

**CITY OF WEST DES MOINES
BOARD OF ADJUSTMENT COMMUNICATION**

Meeting Date: June 1, 2016

Item: Cellular Communication Tower, 4101 E.P. True Parkway – Approval of a Permitted Conditional Use Permit to construct a 105 foot communications tower and associated equipment area – SBA Communications – PC-0002968-2016

Requested Action: Approval of a Permitted Conditional Use Permit

Case Advisor: Kara Tragesser, AICP



Applicant's Request: The applicant, SBA Communications, represented by Chad Gargrave with Black and Veatch, is requesting approval of a Permitted Conditional Use Permit to construct a one hundred foot communications tower with 5 foot lightning rod (total height 105') on property located at 4101 EP True Parkway (see Attachment B – Location Map and Attachment C – Site Plan). The property is owned by the City of West Des Moines. The applicant proposes to lease a 50 ft. by 50 ft. area, plus easement areas for utilities and access to the site.

History: The City has owned the property since 1991. The property is part of the Jordan Creek Greenbelt and is zoned open space. Communications towers are a permitted conditional use in this zoning district.

City Council Subcommittee: On April 10, 2014, SBA approached the City about possibly locating a communications tower at what was then the Dahl's property at 5003 E.P. True Parkway or at the Ace hardware store at 245 50th Street. At that time, SBA was advised the zoning of the properties did not allow for the construction of a communications tower. SBA proposed an 80' flag pole or light pole that would double as a communication tower. There also was discussion regarding locating the tower in the City-owned park to north of the Dahl's property, but at one time, this option was not supported by the Park Advisory Board or the Development and Planning Subcommittee. There was additional conversation regarding the potential to locate the tower on City property to the west of the rugby fields on the west side of 39th Street and E.P True Parkway. The Subcommittee direction at that time was to continue looking for other options, while not supporting putting towers in the parks.

On January 15, 2015, SBA approached the City about the possibility of locating a communications tower in the area of 39th Street and E.P. True Parkway. At that time the interest was in the western side of the of the park, west of the rugby fields on 39th Street, but the east side of 39th Street was also discussed. The Subcommittee directed staff to continue to investigate options and solutions.

On July 16, 2015, Black and Veatch on behalf of SBA Communications met with the Development and Planning City Council Subcommittee to discuss potential locations of cell towers; again citing the need for a tower in the vicinity of 39th Street and EP True Parkway. It was noted that the previously considered site on the east side of 39th Street at E.P. True parkway was encumbered with utilities and a deed restriction that restricted the property to municipal uses. It was determined that the City owns the west side of the rugby fields on the west side of 39th Street and that the Parks Department was originally not supportive of having a cell tower on this site. The Council members agreed that Black and Veatch should work with staff to identify a general area where cell towers could be located at 39th Street and the rugby field.

Projects for consideration by the Board of Adjustment generally are presented to the subcommittee for information only.

Staff Review and Comment: This request was distributed to other City departments and other agencies for their review and comment. Please note the following:

- The tower construction will be a monopole-style design with interior antenna.
- This tower is proposed to be 105 feet including a 5 foot tall lighting rod
- The tower can accommodate at least one additional cellular communications provider.

- The tower and equipment platform meet city codes and regulations.

Permitted Conditional Use Permit Findings: SBA's application for a Permitted Conditional Use Permit to construct a 105 foot tall stealth monopole style cellular tower and associated structures at 4101 EP True Parkway was reviewed by various City departments. Based upon those reviews and any conditions of approval, the following findings have been made on the proposed project:

