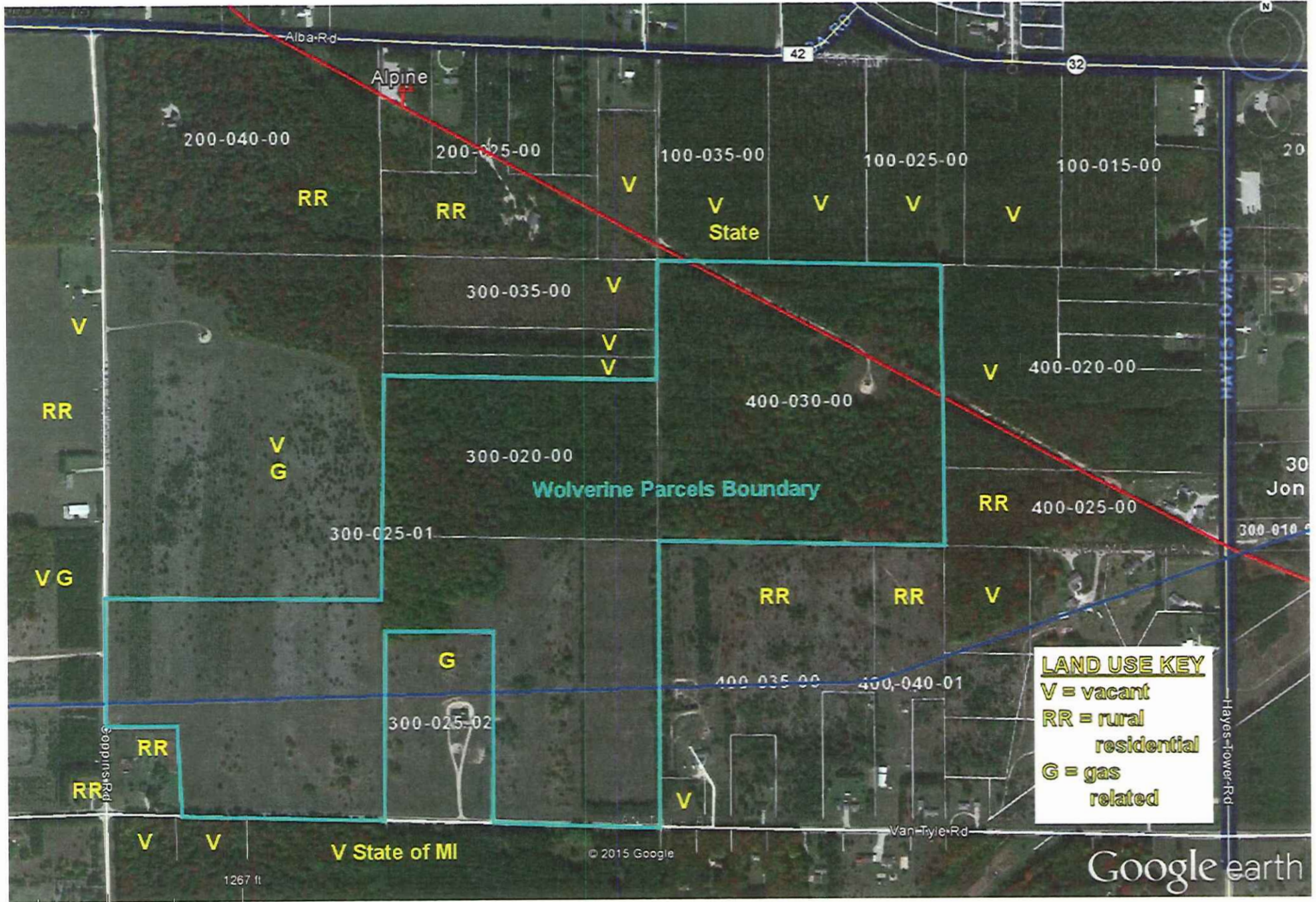
Eds Yhz Khb Derxw

Zoning *Vzrz 2j1632.D000lptw# 001e0x# 1q1j10lptw# 001e0x#2p#7f5d90lptw#2p#01e0x*



- KEY:**
- FORESTRY RECREATION ZONING
  - STATE LAND
  - V VACANT LAND USE
  - RR RURAL RESIDENTIAL
  - G NATURAL GAS EXTRACTION RELATED

# Wolverine Power Cooperative - VanTyle Transmission Substation Adjacent Land Uses



L:\Working Files\Transmission Substation\Van Tyle (Open Border Station)\2015 New Substation\Land Management\VT 000.dwg 10/27/15 6:23:45 PM Robyn Sparks



# VAN TYLE TRANSMISSION PROPOSED SUBSTATION

5542 Van Tyle Road  
Gaylord, MI 49735

DRAWING SET

DWG #	TITLE
000	SITE PLAN REVIEW SET
C-0.0	WADE TRIM - COVER SHEET
C-0.1	WADE TRIM - EXISTING CONDITIONS PLAN
C-0.3	WADE TRIM - DEMOLITION - LANDSCAPE PLAN
C-1.0	WADE TRIM - OVERALL SITE PLAN
C-2.1	WADE TRIM - GRADING & DRAINAGE - AREA A
C-2.2	WADE TRIM - GRADING & DRAINAGE - AREA B
C-2.3	WADE TRIM - GRADING & DRAINAGE - AREA C
8645-G27	ELEC & STR LAYOUT - 138kV SECTION VIEWS, ROWS 8 & 10 (SHEET 3)
8645-G27	ELEC & STR LAYOUT - 138kV MISC. SECTIONS & DETAILS (SHEET 5)
5E6000-84	FENCE GROUNDING DETAILS
5E6000-88	SUBSTATION ACCESS INSTALLATION & FENCE GATE DETAILS
38559-L3	SYSTEMS CONTROL - CONTROL HOUSE EXTERIOR ELEVATIONS
991	SUBSTATION SIGN DETAILS

**NOT FOR CONSTRUCTION OR INSTALLATION  
(ENGINEERING AND FIELD REFERENCE ONLY)**

CRITICAL ENERGY INFRASTRUCTURE INFORMATION - DO NOT RELEASE

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VAN TYLE TRANSMISSION  
SITE PLAN REVIEW SET

CAD DRAWING  
VIT 000  
DRAAN RCS  
ENG  
P.M.  
SCALE NONE  
ORIGINAL 09/29/15  
SHEET

000

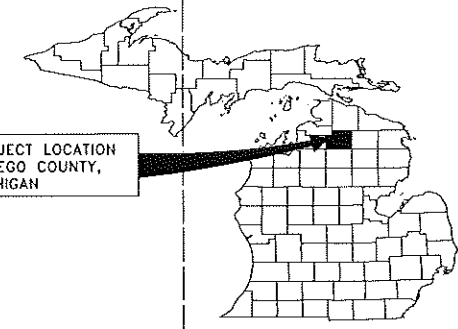
REV #	DATE	DESCRIPTION



**UTILITY CONTACTS**

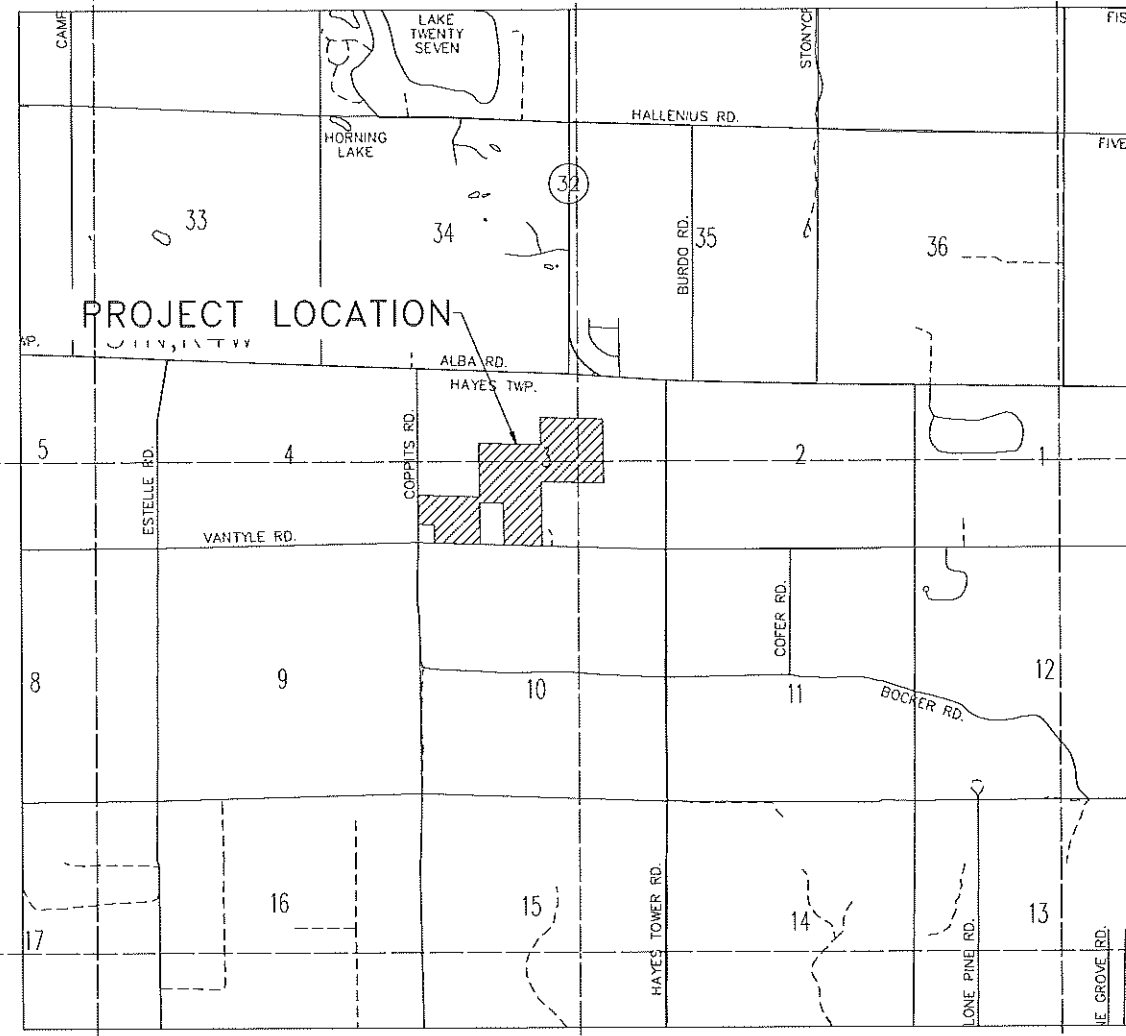
**LINN ENERGY-GAS**  
 CHRIS ZIMMERMAN  
 PRODUCTION FOREMAN  
 PHONE: 989.786.7592 EXT. 1001  
 FAX: 989.786.9143  
 CELL: 989.370.7554  
 CZIMMERMAN@LINNENERGY.COM  
 4890 AIRPORT RD.  
 LEWISTON, MI 49756

**WOLVERINE**  
 POWER COOPERATIVE  
**VAN TYLE STATION**  
 HAYES TOWNSHIP  
 OTSEGO COUNTY, MICHIGAN



PROJECT LOCATION  
 OTSEGO COUNTY,  
 MICHIGAN

KEY MAP  
 NOT TO SCALE



VICINITY MAP  
 1" = 2000'

SHEET INDEX		REV.
COVER SHEET	C-0.0	A
EXISTING CONDITIONS PLAN	C-0.1	
SURVEY CONTROL PLAN	C-0.2	
DEMOLITION PLAN	C-0.3	
OVERALL SITE PLAN	C-1.0	
SITE PLAN - AREA A	C-1.1	
SITE PLAN - AREA B & C	C-1.2	
SITE DETAILS	C-1.3	
TEMPORARY FENCE DETAILS	C-1.4	
PERMANENT FENCE DETAILS	C-1.5	
PERMANENT FENCE DETAILS	C-1.6	
GRADING & DRAINAGE - AREA A	C-2.1	A
GRADING & DRAINAGE - AREA B	C-2.2	
GRADING & DRAINAGE - AREA C	C-2.3	
ACCESS ROAD PROFILE (17+50 - 20+67), MISCELLANEOUS DETAILS	C-2.4	A
SOIL EROSION AND SEDIMENTATION CONTROL NOTES	C-3.0	
SESC PLAN - AREA A	C-3.1	A
SESC PLAN - AREA B & C	C-3.2	
SESC DETAILS	C-3.3	
RESTORATION PLAN	C-4.0	

ALL WORK COVERED BY THESE DRAWINGS SHALL BE COMPLETED IN ACCORDANCE WITH THE TECHNICAL SPECIFICATIONS INCLUDED IN THE PROJECT MANUAL AND GEOTECHNICAL EVALUATION REPORT PREPARED BY S.M.E. PROJECT No. 072487.00, TITLED GEOTECHNICAL EVALUATION LETTER, VAN TYLE SUBSTATION AND DATED JULY 16, 2015.