1. The proposed development and use is consistent with all the goals and policies of West Des Moines Comprehensive. *It appears that the proposed use is consistent with the West Des Moines Comprehensive Plan in that the project is consistent with the goal and policies of the plan. Policy 1.1 provides, "As part of the Development Review process, the City shall seek to maintain and improve the visual appeal of the community by ensuring proposed development will provide site and building design that respects existing patterns, context, and character of the vicinity". The project is located within the appropriate zoning district, and while the height of the facility cannot be screened, landscaping has been required to aid in screening the enclosure and other utility infrastructure (transformers).*
2. The proposed development and use does assure compatibility of property uses within the zone and general area in that this project was reviewed by various City Departments for compliance with the Zoning Ordinance. *This project was review by various City Departments for compliance with the zoning ordinance. This project has been reviewed similarly to other like projects and is compatible with the zoning ordinance.*
3. All applicable standards and conditions have been imposed which protects the public health, safety and welfare in that this project was reviewed by various City Departments and public agencies for compliance with the various state and local regulations. Based upon that review a finding is made that the project has been adequately conditioned to protect the health, welfare, and safety of the community. *Although impossible to entirely visually mitigate the tower, all applicable standards appear to have been imposed to project the public health safety and welfare, the project was reviewed by various City Departments for compliance with regulations.*
4. There is adequate on-site and off-site public infrastructure to support the proposed development in that this project was reviewed by various public agencies and City Departments and public utilities to ensure that either the petitioner will construct or the project has been conditioned to construct adequate public infrastructure to serve the development. *There appears to be adequate on-site and off-site public infrastructure to support the proposed development.*
5. The proposed development and use has met the requirements contained in the City Code in that this project was reviewed by various City Departments and public agencies and the project has complied with or has been conditioned to comply with all City Code requirements. *The proposed project appears to meet the requirements contained in the city code*
6. The proposed development and use is in keeping with the scale and nature of the surrounding neighborhood in that the proposed project is consistent with the Zoning regulations and the Comprehensive Plan which designates this site as suitable for development such as that proposed by this project. *The Comprehensive Plan and the Zoning Ordinance have indicated this property to be used for open space uses; communication towers are a Permitted Conditional Use in the Open Space district. These regulations have designated this site as suitable for development such as the proposed project.*

Staff Recommendations and Conditions of Approval for the Permitted Conditional Use Permit: Based upon the review of the proposal, a finding of consistency with the goals and policies of the Comprehensive Plan, and compliance with the findings necessary for approval, staff recommends the Board of Adjustment adopt a resolution for approval of the Permitted Conditional Use Permit to construct a 105 foot cellular monopole-style tower and associated equipment platform at 4101 E.P. True Parkway, subject to meeting all City Code requirements, regulations, and the following:

1. No lighting or signage, except to meet Federal, State, or other regulatory requirements shall be permitted.
2. The pole and enclosure will be regularly maintained to replace missing pole panels, landscape materials, painting, etc.
3. Prior to receiving a building permit, the applicant must execute a standard non-interference agreement, execute a lease with the City, and obtain utility easement and ingress/egress easements.
4. The applicant acknowledge future co-locations of cellular antennae and equipment shelters will require review and approval of a Minor Modification.
5. The applicant providing full sets of the permitted condition use permit site plan prior to the issuance of a building permit.

Noticing Information: On May 13, 2016, notice of the June 1, 2016, Board of Adjustment Public Hearing on this project was published in the Des Moines Register Community section. Notice of this public hearing was also mailed to surrounding property owners within 370 feet of the subject property on May 12, 2016.

Applicant: SBA Communications Corporation
 8051 Congress Avenue
 Boca Raton FL 33487

Representative: Chad Gargrave
 Black & Veatch
 7600 S. County Line Road
 Burr Ridge IL 60527
 973-458-1212
 gargravec@bv.com

Property Owner: City of West Des Moines
 PO Box 65320
 4200 Mills Civic Parkway
 West Des Moines IA 50265

Attachments:

Attachment A	-	Permitted Conditional Use Resolution
Attachment B	-	Location Map
Attachment C	-	Application Information
Attachment D	-	Site Plan

Prepared by: KTragesser City of West Des Moines PO Box 65320 West Des Moines, IA 50265-0320 515-222-3620
When Recorded Return to: City Clerk City of West Des Moines PO Box 65320, West Des Moines, IA 50265-0320