**PROJECT CONTACTS**

**OWNER DELVELOPER:** WOLVERINE POWER COOPERATIVE  
 10125 W. WATERGATE ROAD  
 PO BOX 229  
 CADILLAC, MI 49601  
 JOHNATHAN JOHNSON  
 PHONE: 231-775-5700  
 JJOHNSON@WPSCI.COM

**PROCESS ENGINEER:** POWER BURNS AND ROE  
 555 BRIARWOOD CIRCLE  
 SUITE 205  
 ANN ARBOR, MI 48108  
 BRENT DUTKIEWICZ, PE  
 PHONE: 734-619-7202  
 BRENT.DUTKIEWICZ@POWERENG.COM

**SITE/CML ENGINEER:** WADE TRIM, INC.  
 271 WEST MCCOY ROAD  
 GAYLORD, MI 49735  
 CHARLES J CHRISTY  
 PHONE: 828-337-0251  
 CCHRISTY@WADETRIM.COM

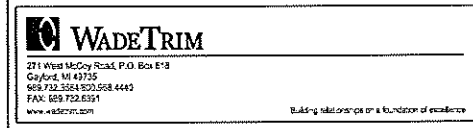
**SITE DATA**

SITE AREA: 120 Acres  
 ZONING: FOREST RECREATION  
 PARCEL NUMBERS: 071-003-300-020-00  
 071-003-400-030-00  
 071-003-300-025-01

ADDRESS: YET TO BE ASSIGNED

NOT VALID FOR CONSTRUCTION UNLESS SIGNED AND DATED: ISSUED FOR: REV A; REVISED PAD GRADING, SEPTEMBER 24, 2015

JOB NO. **WLV2005.03G** SHEET **C-0.0**



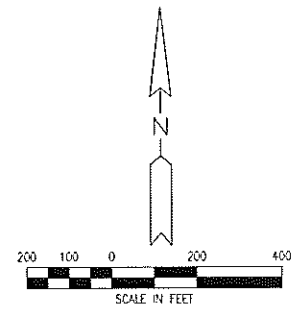
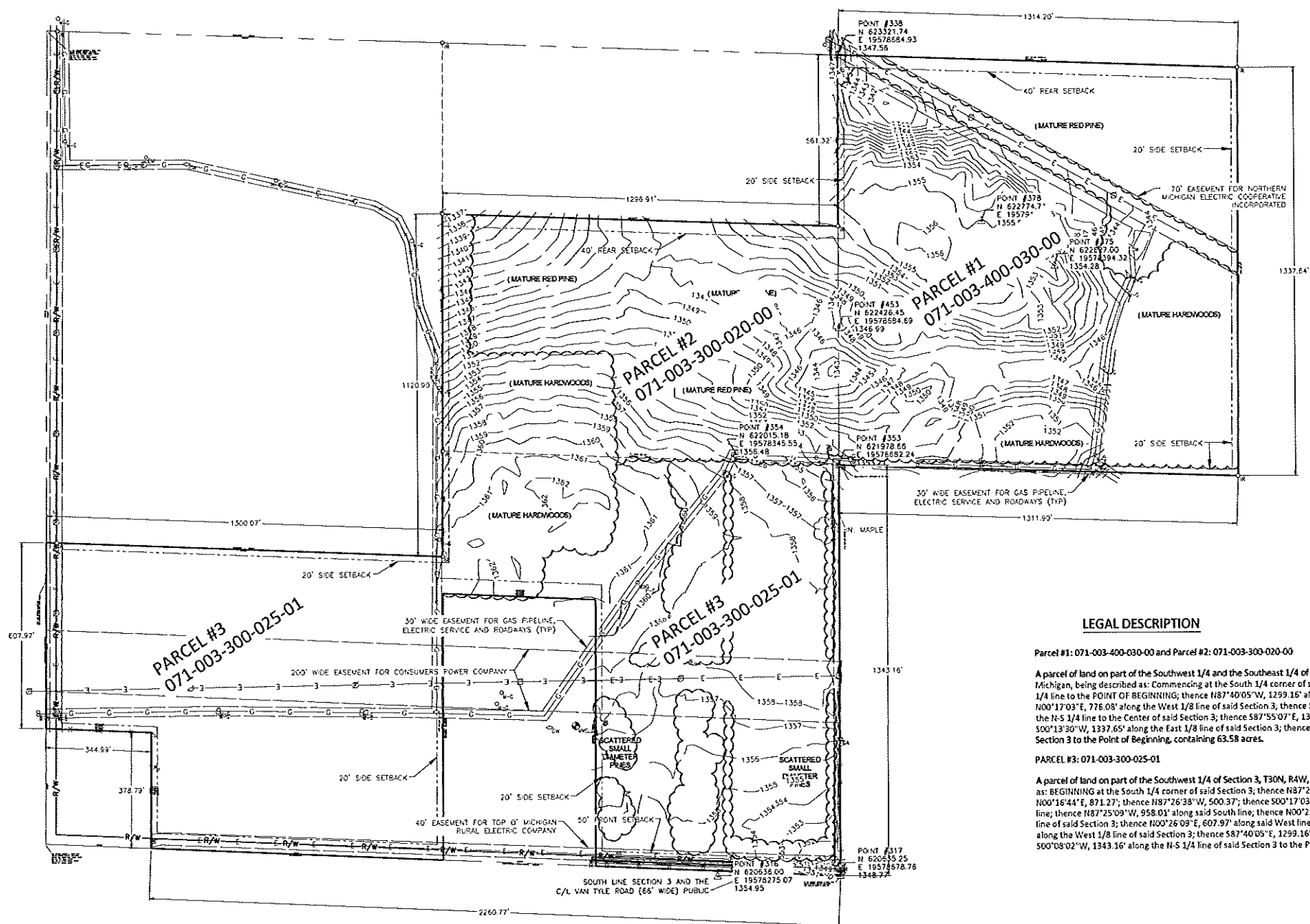
PREPARED UNDER THE SUPERVISION OF:

PROJECT MANAGER: CHARLES CHRISTY; PLOT DATE: 10/27/2015 11:11 AM BY: ROBIN SPEARS; PLOT FILE: C:\WORKING\PROJECTS\2015\NEW SUBSTATION\LAND MANAGEMENT\035-PL15-COVER.DWG - C-0.0



© Wade Trim, Inc.

FIELD BOOK INFORMATION: PROJECT MANAGER: JASON CAMERON; FIELD BINDER: STATION; DATE: 10/25/2015 4:51 PM BY: ROBIN SPARKS



**LEGAL DESCRIPTION**

**Parcel #1: 071-003-400-030-00 and Parcel #2: 071-003-300-020-00**  
 A parcel of land on part of the Southwest 1/4 and the Southeast 1/4 of Section 3, T30N, R4W, Hayes Township, Otsego County, Michigan, being described as: Commencing at the South 1/4 corner of said Section 3; thence N00°08'02"E, 1343.16' along the N-S 1/4 line to the POINT OF BEGINNING; thence N87°40'05"W, 1293.16' along the South 1/8 line of said Section 3; thence N00°17'03"E, 776.05' along the West 1/8 line of said Section 3; thence S97°55'07"E, 1256.91'; thence N00°08'02"E, 561.32' along the N-S 1/4 line to the Center of said Section 3; thence S87°55'07"E, 1314.20' along the E-W 1/4 line of said Section 3; thence S00°13'30"W, 1337.65' along the East 1/8 line of said Section 3; thence N88°09'20"W, 1311.50' along the South 1/8 line of said Section 3 to the Point of Beginning, containing 63.58 acres.

**Parcel #3: 071-003-300-025-01**  
 A parcel of land on part of the Southwest 1/4 of Section 3, T30N, R4W, Hayes Township, Otsego County, Michigan, being described as: BEGINNING at the South 1/4 corner of said Section 3; thence N87°25'09"W, 802.45' along the South line of said Section 3; thence N00°18'44"E, 871.27'; thence N87°28'38"W, 500.37'; thence S00°17'03"W, 871.05' along the West 1/8 line to said South Section line; thence N87°25'09"W, 958.01' along said South line; thence N00°25'51"E, 378.79'; thence N87°24'56"W, 344.99' to the West line of said Section 3; thence N00°26'09"E, 607.97' along said West line; thence S87°40'05"E, 1300.07'; thence N00°17'03"E, 344.83' along the West 1/8 line of said Section 3; thence S87°40'05"E, 1293.16' along the South 1/8 line of said Section 3; thence S00°08'02"W, 1343.16' along the N-S 1/4 line of said Section 3 to the Point of Beginning, containing 55.55 acres.

**LEGEND**

- PARCEL BOUNDARY
- - - - - PARCEL LINES OF INDIVIDUAL PROPERTIES
- - - - - SECTION LINES
- R/W- R/W- RIGHT OF WAY LINE
- G — G — BURED GAS LINE
- E — E — E — OVERHEAD ELECTRIC LINE(S)
- MAJOR CONTOUR
- MINOR CONTOUR
- TREE LINE
- SECTION CORNER (AS NOTED)
- POWER POLE
- TELEPHONE PEDESTAL
- SOIL BORING (AS NOTED)
- GAS WELL
- UNDERGROUND GAS LINE MARKER
- UNDERGROUND PHONE LINE MARKER
- DECIDUOUS TREE (AS NOTED)



REV#	DATE	DESCRIPTION	RCS	BY
A	10/02/15	FIX PARCEL IDENTIFICATION FOR TOWNSHIP	MTNC.	

NOT VALID FOR CONSTRUCTION UNLESS SIGNED AND DATED:

2750 Technology Blvd, P.O. Box 618  
 Gaylord, MI 49735  
 www.wadetrिम.com

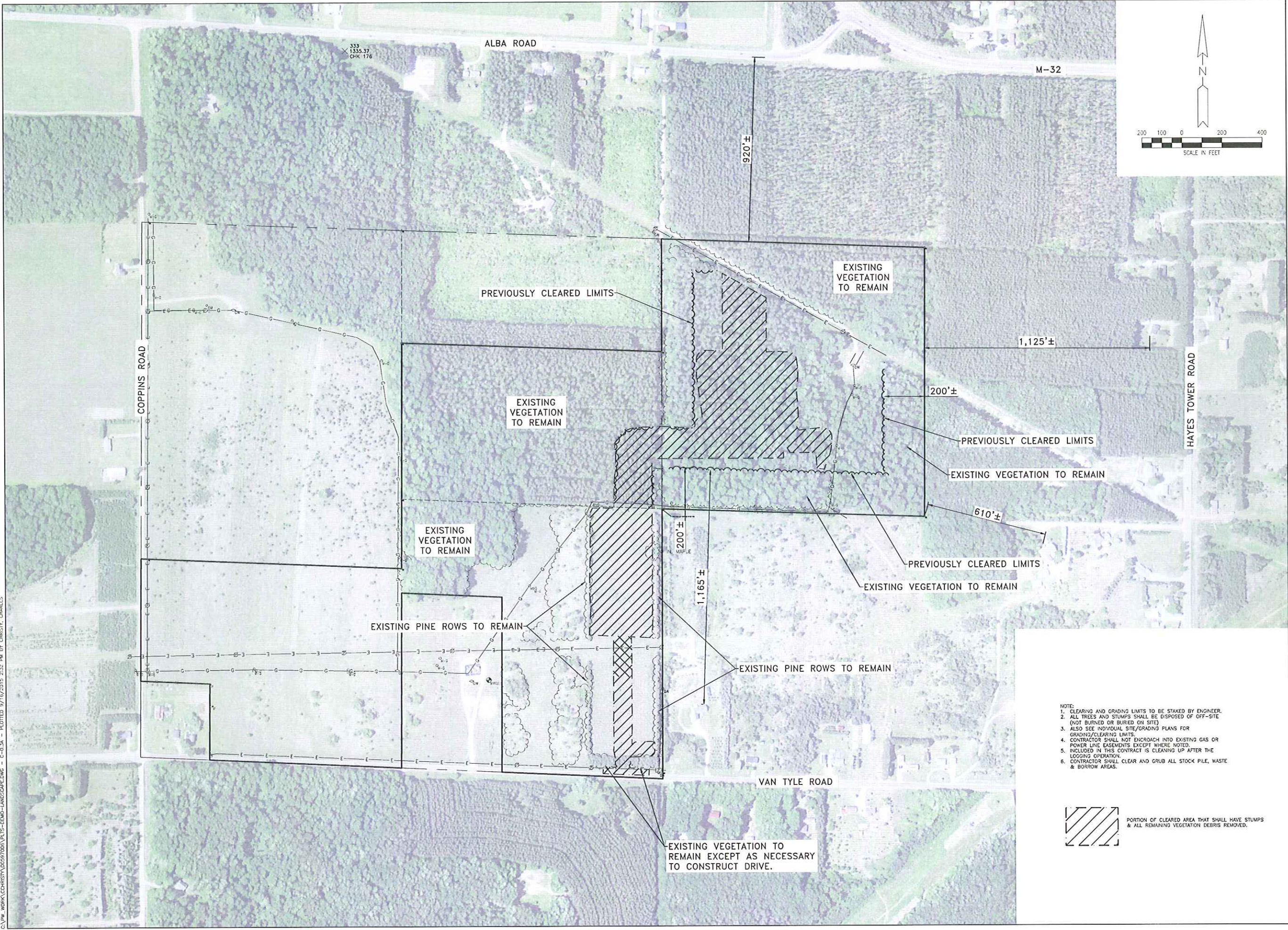
**WOLVERINE POWER COOPERATIVE  
 VAN TYLE STATION  
 Hayes Township, Otsego County, MI**

**EXISTING CONDITIONS PLAN**

DESIGNED FOR:	DATE:	BY:
75% REVIEW:	7/15/15	CC/C
85% REVIEW:	8/18/15	CC/C
PERMIT:	8/27/15	CC/C
80	9/10/15	CC/C
JOB NO.	WLV2005.03G	
SHEET	C-0.1	

VAN TYLE STATION, HAYES TOWNSHIP, OTSEGO COUNTY, MICHIGAN

PROJECT MANAGER: JACOB CAMERON  
 CIVIL ENGINEER: JACOB CAMERON, P.E.  
 FIELD BOOK INFORMATION:  
 C-0.3a - PLOTTED 07/23/15 2:32 PM BY CHRISTY CHARLES



- NOTE:
1. CLEARING AND GRADING LIMITS TO BE STAKED BY ENGINEER.
  2. ALL TREES AND STUMPS SHALL BE DISPOSED OF OFF-SITE (NOT BURIED OR BURIED ON SITE).
  3. ALSO SEE INDIVIDUAL SITE/GRADING PLANS FOR GRADING/CLEARING LIMITS.
  4. CONTRACTOR SHALL NOT ENCROACH INTO EXISTING GAS OR POWER LINE EASEMENTS EXCEPT WHERE NOTED.
  5. INCLUDED IN THIS CONTRACT IS CLEANING UP AFTER THE LOGGING OPERATION.
  6. CONTRACTOR SHALL CLEAR AND GRUB ALL STOCK PILE, WASTE & BORROW AREAS.



REV#	DATE	DESCRIPTION	BY

NOT VALID FOR CONSTRUCTION UNLESS SIGNED AND DATED.

WADETRIM  
 271 West McCoy Road, P.O. Box 618  
 Grandville, MI 49538  
 Phone: 616.842.4444  
 Fax: 616.842.8201  
 www.wadetrिम.com

Building relationships one a location at a time.

**WOLVERINE POWER COOPERATIVE**  
**VAN TYLE STATION**  
**Hayes Township, Otsego County, MI**

DEMOLITION - LANDSCAPE PLAN

ISSUED FOR: REVIEW  
 DATE: 9/15/15  
 BY: C.C.

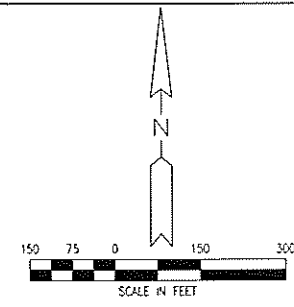
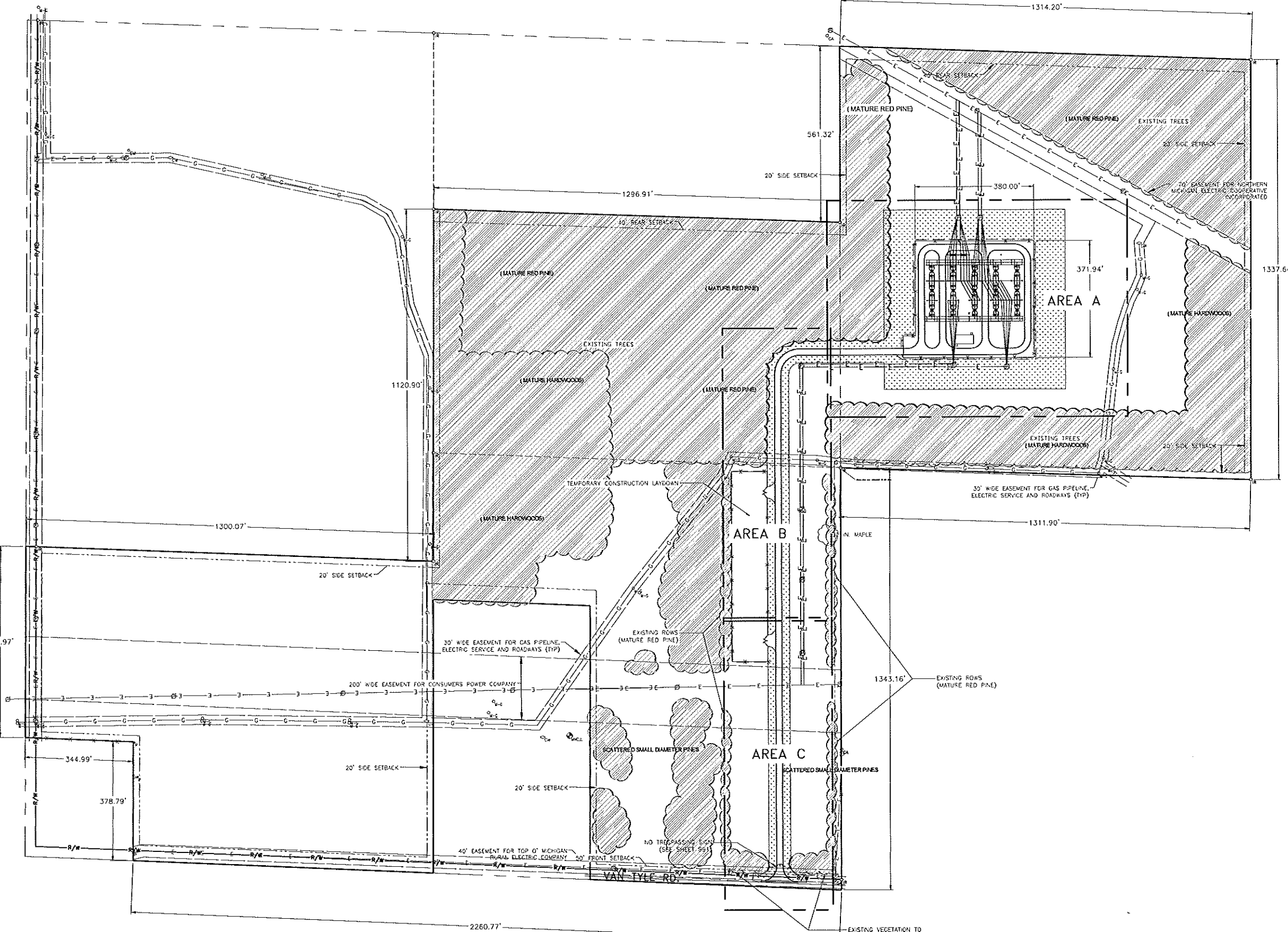
JOB NO. WLV2005.03G  
 SHEET C-0.3a

© Wade Trim Group, Inc. VAN TYLE STATION, HAYES TOWNSHIP, OTSEGO COUNTY, MICHIGAN



PROJECT MANAGER: TRANSMISSION SUBSTATION VAN TYLE (ALPINE BREAKER SUBSTATION) NEW SUBSTATION/LAND MANAGEMENT/VLTS-SHIELDING - C-1.0 - PLOTTED 10/15/2015 8:42 PM BY: ROBTM STEAKS

FIELD BOOK INFORMATION:  
 C:\WORKING FILES\TRANSMISSION SUBSTATION VAN TYLE (ALPINE BREAKER SUBSTATION) NEW SUBSTATION/LAND MANAGEMENT/VLTS-SHIELDING - C-1.0 - PLOTTED 10/15/2015 8:42 PM BY: ROBTM STEAKS



- LEGEND**
- FENCE — x —
  - PROPERTY LINE — — — — —
  - RIGHT OF WAY — — — — —
  - OVER HEAD WIRES — DHE —
  - SETBACKS — — — — —
  - EXISTING TREES — — — — —
  - NEW TREE LINE — — — — —
  - TURF GRASS — — — — —

REV#	DATE	DESCRIPTION
A	09/28/15	SHOW EXISTING VEGETATION FOR TOWNSHIP MTNG.
RCS		BY

NOT VALID FOR CONSTRUCTION UNLESS SIGNED AND DATED.

**WADETRIM**

271 West Michigan Road, P.O. Box 838  
 Gaylord, MI 49735  
 FAX: 989.353.5201  
 www.wadetrtrim.com

Building maintenance on a foundation of excellence

**WOLVERINE POWER COOPERATIVE  
 VAN TYLE STATION  
 Hayes Township, Otsego County, MI**

OVERALL SITE PLAN

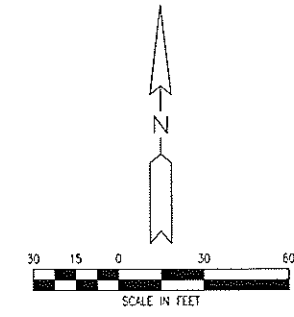
ISSUED FOR:	DATE:
DESIGN:	7/15/16
REVIEW:	8/27/16
PERMIT:	8/27/16
BY:	9/10/15
JOB NO.:	WLV2005.03G
SHEET:	C-1.0



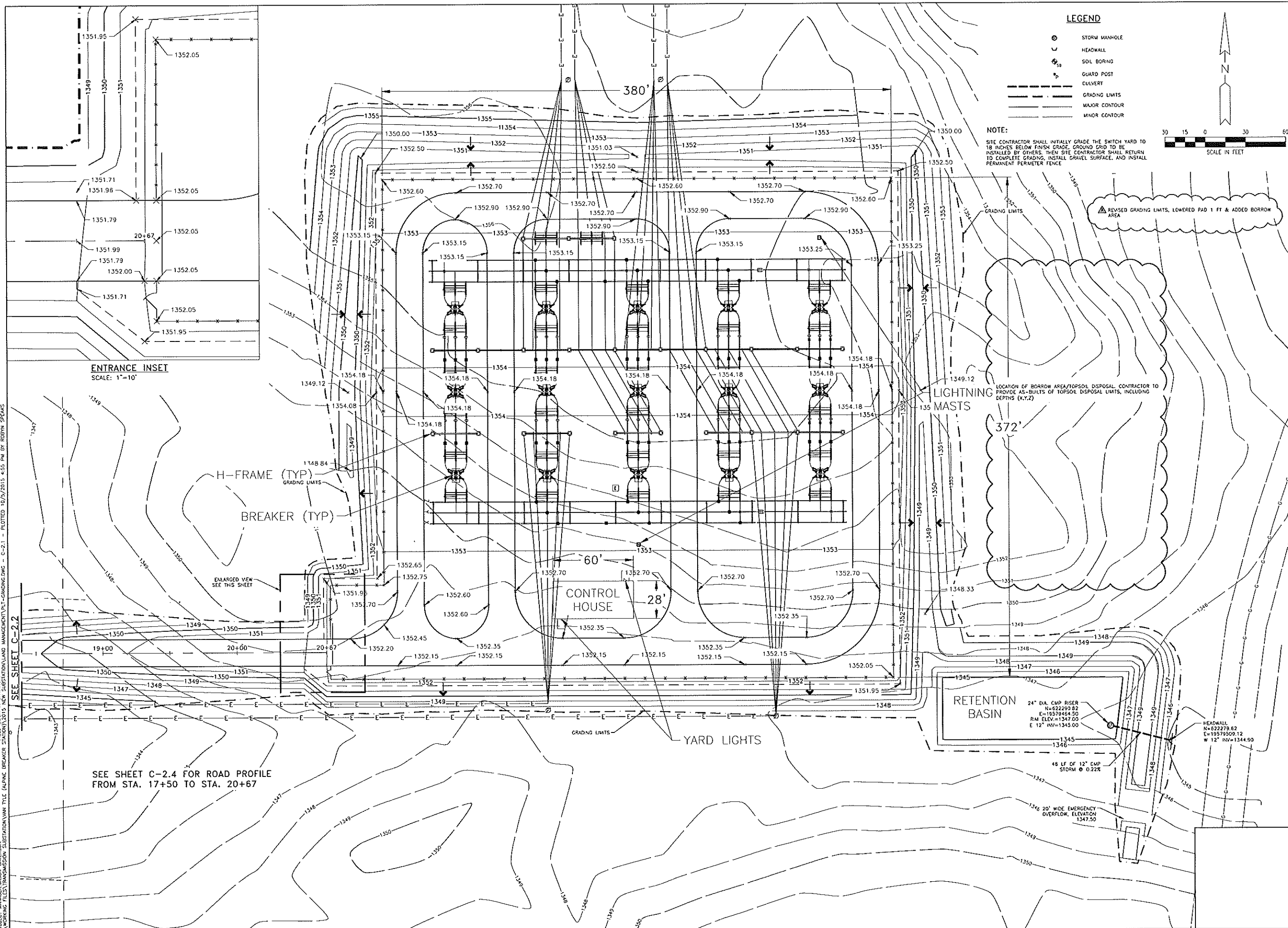
© Wade Trim Group, Inc. VAN TYLE STATION, HAYES TOWNSHIP, OTSEGO COUNTY, MICHIGAN

**LEGEND**

- ⊙ STORM MANHOLE
- ⌒ HEADWALL
- ⊕ SOIL BORING
- ⊙ GUARD POST
- CULVERT
- GRADING LIMITS
- MAJOR CONTOUR
- MINOR CONTOUR



**NOTE:**  
 SITE CONTRACTOR SHALL INITIALLY GRADE THE SWITCH YARD TO 18 INCHES BELOW FINISH GRADE. GROUND GRID TO BE INSTALLED BY OTHERS. THEN SITE CONTRACTOR SHALL RETURN TO COMPLETE GRADING, INSTALL GRAVEL SURFACE, AND INSTALL PERMANENT PERIMETER FENCE.



**ENTRANCE INSET**  
 SCALE: 1"=10'

SEE SHEET C-2.4 FOR ROAD PROFILE FROM STA. 17+50 TO STA. 20+67

REVISIONS:  
 B 9/29/15 INDICATE DRAINAGE FLOWS FOR TOWNSHIP MTNG.  
 A 9/24/15 PAD GRADING & BORROW AREA  
 REV# DATE DESCRIPTION