RESOLUTION

A RESOLUTION OF THE BOARD OF ADJUSTMENT OF THE CITY OF WEST DES MOINES, APPROVING THE PERMITTED CONDITIONAL USE PERMIT (PC-002968-2016) FOR THE PURPOSE OF CONSTRUCTING A 105 FOOT TALL STEALTH MONOPOLE STYLE CELLULAR TOWER AND ASSOCIATED EQUIPMENT AT 4101 E.P. TRUE PARKWAY

WHEREAS, pursuant to the provisions of Title 9, Chapter 1 et seq, of the West Des Moines Municipal Code, the applicant, SBA Communications, LLC, has requested approval for a Permitted Conditional Use Permit to construct a 105 foot tall stealth monopole style cellular tower and associated equipment at property located at 4101 E.P. True Parkway and legally described as:

Legal Description of Property

PARCEL A SOUTHWICK PLAT, AN OFFICIAL PLAT NOW IN AND FORMING A PART OF THE CITY OF WEST DES MOINES, POLK COUNTY, IOWA

WHEREAS, studies and investigations were made, and staff reports and recommendations were submitted which is made a part of this record and herein incorporated by reference;

WHEREAS, on June 1, 2016, the Board of Adjustment held a duly-noticed public hearing to consider the application for Permitted Conditional Use Permit;

NOW, THEREFORE, THE BOARD OF ADJUSTMENT OF THE CITY OF WEST DES MOINES DOES RESOLVE AS FOLLOWS:

SECTION 1. The findings, for approval, in the staff report, or as amended orally at the Board of Adjustment hearing, are adopted.

SECTION 2. The PERMITTED CONDITIONAL USE PERMIT (PC-002968-2016) is approved, subject to compliance with all the conditions in the staff report including conditions added at the Hearing, and attached hereto as Exhibit "A", if any. Violation of any such conditions shall be grounds for revocation of the entitlement, as well as any other remedy which is available to the City.

PASSED AND ADOPTED on June 1, 2016

Mike Blaser, Chair

ATTEST:

Recording Secretary

I HEREBY CERTIFY that the foregoing resolution was duly adopted by the Board of Adjustment for the City of West Des Moines, Iowa, at a regular meeting held on June 1, 2016, by the following vote:

AYES:
NAYS:
ABSTAIN:
ABSENT:

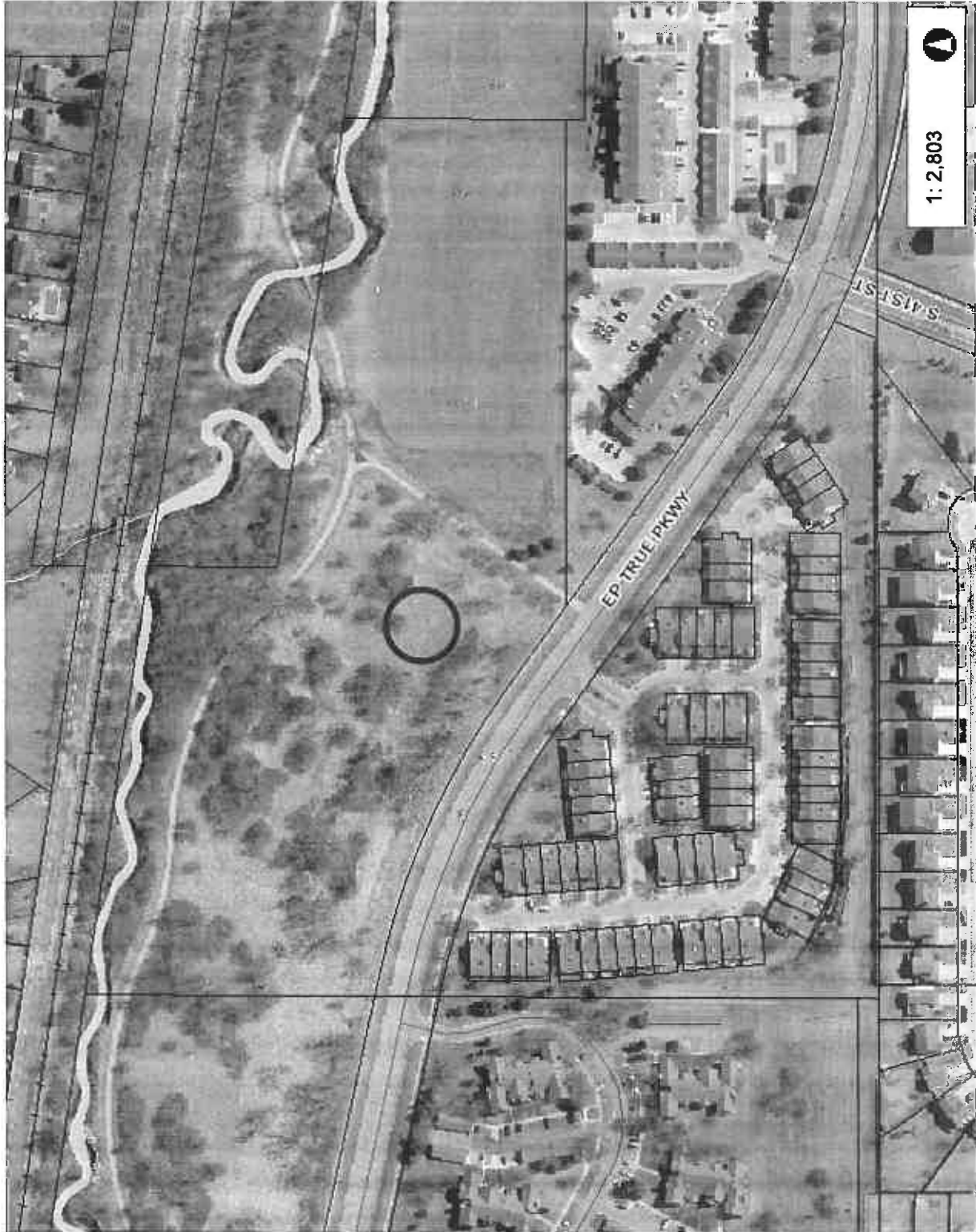
ATTEST:

Recording Secretary

EXHIBIT A

1. No lighting or signage, except to meet Federal, State, or other regulatory requirements shall be permitted.
2. The pole and enclosure will be regularly maintained to replace missing pole panels, landscape materials, painting, etc.
3. Prior to receiving a building permit, the applicant must execute a standard non-interference agreement, execute a lease with the City, and obtain utility easement and ingress/egress easements.
4. The applicant acknowledge future co-locations of cellular antennae and equipment shelters will require review and approval of a Minor Modification.
5. The applicant providing full sets of the permitted condition use permit site plan prior to the issuance of a building permit.

4101 E.P. True Pkwy

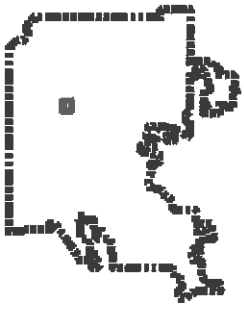


1:2,803



Legend

□ Parcels



Disclaimer: The City of West Des Moines makes no warranties regarding the accuracy or completeness of the data provided herein.

THIS MAP IS NOT TO BE USED FOR NAVIGATION

467.2

233.58

© City of West Des Moines, Iowa
NAD_1983_StatePlane_Iowa_South_FIPS_1402_Feet

PROJECT OVERVIEW
PROPOSED VERIZON WIRELESS TELECOMMUNICATIONS FACILITY
LOCATED ON A PROPOSED SBA COMMUNICATIONS TOWER

4101 E.P. True Parkway, West Des Moines, IL

SBA Communications Corporation (SBA) is a leading independent owner and operator of wireless communications infrastructure across North, Central, and South America. SBA leases antenna space on their multi-tenant towers to wireless service providers including Verizon Wireless.

Verizon Wireless provides wireless telecommunication services to the public in regional markets across the United States, as well as in more than 200 destinations around the world. Verizon Wireless has the largest nationwide voice and data network with over 107 million subscribers, operating the Nation's fastest and most advanced 4G network and the largest and most reliable 3G network. Verizon Wireless is licensed by the Federal Communication Commission (FCC) and regulated by the Federal Aviation Administration (FAA). Verizon Wireless is a major provider of wireless telephone service in the Iowa.

SBA is proposing a new monopole communications tower within the City of West Des Moines on the property at 4101 E.P. True Parkway. The proposed location will provide additional capacity to the Verizon Network currently operating in West Des Moines. Verizon Wireless' Radio Frequency Engineering team has selected the proposed location after a careful study of existing and future network capacity needs and consideration of other alternate locations.

Property Search

Once the need for a wireless telecommunications facility is identified, SBA studies the local zoning regulations to determine the most appropriate zoning districts within the search area to locate their facility. SBA is dedicated to working with local officials to site its facilities in locations appropriate to the community. SBA strives to build sites that blend with the local character and are unobtrusive to the community. Sites are chosen by their proximity to compatible land uses whenever feasible. It is important to remember that wireless telecommunication facilities must be considered as part of a network, not as individual locations. Wireless Telecommunication facilities can be likened to links in a chain. One link adds to the next making the network design larger.

As the proposed site is needed to improve network capacity, the geographic search area is very small. After a thorough search, it was determined that there are no other existing towers which meet Verizon Wireless's requirements for the necessary capacity site in this search area. As such, SBA is proposing a new tower on the property for Verizon Wireless's facilities and to accommodate an additional carrier.

In addition to providing for Verizon Wireless's facilities, SBA allows and in fact encourages colocation (carrier attachments) on its towers. SBA has a master lease agreement with the vast majority of carriers in the wireless industry.

Description of Property

The subject parcel is located at 4101 E.P. True Parkway and used as a park as part of the Jordan Creek Trail. The parcel is zoned OS. The proposed site is 6,652 square feet in area and located in an area set back from roadways and the trail in order to better blend with the surrounding uses. The facility will be secured by a fence which will surround the site. SBA's proposed site is designed and configured to minimize adverse visual impacts. It has been carefully designed as a 105' canister-style monopole communications tower with all antennas being hidden within the canister of the tower.

Description of Facilities

SBA has designed this proposed communications facility with many factors in mind. Wireless communication facilities are made up of 3 main parts: the tower, electronic equipment, and antennas. SBA will install a 100' canister-style tower (with a 5' lightning rod at the top). The antennas will be concealed from view installed within the canisters at the top of the tower. The color of the tower and canisters will be a uniform galvanized grey color. Cabinets housing the electronic equipment will be installed near the base of the tower. The electronic equipment is connected to the antennas on the tower via coaxial and / or fiber-optic cable. The electronic equipment is supported atop a steel platform that is raised 6'-6" above ground level in order to meet the requirements of the floodplain. All of this will be contained within a 6,652 square foot lease area.

Those major elements of the facility are supported by other items. Electrical, fiber-optic, and telephone utilities shall be brought by SBA from the right-of-way at E.P. True Parkway. From there, utilities will travel underground to the SBA lease area and connect to the electrical equipment. SBA will install a chain link fence surrounding the 50' x 50' facility area with a maximum height of 6' and a locked gate for access. No lighting is needed at the facility per Federal regulations or for maintenance purposes. The facility will have backup power in the form of battery stacks within the electronic equipment cabinets—no electrical generator will be installed. A separate document included with this application details the Outside Plant Enclosures with detailed specifications for the electronic cabinets and batteries. The cabinets will not be installed with the canopy as depicted on the title page of that document.

Ingress and egress to the site as well as parking will be provided by an access drive. SBA will improve the existing park maintenance path to a 12' wide concrete path to account for necessary facility construction and maintenance vehicles. From there, SBA will turn off from the existing path to continue an asphalt access drive the remaining distance to the facility, which is included as part of the lease area square footage. In an attempt to avoid improving the existing park maintenance path, a temporary access drive was discussed with the City and considered. However, due to the steep decline off of E.P True Parkway and the amount of landscaping that would need to be removed for the temporary access path, SBA proposes the best solution is to improve the existing access drive to be used for the construction vehicles.