ISSUED FOR:	DATE:
DESIGNED BY:	7/15/15
CHECKED BY:	8/27/15
PERMIT NO.:	9/10/15

**WADETRIM**  
 27 West McCoy Road, P.O. Box 6011  
 Oconomowoc, WI 53099  
 www.wadetrtrim.com  
 608.833.8888

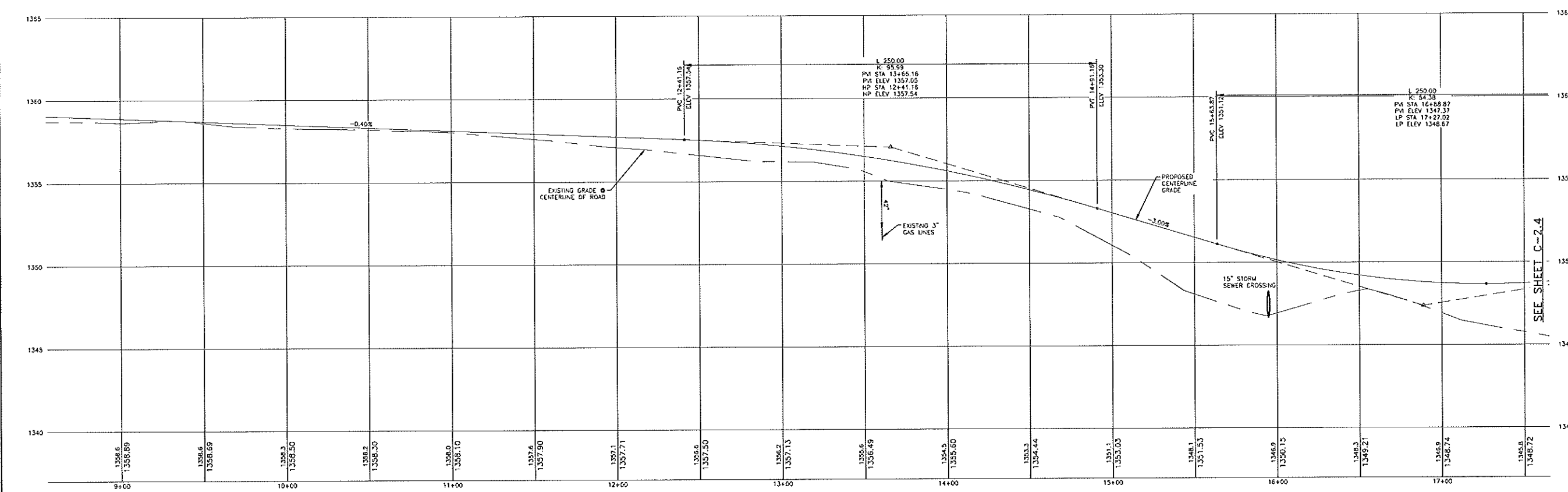
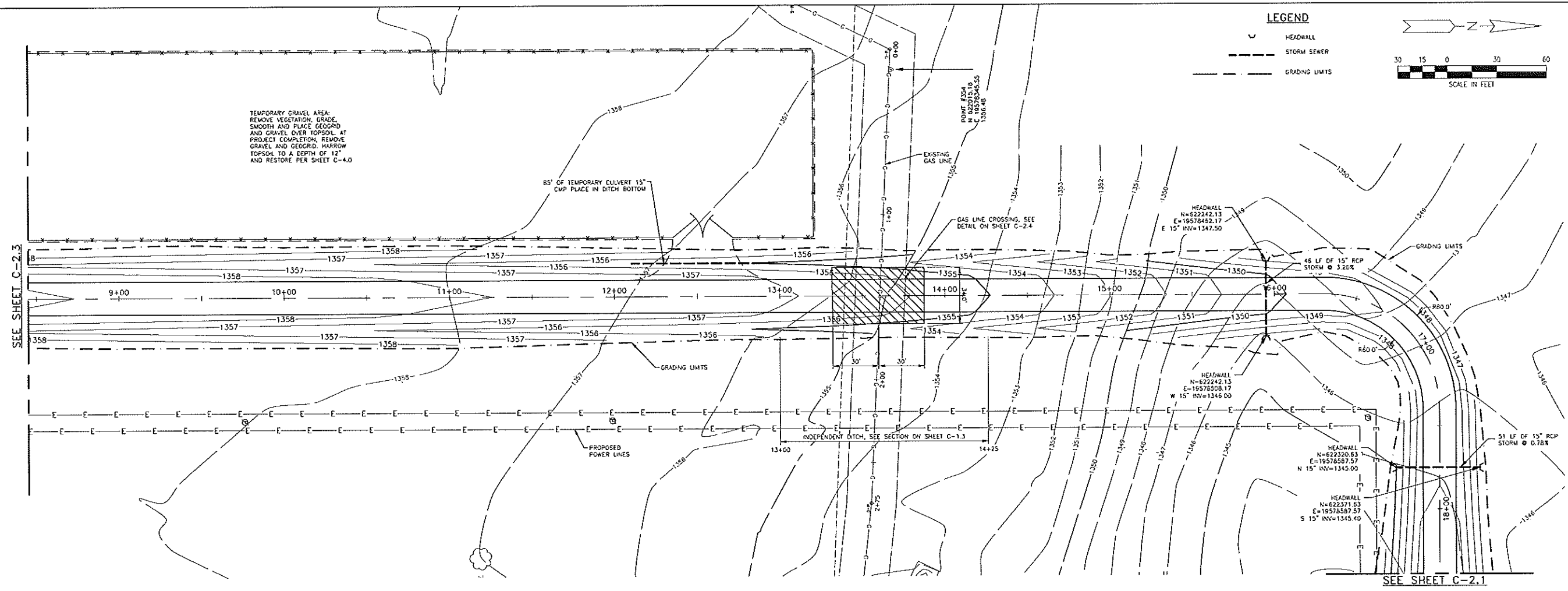
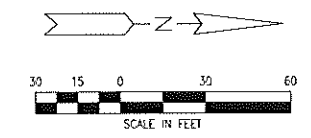
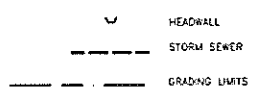
**WOLVERINE POWER COOPERATIVE**  
**VAN TYLE STATION**  
 Hayes Township, Otsego County, MI  
 GRADING & DRAINAGE - AREA A

ISSUED FOR:	DATE:
DESIGNED BY:	7/15/15
CHECKED BY:	8/27/15
PERMIT NO.:	9/10/15

JOB NO.  
**WLV2005.03G**  
 SHEET  
**C-2.1**

PROJECT MANAGER: JASON CAMERON  
 ENGINEERING FILE TRANSMISSION SUBSTATION VAN TYLE (ALPINE BREAKER) SUBSTATION/GRADING.DWG - C-2.1 - PLOTTED 10/25/2015 4:55 PM BY ROBIN SPEARS  
 FIELD BOOK INFORMATION:  
 C:\WORKING FILES\TRANSMISSION SUBSTATION VAN TYLE (ALPINE BREAKER) SUBSTATION/GRADING.DWG - C-2.1 - PLOTTED 10/25/2015 4:55 PM BY ROBIN SPEARS  
 SEE SHEET C-2.2

**LEGEND**



**ACCESS ROAD PROFILE (8+50 - 17+50)**  
SCALE: 1"=30' HORIZ., 1"=3' VERT.

PROJECT MANAGER: JASON DAVENSON  
 FIELD BOOK INFORMATION:  
 PROJECT: WLV2005.036 SUBSECTION: VAN TYLE (ALPINE BECKER CARTON) (3) (3) SET: SUBSTATION/LAND MANAGEMENT/VLT-GRADING.DWG - C-2.2 - PLOTTED: 10/05/2015 4:58 PM BY: ROBYN SPEAKE

REV#	DATE	DESCRIPTION

NOT VALID FOR CONSTRUCTION UNLESS SIGNED AND DATED:  
  
 WADETRIM  
 271 West McCoy Road, P.O. Box 011  
 Grayling, MI 49735  
 517.223.2222  
 www.wadetrtrim.com

**WOLVERINE POWER COOPERATIVE**  
**VAN TYLE STATION**  
**Hayes Township, Otsego County, MI**  
 GRADING & DRAINAGE - AREA B

ISSUED FOR:	DATE:
75% REVIEW	7/15/14
PERMIT	8/27/14
BO	9/10/15

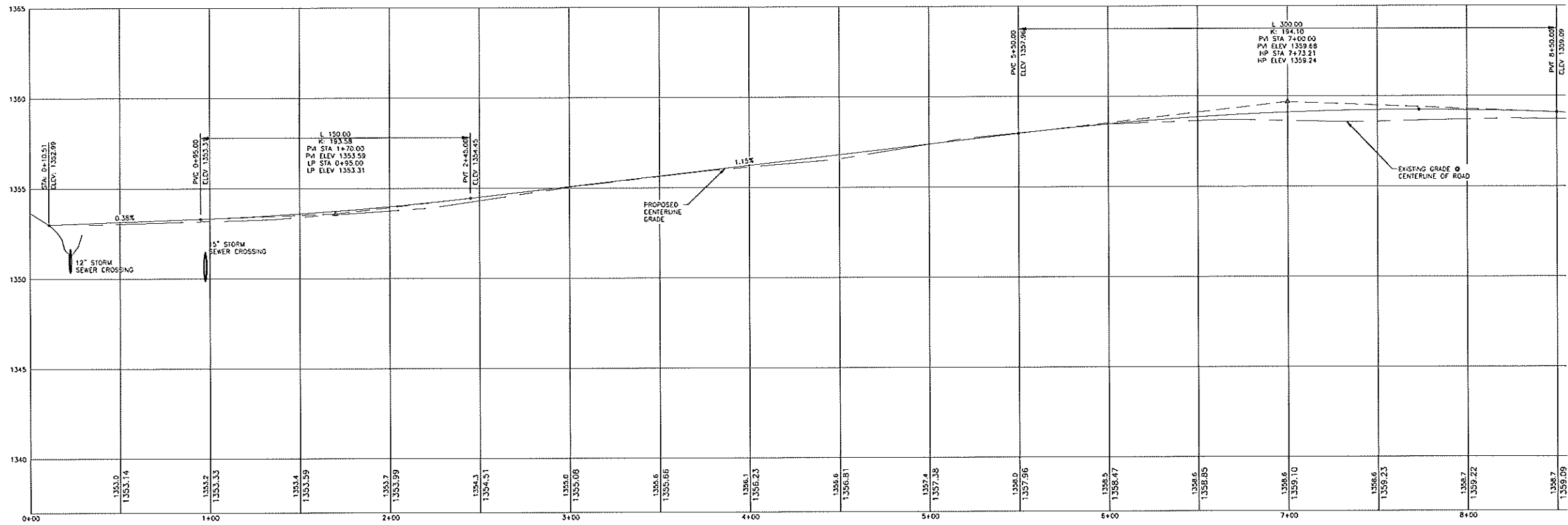
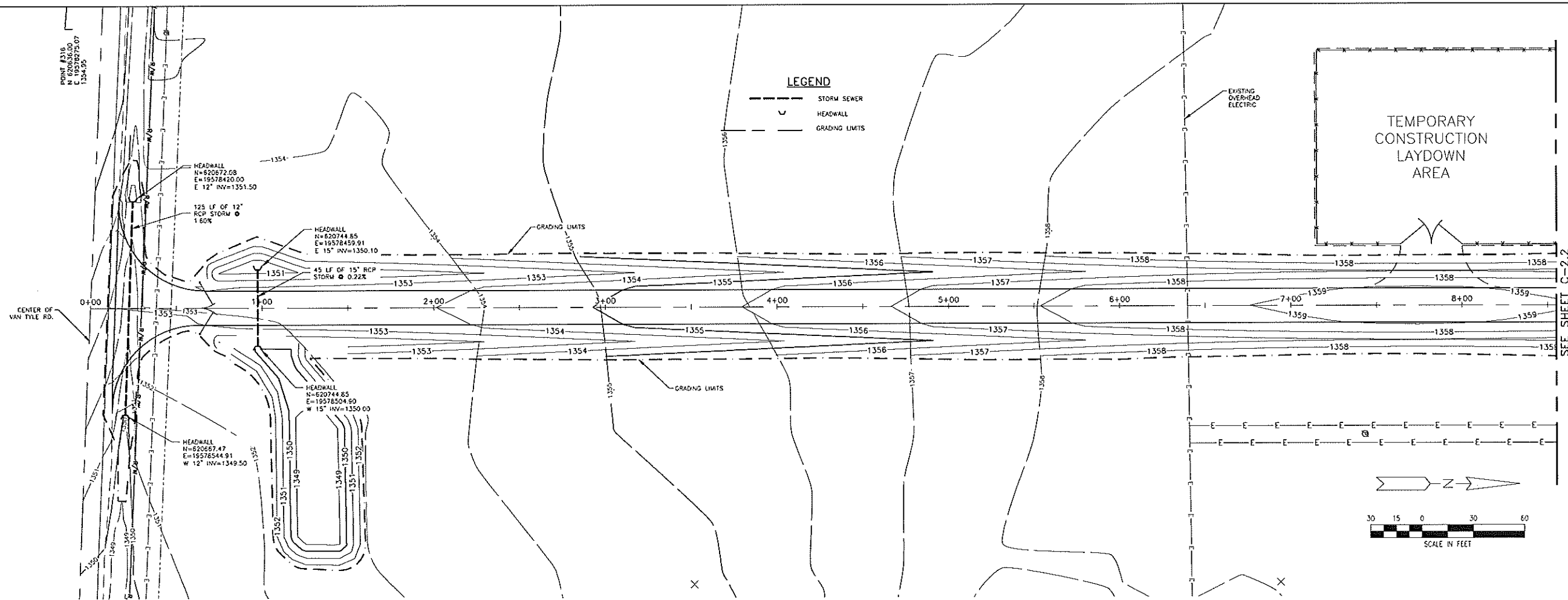
JOB NO.  
**WLV2005.036**  
 SHEET  
**C-2.2**

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PROJECT MANAGER: AARON CAMPBELL  
 CIVIL ENGINEER: JAMES W. CAMPBELL  
 FIELD WORK INFORMATION: PLOTTED 10/5/2015 5:00 PM BY ROBYN SPEAKS



Know what's below.  
 Call before you dig.



REV#	DATE	INDICATE TEMP. CONST.	LAYDOWN AREA	DESCRIPTION
A	10/05/15			

NOT VALID FOR CONSTRUCTION UNLESS SIGNED AND DATED.

**WADETRIM**  
 271 West McCoy Road, P.O. Box 618  
 Grandville, MI 49431  
 Phone: 616.221.4444  
 Fax: 616.221.2881  
 www.wadetrim.com

Building Michigan one a foundation of excellence.

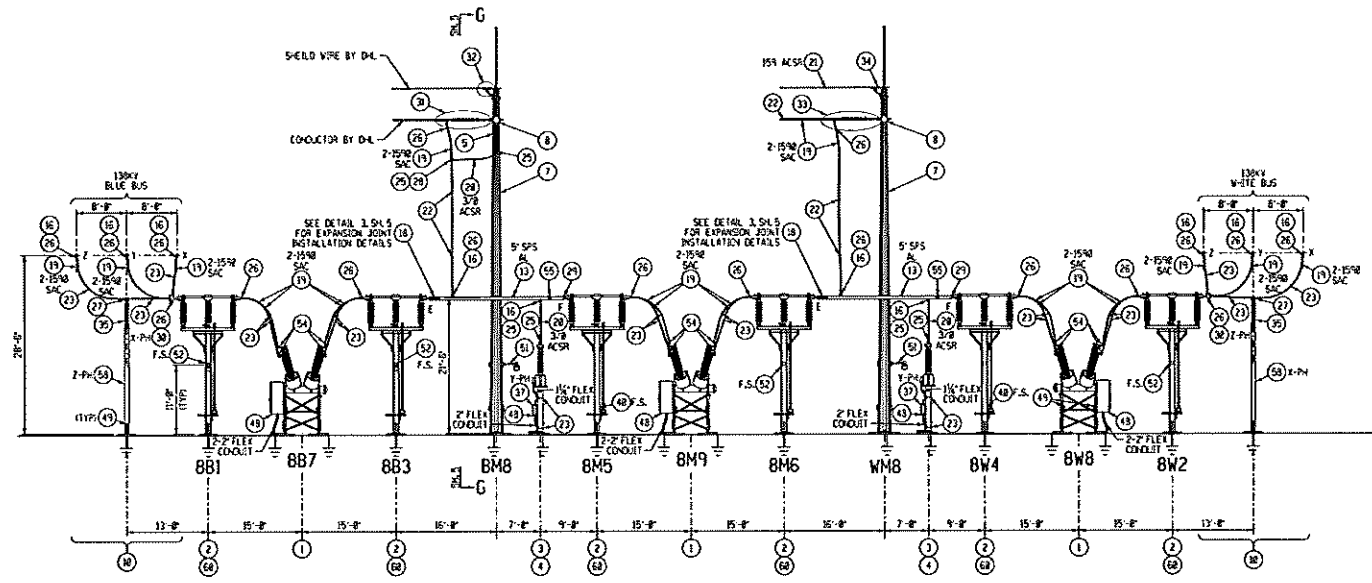
**WOLVERINE POWER COOPERATIVE**  
**VAN TYLE STATION**  
**Hayes Township, Otsego County, MI**

GRADING & DRAINAGE - AREA C

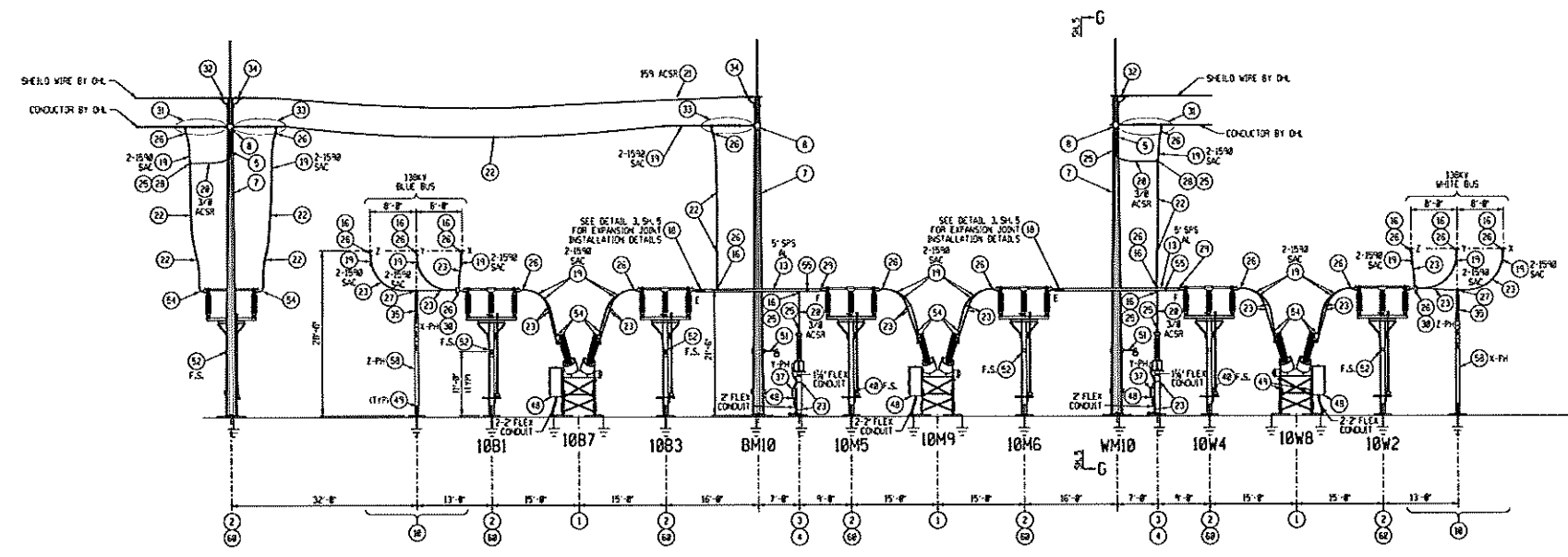
ISSUED FOR:	DATE:
75% REVIEW	7/15/10
85% REVIEW	8/24/10
PERMIT	9/10/10

JOB NO: WLV2005.03G  
 SHEET: C-2.3

SEE SHEET C-2.1 (Left side)  
 SEE SHEET C-2.2 (Right side)



SECTION 'B-B'  
G.L.D.



SECTION '10-10'  
G.L.D.

**NOTES:**

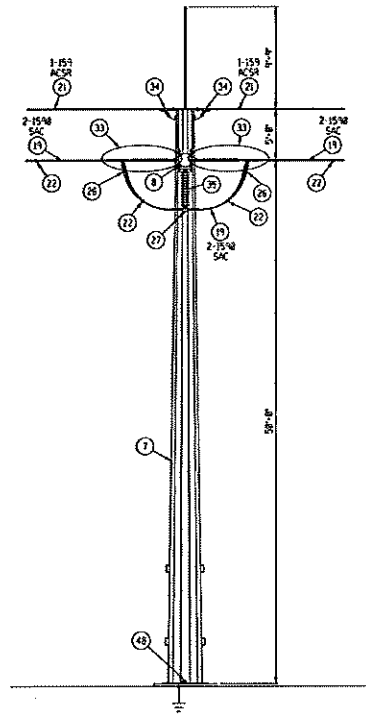
1. FOR MINIMUM ELECTRICAL DESIGN CLEARANCES, SEE ENG 66209-43.
2. OVER-HEAD TRANSMISSION CONSTRUCTION SHOULD WILL SUPPLY CONDUCTORS AND ALL HARDWARE NECESSARY TO TERMINATE LINES AND SHIELD WIRES AT THE FIRST STATION STEEL LEAVING A CONNECTION POINT TO CONNECT THE STATION CONDUCTOR AS SHOWN ON ELEVATIONS. FIRST STATION STEEL IS THE FIRST STRUCTURE ON THE STATION OR SUBSTATION THAT IS ORDERED AND INSTALLED BY STATION ENGINEERING.

**LEGEND:**

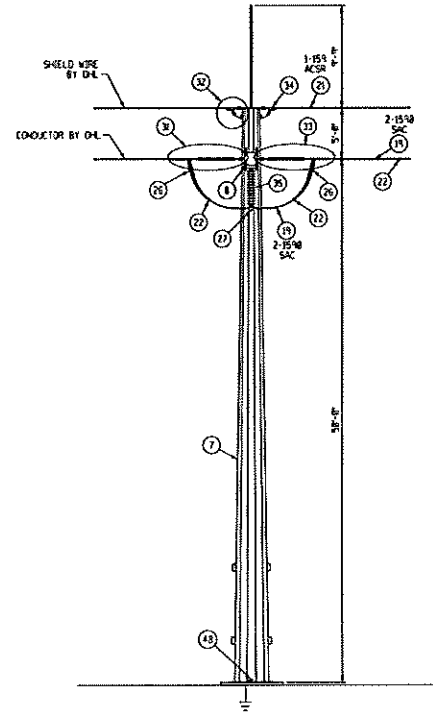
- S - SLIP FIT
- F - FIXED FIT
- E - EXPANSION FIT
- F.S. - FAR SIDE

DRAWING NO.	REFERENCE DRAWINGS	REV	DATE	DESCRIPTION	BY	APP	REV	DATE	DESCRIPTION	BY	APP	REV	DATE	DESCRIPTION	BY	APP	REV	DATE	DESCRIPTION
27, S4.1	ELEC & STR LAYOUT - 138KV PLAN VIEW														J. PORENSA/PEI			11/12/15	REV
27, S4.5	ELEC & STR LAYOUT - 138KV MISCELLANEOUS SECTIONS AND DETAILS														R. DUTREUIL/PEI			11/12/15	REV
32, S4.1	LIGHT & CONTROL CONDUIT LAYOUT 138KV YARD PLAN VIEW																		

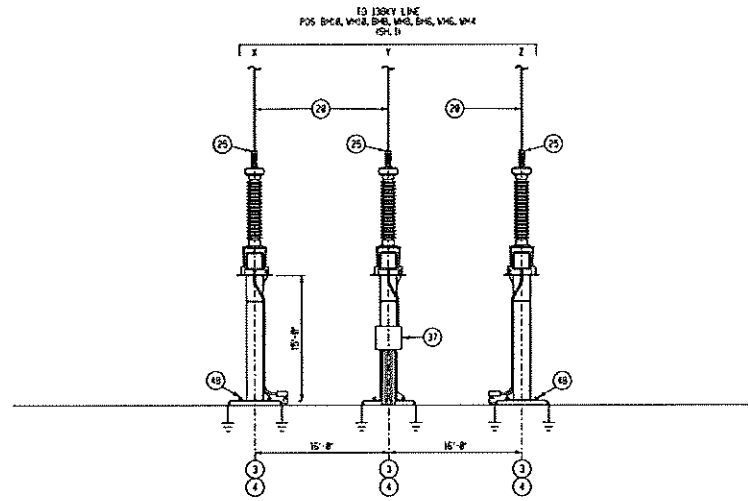
ELEC & STR LAYOUT - 138KV SECTION VIEWS ROWS B & 10		SUBSTATION	
VAN TYLE	SCALE 3/8" = 1'-0"	8645-G27	3
JOB	XXX		



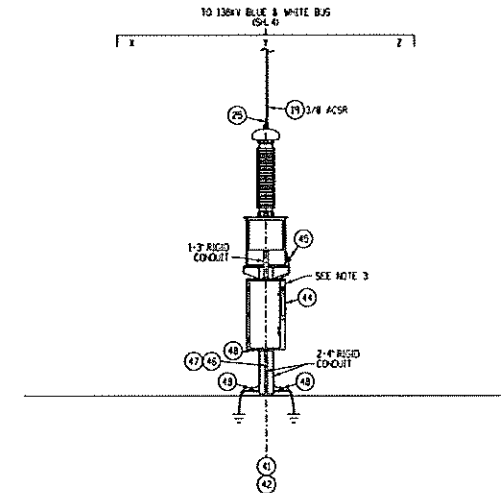
SECTION A-A  
NOT TO SCALE  
GALD



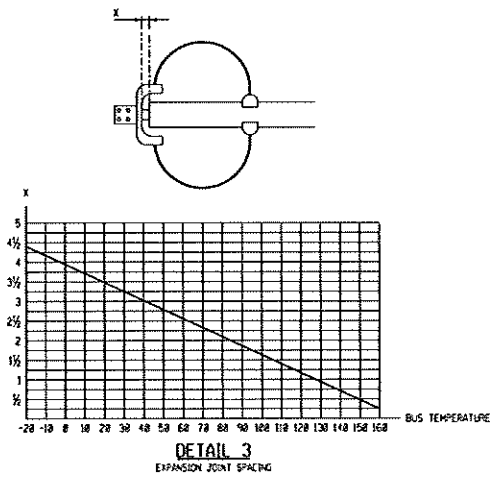
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NOT TO SCALE  
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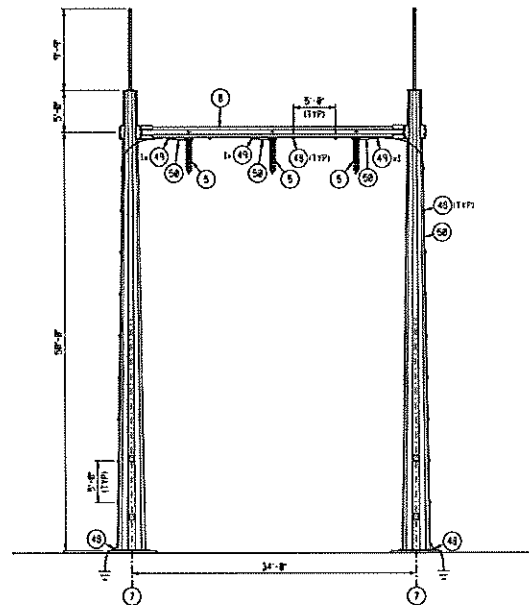
SECTION C-C



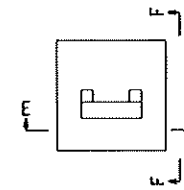
SECTION D-D



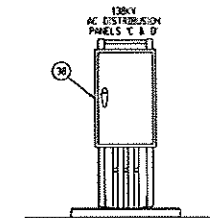
DETAIL 3  
EXPANSION JOINT SPACING



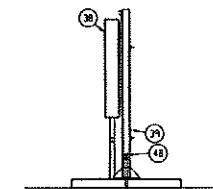
SECTION G-G  
SURGE ARRESTER MOUNTING ON TOWERS  
GALD



DETAIL 1  
AC CAB  
NOT TO SCALE  
GALD



SECTION E-E  
NOT TO SCALE



SECTION F-F  
NOT TO SCALE

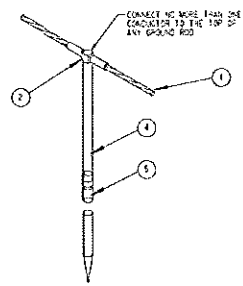
NOTES:

- FOR MINIMUM ELECTRICAL DESIGN CLEARANCES, SEE DWG. E6839-48.
- OVERHEAD TRANSMISSION CONSTRUCTION KIT SHALL SUPPLY CONDUCTORS AND ALL HARDWARE NECESSARY TO TERMINATE LINES AND SHIELD WIRES AT THE FIRST STATION STEEL, LEAVING A CONNECTION POINT TO CONNECT THE STATION CONDUCTOR AS SHOWN ON ELEVATIONS. FIRST STATION STEEL IS THE FIRST STRUCTURE ON THE STATION OR SUBSTATION THAT IS ORDERED AND INSTALLED BY STATION ENGINEERING.
- FIELD TO MOUNT SAFETY SWITCH ENCLOSURE WITH UNISTRUT AS REQUIRED. COLD GALVANIZE ANY FIELD DRILLED HOLES USING ZINC COLD GALVANIZING COMPOUND PER MANUFACTURER'S SPECIFICATIONS.