Nature of Request/Zoning Analysis

SBA is requesting a Conditional Use Permit and any other permits necessary to construct a wireless telecommunications facility consisting of a 105' monopole tower (overall height) and related antenna equipment, as well as an equipment platform and cabinets in a fenced lease area with the approximate dimensions of 6,652 square feet.

SBA's proposed wireless communications facility requires a Conditional Use Permit according to Title 9 of the West Des Moines, IA City Code. In the OS zoning district, communication towers and antennas are allowed subject to the issuance of a Conditional Use Permit. According to Title 9, Chapter 5 of the Code, a Conditional Use Permit may be granted after review by the Board of Adjustment so long as the applicant meets the standards set forth by the Code.

The communications facility as proposed by SBA meets all standards of the Code including, but not limited to, Section 9-1-8 Entitlements – Processes and Procedures; Section 9-10-4 Specific Use Regulations; and Section 2-2-4 Jurisdiction and Powers of the Board of Adjustment.

The proposed communications facility shall be consistent with the intent and purpose of the Code and the Comprehensive Plan. The facility is necessary to improve network capacity in neighboring area. As the Comprehensive Plan considers the current and future development of the City, wireless communication infrastructure needs to keep pace in order to serve the community.

As described above, the communications facility will have a small footprint. This means there will be little impact in the character of the neighborhood with no adverse effect on existing uses or future development in the area. To the contrary, robust wireless communications have a positive influence on development. Citizens have come to rely upon mobile devices to stay in touch with family and friends, contact emergency services, and do business. Therefore, the surrounding residential and commercial uses will enjoy the safety and security of wireless technology with no adverse impacts to their daily lives.

Aside from the small footprint of the facility, SBA has worked with City officials to sight the proposed facility in a location that would be least impactful while still providing the necessary service to the neighborhood. Once the Radio Frequency Engineers decide the need to improve the network in an area, they issue a search ring. A search ring is a geographic area (typically the size of a 1/4 mile diameter) where a site must be located in order to meet the network needs. A specialist drives the area to look for existing wireless communication facilities or other existing structures where Verizon could collocate. If none exist, then the specialist examines the zoning code and works with local officials to determine the most appropriate location for a new tower facility.

The location on the Jordan Creek Trail parcel will meet the network needs in the area, but it is also a sound choice as it limits any impact on surrounding uses. The proposed site is set back from E.P. True Parkway and from the Jordan Creek Trail in a wooded area for natural screening. SBA will be installing additional landscaping around the facility. The landscaping will include trees native to the area similar to those already found in the park. SBA has chosen a canister-type monopole tower with all antennas located within the pole itself. This reduces the visual silhouette of the tower helping it blend into the background. The tower has also been designed to be the lowest height possible while still providing the necessary coverage to the surrounding neighborhoods.

SBA has designed the facility to have no detrimental effect on the character of the site, its surroundings, or the environment. SBA will not remove any of the existing trees in the park. In fact, the proposal includes adding additional native species trees for site screening. Further, as the site is located in a floodplain, the facilities equipment cabinets shall be elevated from the ground to avoid interference with any flood waters. The site has also been designed to account for any changes in flow of flood waters to avoid any adverse effects.

The communications facility shall contain no advertising, but only signage required by regulation or other signage used by SBA and its collocators to identify the site.

SBA shall apply for, and obtain, a Building Permit and any other permits required by the City prior to beginning installation of the communication facility.

Operation of the communication facility shall not create any nuisances. The communications facility equipment shall not produce noise in excess of 65 decibels when measured from the property lines. Nor shall operation of the facility require storage of any hazardous waste materials. At this time, no lighting is proposed at the site. Any lighting would be used to provide safe access to the equipment platform and cabinets should service technicians need to perform emergency maintenance after dark. Any site lighting will be downcast on the equipment cabinets and will be on a timer to turn off after a specific time period (approximately 1 hour).

For the reasons stated above, the proposed communications facility will not adversely affect the health or safety of persons, is not materially detrimental to the public welfare, nor injurious to nearby property or improvements. Instead, wireless communications are beneficial to the health, safety, and general welfare of the public. People have become dependent upon mobile phones and devices. Wireless communication helps stay in touch with family members. Companies run their businesses from wireless devices. Citizens contact emergency services from their mobile phones. A robust and dependable network is vital for the health, safety, and general welfare of the community.