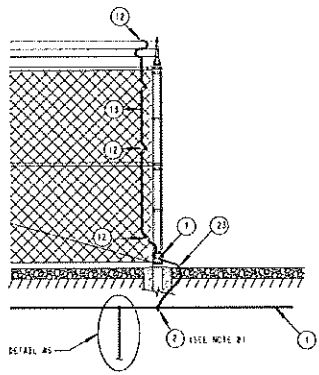
DRAWING NO.	REFERENCE DRAWINGS	REV.	DATE	DESCRIPTION	BY	APP.	REV.	DATE	DESCRIPTION	BY	APP.	REV.	DATE	DESCRIPTION
27, SH. I	ELEC & STR LAYOUT - 138KV PLAN VIEW													
30, SH. I	LIGHT & CONTROL CONDUIT LAYOUT 138KV TARD PLAN VIEW													

BY	J. POREMBA/PEI	DATE	11/13/15
BY	B. DUTRE/VEI/PEI	DATE	11/13/15
BY	REVISION HEAD	DATE	
BY	REVISION HEAD	DATE	
BY	J. POREMBA/PEI	DATE	11/13/15

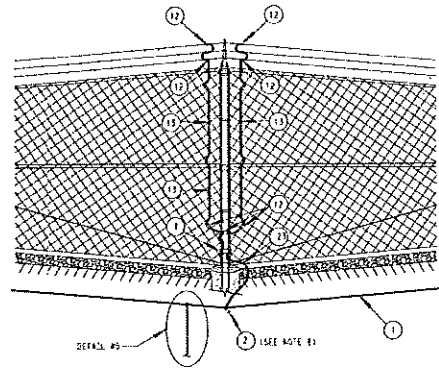
ELEC & STR LAYOUT - 138KV MISCELLANEOUS SECTIONS AND DETAILS			
VAN TYLE	SCALE	8645-G27	SUBSTATION
SCALE 1/4" = 1'-0"	XXX	5	



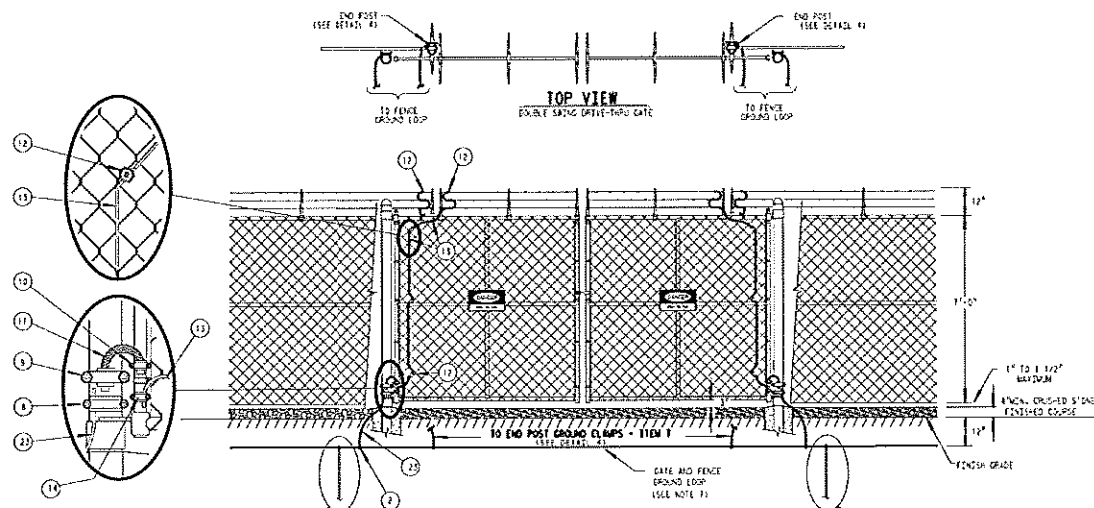
**DETAIL #5**  
TYPICAL GROUND ROD  
W/ E-ROCC CONNECTION



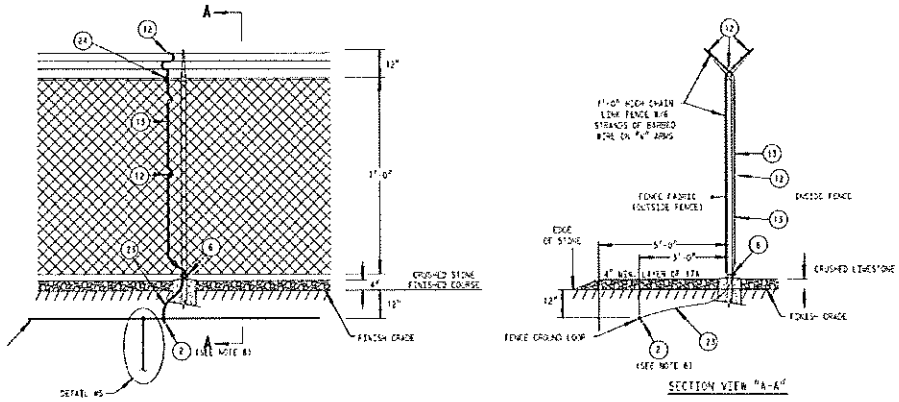
**DETAIL #4**  
END POST  
USE NOTE #1



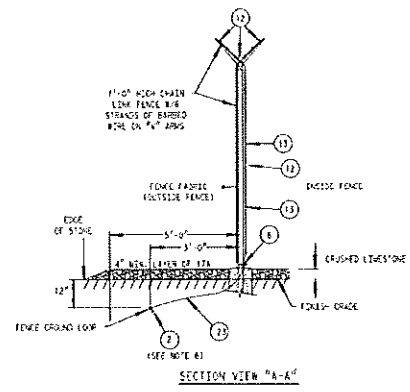
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END POST  
USE NOTE #1



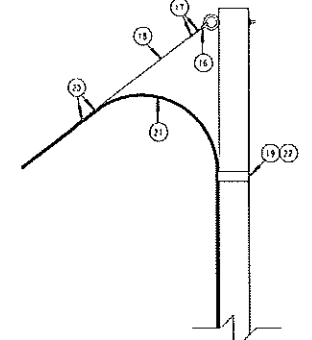
**DETAIL #1**  
DOUBLE SLIDE DRIVE-TYPE GATE  
USE NOTE #1



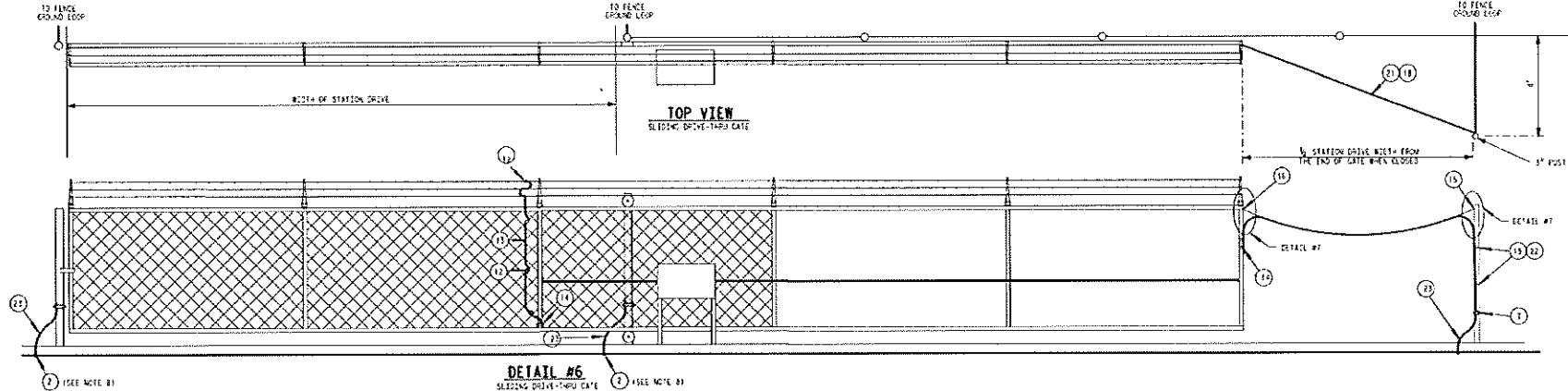
**DETAIL #2**  
LINE POST  
USE NOTE #1



**SECTION VIEW 'A-A'**



**DETAIL #7**  
CORNER POST DETAIL



**DETAIL #6**  
SLIDING DRIVE-TYPE GATE  
USE NOTE #1

ITEM	PART #	DESCRIPTION
1	710-0011	1/2" DIA. T-STAKE SOFT BRAIN, BARE COPPER CONDUCTOR
2	118-0026	ELECT-FRAME WELD, 90 DEGREE
3		
4	240-0435	1/2" DIAMETER X 4' LONG COPPERBRED GROUND ROD (SEE NOTE 3)
5	240-0435	GROUND ROD COUPLER (SEE NOTE 3)
6	721-1431	GROUND CLAMP FOR 2" FENCE POST, #4-#10 CONDUCTOR
7	721-1432	GROUND CLAMP FOR 2" FENCE POST, #4-#10 CONDUCTOR
8	721-1433	GROUND CLAMP FOR 4" GATE POST, #4-#10 CONDUCTOR
9	721-1434	GROUND CLAMP FOR 4" GATE POST, 2" COPPER BRASS
10	721-1434	GROUND CLAMP FOR 2" GATE POST, #4-#10 CONDUCTOR
11	718-1005	COPPER BRASS, 1/2" X 1/2" WITH 1/4" DIA. HOLE, 2 HOLE TERMINALS ON EACH END
12	721-0317	TAP CONNECTOR, SLANT BOLT TYPE, BRONZE, BRUNNEN #525
13	710-1004	GROUND WIRE, STEEL, 0.3125" DIA., T-5140
14	721-1435	GROUND CLAMP FOR 2" GATE POST, #4-#10 CONDUCTOR
15	241-1400	1/2" X 4" ENDPOST, GRANGER W/ROCK
16	241-1401	1/2" X 4" ENDPOST, GRANGER W/ROCK
17	222-0021	1/2" CLIP W/ 1/2" HOLE FOR 1/2" BRASS W/ROCK
18	241-1401	1/2" X 4" ENDPOST, GRANGER W/ROCK
19	221-0192	1/2" X 1/2" ENDPOST, GRANGER W/ROCK
20		LOW RESISTANT CABLE TIE
21	713-1008	1/2" FLEXIBLE WELDING CABLE, 20' GAUGE W/ROCK
22	221-0323	SEAL, CABLE STRAPPING, SS
23	713-0143	GROUND WIRE, COPPERBRED, 1/2" DIA.
24	721-1435	GROUND CLAMP FOR 2" GATE POST, #4-#10 CONDUCTOR

**NOTES:**

- CONTRACTOR TO CONFORM TO GRADING SPEC, ENGINEERING REPORT 25-14-05 AND CONSTRUCTION SPEC. SECTION 14330.
- WELD THE GROUND MASS TO ROSS WITH THE CROWELL PROCESS. CONNECT GROUND RODS TOGETHER USING THE GROUND ROD COUPLERS (ITEM 5).
- REFER TO SPECIFIC SITE GRADING DRAWING FOR OVERALL LENGTH OF GROUND RODS 15' OR 18' TYPICAL.
- FIELD TO NOTIFY FIELD SUPERVISOR BEFORE DRIVING FIRST GROUND ROD.
- AT ALL GROUND CONNECTIONS TO FENCE POSTS, FENCE FABRIC, AND BARBED WIRE, CLEAN AND PROPERLY PREPARE ALL SURFACES, AND APPLY WD-40 CRACK.
- MAKE ALL GROUND CONNECTIONS TO FENCE FABRIC, FENCE POST AND GATE POST ON THE INSIDE OF FENCE.
- ALL SUBSTITUTION PROPOSALS FOR PRESCRIBED ITEMS, GROUND LOOP WIRE SIZE AND LOCATIONS FOR FENCE GROUND SYSTEMS, APPROPRIATE FENCE GROUND LOOP TO BE ASSIGNED TO THE FIELD SUPERVISOR'S APPROVAL.
- CHECKED AT US EQUINE TO THE CORRESPONDING ITEMS. REFER TO THE PROJECT MANUAL FOR THE SPECIFICATIONS, AND TO THE PROJECT MANUAL FOR THE SPECIFICATIONS.
- SEE CONSTRUCTION SPEC. SECTION 02350 FOR 4-1/2" DIA. LOW FENCE INSTALLATION DETAILS.
- STANDARD INSTALLATION SHALL BE AS SHOWN. DIMENSIONS ARE TO BE INDICATED ON PROJECT DRAWINGS.

DESIGN		PROJECT		DATE		OTHER		APPROVALS		TITLE	
DATE	BY	NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY	NO.
09-18-10	S. COX	1	01-19-12	S. YANG	1	09-12-12	M.T.	1	10-21-05	F.S.	1
01-19-12	S. COX	2	01-19-12	S. YANG	2	01-19-12	M.T.	2	10-21-05	S.W.	1

PROJECT MANAGER	ENGINEERING	DATE	TITLE
RELAY	COO/BAV		FENCE GROUNDING DETAILS
EPH/BAV	SAV/BAV		
ACT	CLM/BAV		
	CHEK/BAV		
	PROJECT DESIGN/SELECT		
	PROJECT DESIGN/ISSUE		
	PROJECT DESIGN/ISSUE		
	PROJECT DESIGN/ISSUE		

LOCATION	SCALE
STATION STANDARD	NONE
5E6000-84	

STATION STANDARD  
 5E6000-84  
 LATEST REVISION 'D'

6

5

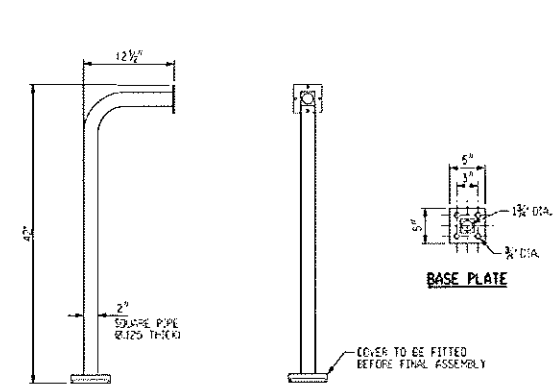
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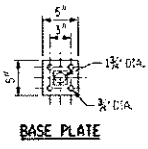
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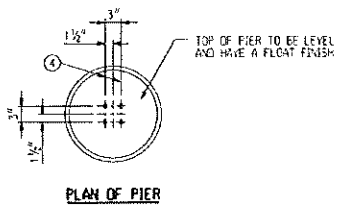
MATERIAL LIST FOR TWO ACCESS PEDESTALS, ONE MOTORIZED GATE				
ITEM	QTY	UNIT	DESCRIPTION	REMARKS
1	2	EA	COUSCOCK PEDESTAL HEAVY GUAGE STEEL TUBING, RUST RESISTANT POWDER COATING, BLACK, THE HOUSING CO. LLC #PS242 OR EQUIVALENT (SEE DETAIL #1)	BY CONTRACTOR
2	2	EA	HOUSING, POLYCARBONATE (23-UV STABILIZED, THE HOUSING CO. LLC #PC401 OR EQUIVALENT (SEE DETAIL #2)	BY CONTRACTOR
3	1	EA	SLIDE GATE OPERATOR W/ COLD WEATHER PACKAGE, #40 CHAIN LINEAR COPR, #50-G-111 CHP, 115VAC, SINGLE PHASE)	BY CONTRACTOR
4	8	EA	ANCHOR BOLT, RIGHT ANGLE BEND, 1/2" DIAMETER, 12" LENGTH, ASTM A554 (SPACE 36, HOT TOP GALVANIZE ASTM A193, PORTLAND BOLT #2E19 OR EQUIVALENT (SEE NOTE 12)	BY CONTRACTOR
5	1	EA	HANDHOLE, 15" X 24" X 18", HIGH DENSITY POLYMER CONCRETE, SMARTTECH #S1324B19A OR EQUIVALENT	*739-237
6	1	EA	LID, HANDHOLE, 15" X 24", SMARTTECH S1324B24R2	*739-238
7	15	FT	3/4" OD RIGID PIPE, SCH 40	BY CONTRACTOR
8	2	EA	3/2" STEEL CAP	BY CONTRACTOR
9	2	EA	KEY SWITCH, 30VDC, STANLEY #1W78/626 OR EQUIVALENT	BY CONTRACTOR
10	1	EA	1/2" VAC HEATER WITH CASE, SUPPLIED WITH LINEAR GATE OPERATOR	BY CONTRACTOR



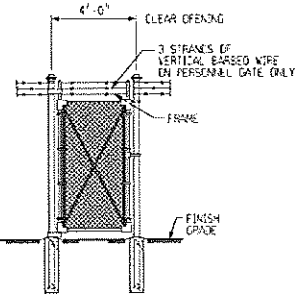
**DETAIL 1**  
SCALE: 1/4"=1'-0"  
DIMENSIONS ARE APPROXIMATE



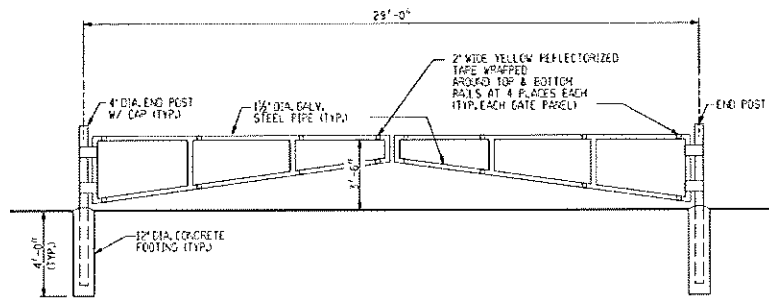
**BASE PLATE**



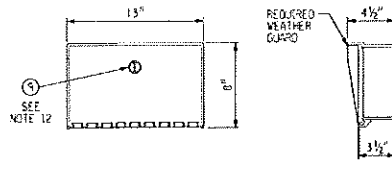
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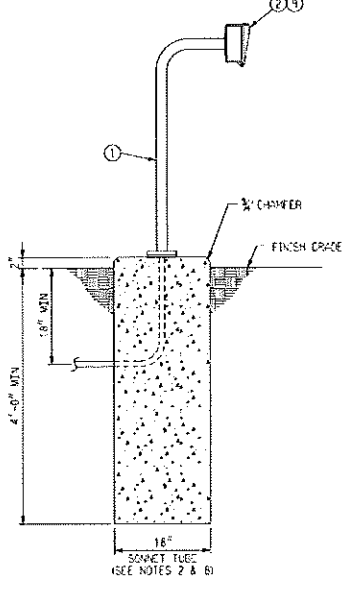
**SECTION 'B-B'**  
SCALE: 1/4"=1'-0"



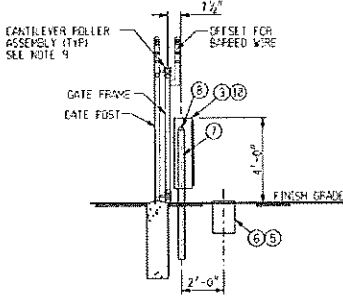
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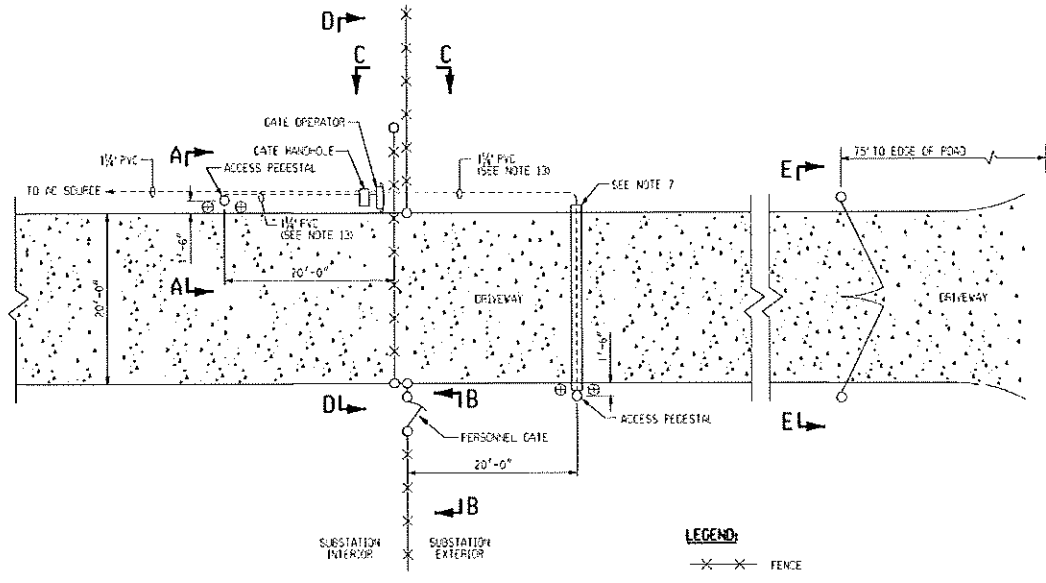
**DETAIL 2**  
SCALE: 1/4"=1'-0"  
DIMENSIONS ARE APPROXIMATE



**SECTION 'A-A'**  
SCALE: 1/4"=1'-0"



**SECTION 'C-C'**  
SCALE: 1/4"=1'-0"



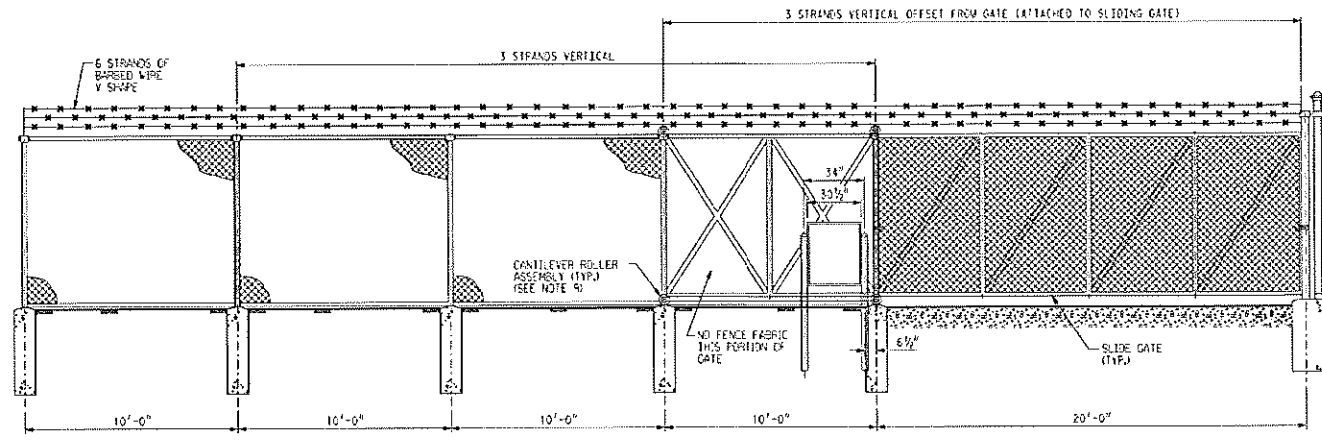
**SUBSTATION ACCESS PLAN VIEW TYPICAL INSTALLATION**  
SCALE: 1/4"=1'-0"

**LEGEND:**

- X — X — FENCE
- ⊕ BOLLARD

**NOTES:**

- FOR FENCE OPENING DETAILS, SEE STANDARD SE6000-B4.
- FOR GENERAL NOTES AND CONCRETE SPECIFICATIONS, SEE SE6000-3 REV 'D' OR LATER.
- SEE FENCE SPECIFICATION SECTION 28200 FOR CHAIN LINK FENCE INSTALLATION DETAILS.
- SEE BELOW GRADE CONDUIT SPECIFICATION 1815, FOR CONDUIT INSTALLATION DETAILS.
- SEE MANUFACTURED INSTALLATION GUIDE FOR DETAILED INSTALLATION INSTRUCTIONS ON GATE OPERATOR.
- STANDARD INSTALLATION WILL BE AS SHOWN, DERIVATIONS ARE TO BE INDICATED ON THE PROJECT OPENINGS.
- DUCT SHALL BE ENCASED IN CONCRETE WITH AT LEAST THREE (3) INCHES ON CONCRETE AT THE TOP, BOTTOM AND SIDES. TOP OF CONCRETE SHOULD BE 30" MIN FROM FINISH GRADE. USE 5 BAG CONCRETE MIX AT 3000 PSI. EXTEND 3000 PSI ENCASEMENT 5' ON EITHER SIDE OF DRIVE UNLESS OTHERWISE NOTED.
- TOTAL VOLUME OF CONCRETE IS APPROXIMATELY 1855 CU YDS FOR CITY 2 PEDESTALS.
- INSTALL SAFETY GUARDS ON ALL CANTILEVER ROLLER ASSEMBLIES.
- CONTRACTOR SHALL SUPPLY 1 GALVANIZED ASTM A5634 HEX NUT AND 1 GALVANIZED ASTM F435 STD WASHER PER AND/OR BOLT.
- IF A PHYSICAL SECURITY SYSTEM IS REQUIRED FOR SUBSTATION SITE, CONTACT ITC SECURITY FOR BARGE FENCER REQUIREMENTS. BACK UP KEY SWITCHES MAY BE REQUIRED NEAR GATE MOTOR.
- REPLACE STANDARD LOCKING MECHANISM WITH KEY SWITCH. LOCKING CORE SHALL BE COMPATIBLE WITH BEST BRAND KEY CORES.
- PLAN 2/2 #12 CONTROL CABLE AND BARE 1/4 CU FOR END IN CONDUIT BETWEEN GATE OPERATOR AND PEDESTAL.



**SECTION 'D-D'**  
SCALE: 1/4"=1'-0"

PROJ DESIGN				PROJ MANAGER				OTHERS				APPROVALS																					
DATE	BY	DATE	BY	DATE	BY	DATE	BY	DATE	BY	DATE	BY	DATE	BY																				
<table border="1"> <thead> <tr> <th>PROJECT MANAGER</th> <th>DATE</th> <th>ENGINEERING</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td>S. COX</td> <td>09/20/13</td> <td>MADE BY</td> <td>DATE</td> </tr> <tr> <td>S. VARG</td> <td>09/23/13</td> <td>CHECKED BY</td> <td>DATE</td> </tr> <tr> <td>R. ESCOTT</td> <td>09/22/13</td> <td>PROJECT DESIGN-ELECT</td> <td>DATE</td> </tr> </tbody> </table>												PROJECT MANAGER	DATE	ENGINEERING	DATE	S. COX	09/20/13	MADE BY	DATE	S. VARG	09/23/13	CHECKED BY	DATE	R. ESCOTT	09/22/13	PROJECT DESIGN-ELECT	DATE	<b>TITLE</b> SUBSTATION ACCESS INSTALLATION & FENCE GATE DETAILS		<b>LOCATION NAME</b> STATION STANDARD		<b>SCALE</b> AS SHOWN	
PROJECT MANAGER	DATE	ENGINEERING	DATE																														
S. COX	09/20/13	MADE BY	DATE																														
S. VARG	09/23/13	CHECKED BY	DATE																														
R. ESCOTT	09/22/13	PROJECT DESIGN-ELECT	DATE																														
<table border="1"> <thead> <tr> <th>DATE</th> <th>BY</th> <th>DATE</th> <th>BY</th> <th>DATE</th> <th>BY</th> <th>DATE</th> <th>BY</th> </tr> </thead> <tbody> <tr> <td>09/24/13</td> <td>S. COX</td> <td>09/24/13</td> <td>S. COX</td> <td>09/24/13</td> <td>S. COX</td> <td>09/24/13</td> <td>S. COX</td> </tr> </tbody> </table>												DATE	BY	DATE	BY	DATE	BY	DATE	BY	09/24/13	S. COX	09/24/13	S. COX	09/24/13	S. COX	09/24/13	S. COX	<b>DRAWING NUMBER</b> SE6000-88		<b>PROJECT DOCUMENT LIST</b>			
DATE	BY	DATE	BY	DATE	BY	DATE	BY																										
09/24/13	S. COX	09/24/13	S. COX	09/24/13	S. COX	09/24/13	S. COX																										