This parcel is zoned OS, and as such, it is one of the few parcels in the area that allow telecommunication facilities in the area required for the Verizon network. The parcel has the Jordan Creek Trail running through it, as well as Jordan Creek itself, and an abundance of trees and other vegetation. With those factors, SBA is limited in the locations in which it could place the tower. After consulting with City officials, it was determined the proposed location is the best to minimize impact of the site while still allowing the facility to function. No other location on the property would allow appropriate ingress and egress, access to utilities, and avoid interference to the Trail, Jordan Creek, and the existing trees. Additionally, the tower is the minimum height necessary to fulfill the needs of the network. A tower of any less height would not benefit the community with the coverage needed.

Statement of Verizon Wireless Operations

The City's approval of this project will enable Verizon Wireless to continue to maintain the best, most reliable wireless service in your area. The proposed location will provide improved capacity to Verizon Wireless's network operating in Iowa. Currently, Verizon Wireless provides wireless service coverage in and around the area of the proposed site. However, with increasing capabilities of cellular devices—including smart phones, tablets, and WiFi hotspots— wireless networks are under constant pressure to provide faster data speeds for more devices and larger amounts of data. As a result, Verizon Wireless is working to increase wireless network capacity nationally within the existing network through capacity sites such as the proposed site. The proposed site will help ensure that Verizon Wireless's network remains reliable even with increased data usage by its customers.

Verizon Wireless currently provides voice and data service in this area, however, data usage is increasing exponentially due to services like wireless internet, mobile email and video streaming. Businesses are also increasingly dependent on our data network for mobile internet and enterprise applications. In addition, Verizon Wireless will soon be upgrading its voice service, which will put even more demand on its existing data network. As a result, Verizon Wireless must make critical upgrades to its network in this area to maintain and improve reliable data service for its customers who live and work in this area, many of whom rely exclusively on wireless communications

services and do not have landline phone service. Most critically, many local and state public safety and emergency service providers rely on Verizon Wireless's network, including the City of West Des Moines' emergency service providers, every day to ensure the safety of your community. Verizon Wireless is committed to best-in-class network reliability for all of these customers, and the proposed project at 4101 E.P. True Parkway will allow Verizon Wireless to maintain this commitment.

The proposed upgrade to their network in this area will provide businesses and residential customers with the reliable wireless service on which they have come to rely, and will ensure that emergency service and public safety customers can continue to ensure public safety for all of Iowa's citizens and visitors.

Once the construction of the wireless telecommunications facility is complete and the telephone switching equipment is fine-tuned, visitation to the site by service personnel for routine maintenance will occur approximately once a month. The site is entirely self-monitored and connects directly to a central office where sophisticated computers alert personnel to any equipment malfunction or breach of security. The wireless telecommunications facility will be unstaffed, with no regular hours of operation and no impact to existing traffic patterns. Maintenance—including mowing or snow removal—of the facility lease area and new access path branching from the existing access and pedestrian trail shall be the responsibility of SBA.

Compliance with Federal Regulations

Verizon Wireless and SBA will comply with all applicable FCC rules governing construction requirements, technical standards, interference protection, power and height limitations, and radio frequency standards. In addition, the company will comply with all applicable FAA rules on site location and operation. Therefore, the site will not interfere with emergency frequencies.

Benefits of Wireless Telecommunications

- **Public Safety:** More than 70% of all 911 calls nationwide are made from wireless phones.
- **Alternative to Landline System:** More than 41% of all US households are served by wireless carriers only. Where there is a landline phone in use, wireless serves as a back-up to the landline system.
- **Lifestyle and Convenience:** Wireless telecommunications support the productive and busy lifestyles of residents and tourists in Omaha by increasing productivity and reducing stress. More than 90% of all wireless phones are Smartphones.