STATION STANDARD  
 SE6000-88  
 LATEST REVISION: 1

6

5

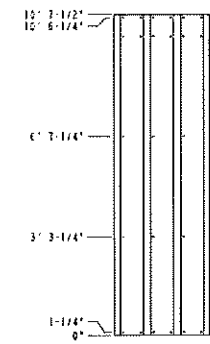
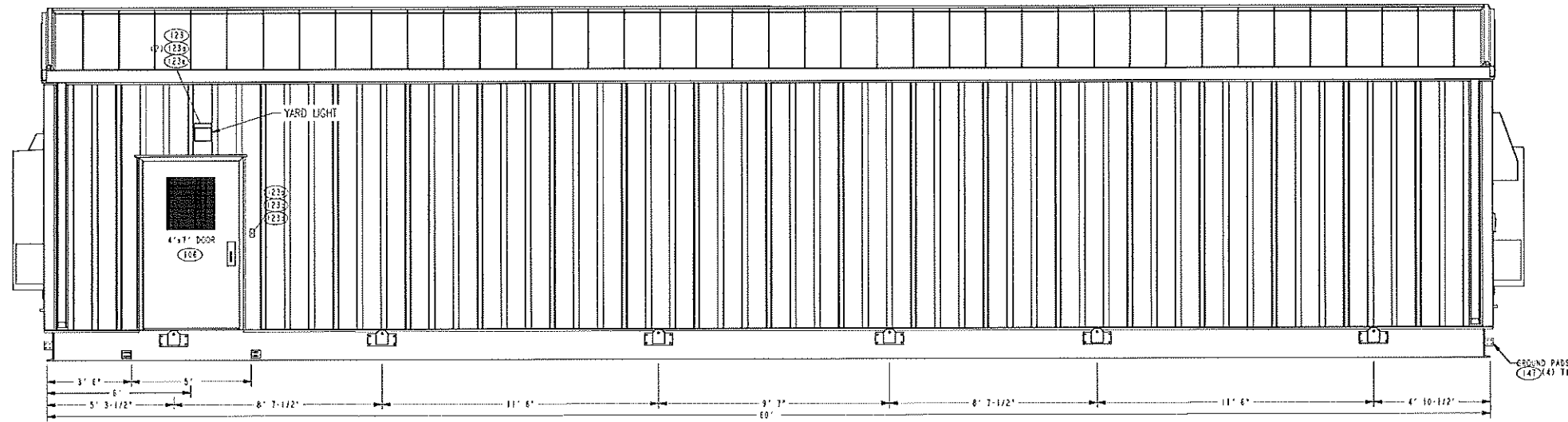
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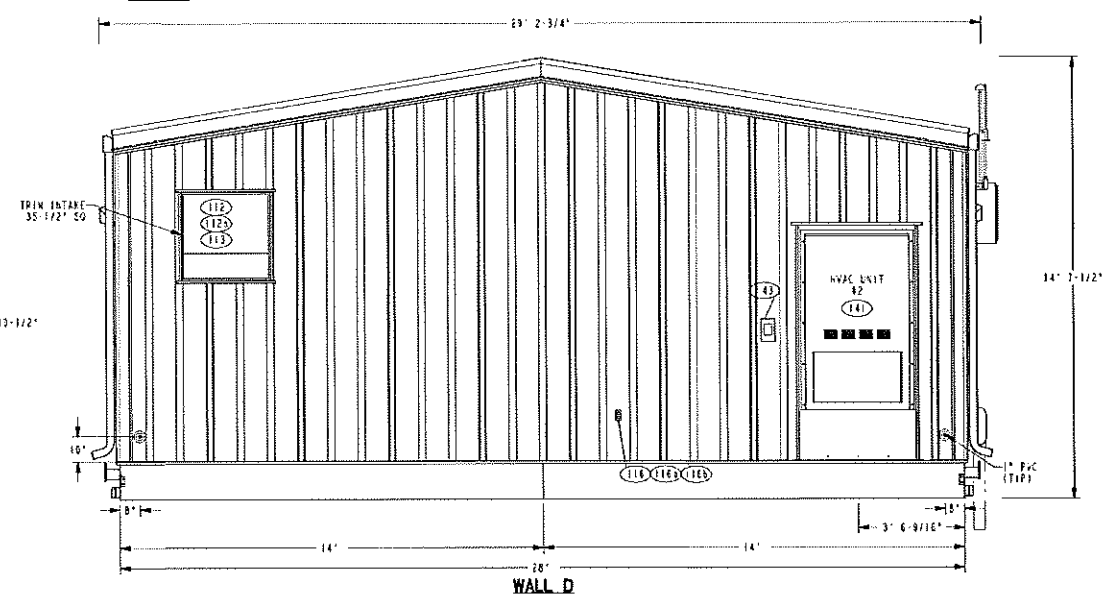
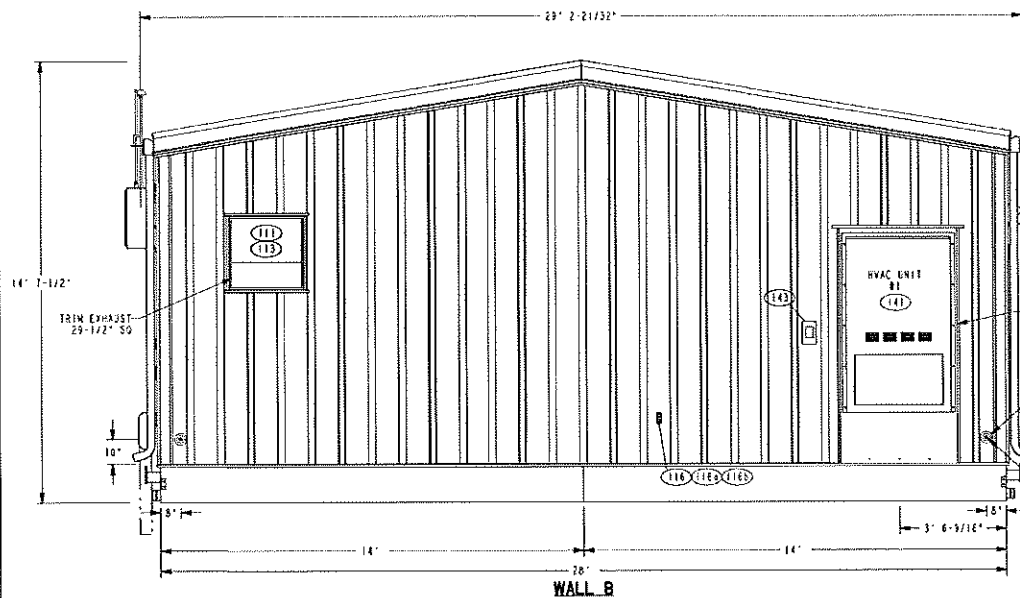
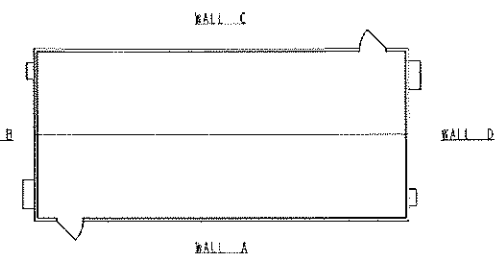
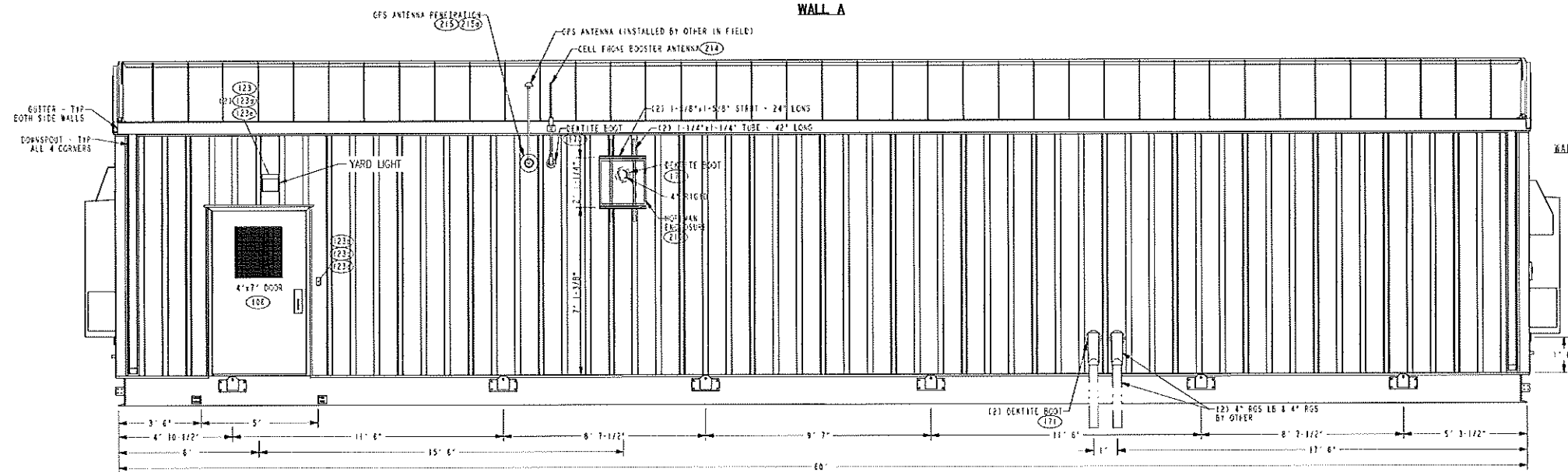
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1





SHEETING\_SCREW\_LOCATION  
MULTI-RIB STANDOFF WALL



REVISION

DFTW.:	DATE:
CHK'D.:	DATE:
APP'D.:	DATE:

REVISION

DFTW.:	DATE:
CHK'D.:	DATE:
APP'D.:	DATE:

REVISION

DFTW.:	DATE:
CHK'D.:	DATE:
APP'D.:	DATE:

REVISION 0

TOLERANCE NOTE C

UNLESS SPECIFIED OTHERWISE  
WHOLE NUMBERS 1/2" - 1/16"  
FRACTIONS 1/2" - 1/32"  
HOLE DIAMETERS 1/2" - 1/64"  
ANGLES 1/2"  
WELD LENGTH 1/2" - 1/4"  
WELD SPACING 1/2" - 1"



SYSTEMS CONTROL  
A DIVISION OF NORTHERN STAR INDUSTRIES, INC.  
IRON MOUNTAIN, MICHIGAN

DFTW. RC	DATE: 9/8/15
CHK'D. CREO	DATE: 9/9/15
APP'D. CREO	DATE: 9/8/15

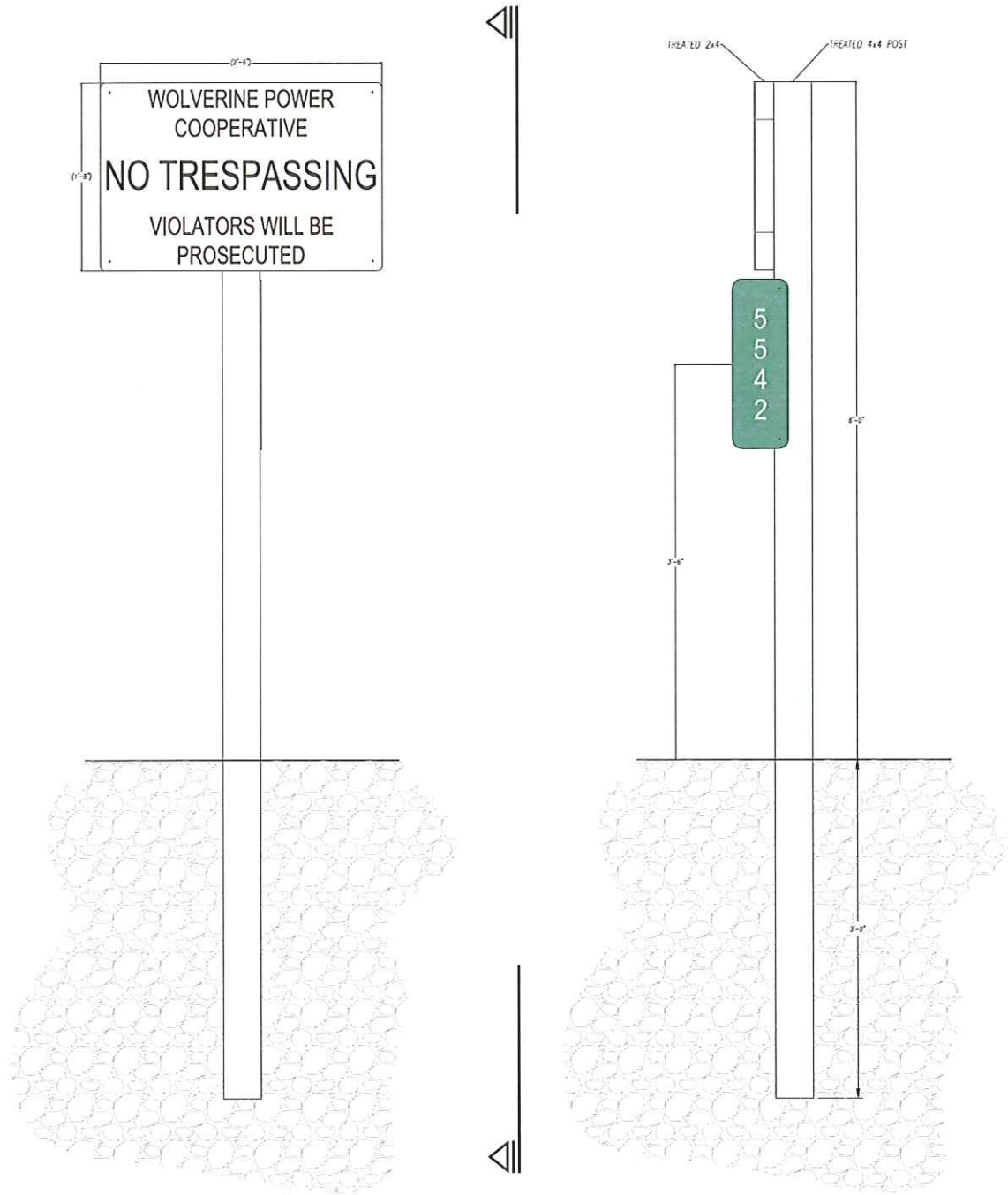
WOLVERINE  
VAN FLYE SUBSTATION

DIMENSIONS IN INCHES  
SCALE: N.T.S.  
SCC PROJECT NUMBER

CONTROL HOUSE  
EXTERIOR ELEVATIONS

38559-001

DRAWING NO.  
38559-L3



**SIGN INSTALLATION DETAIL**  
SCALE: 1-1/2" = 1'

WOLVERINE POWER  
COOPERATIVE

# NO TRESPASSING

VIOLATORS WILL BE  
PROSECUTED

QUANTITY: 2

5  
5  
4  
2

QUANTITY: 1

**SIGNS PROVIDED BY WPC**  
SCALE: HALF

CRITICAL ENERGY INFRASTRUCTURE INFORMATION - DO NOT RELEASE

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**VAN TYLE TRANSMISSION**

SUBSTATION SIGN DETAILS

CAO DRAWING  
VIT 991  
DRAWN ELB  
ENG.  
P.M.  
SCALE AS NOTED  
ORIGINAL 08/18/15  
SHEET

**991**

**WOLVERINE POWER COOPERATIVE**  
10125 W. WATERGATE ROAD, CADILLAC, MI 49601

REV #	DATE	DESCRIPTION
1	08/18/15	ADDITIONAL SIGN DETAILS FOR VAN TYLE