WEST DES MOINES 2

View Facing NORTH WEST



BEFORE



WEST DES MOINES 2

View Facing NORTH WEST



AFTER



BEFORE



WEST DES MOINES 2

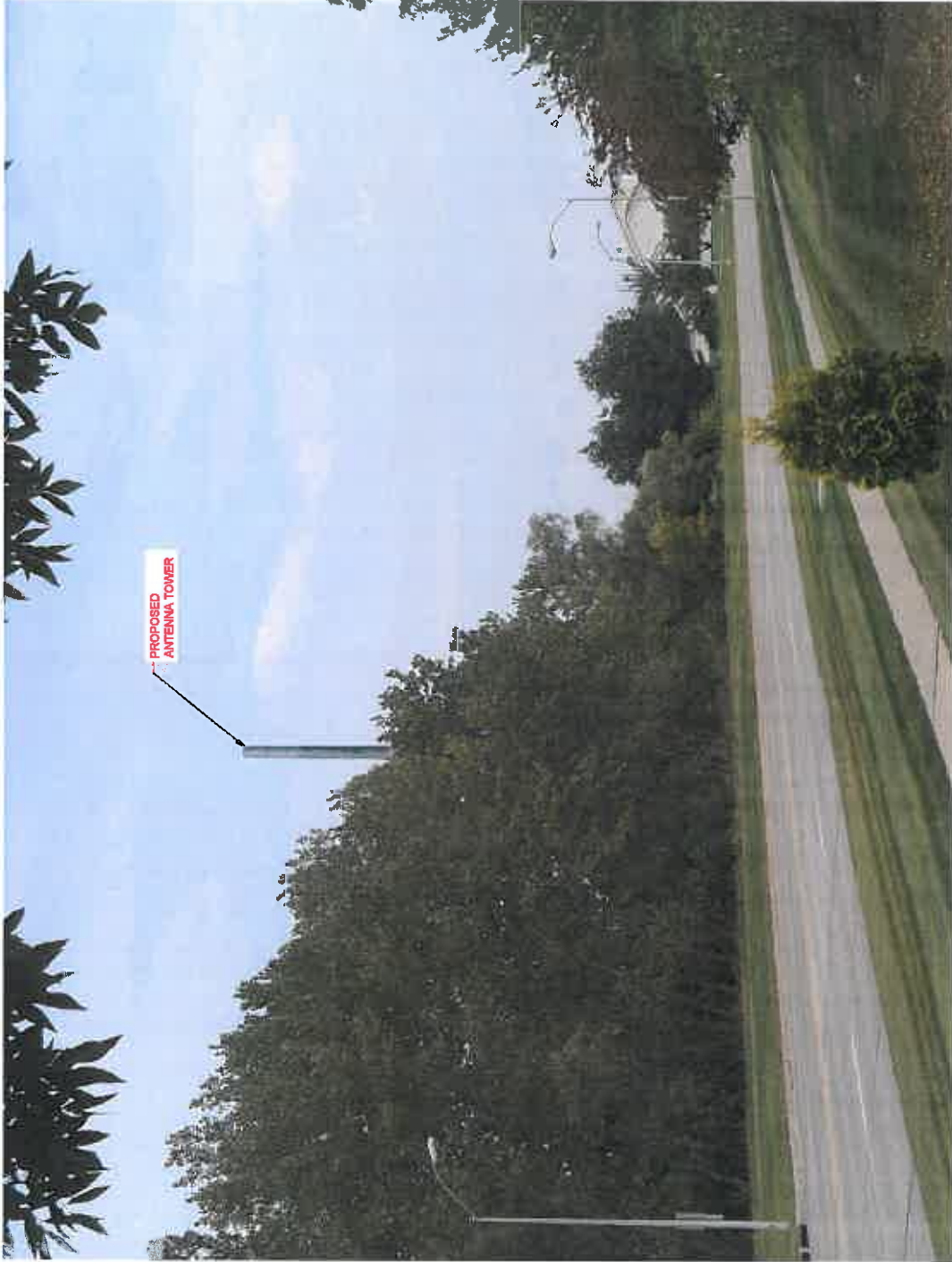
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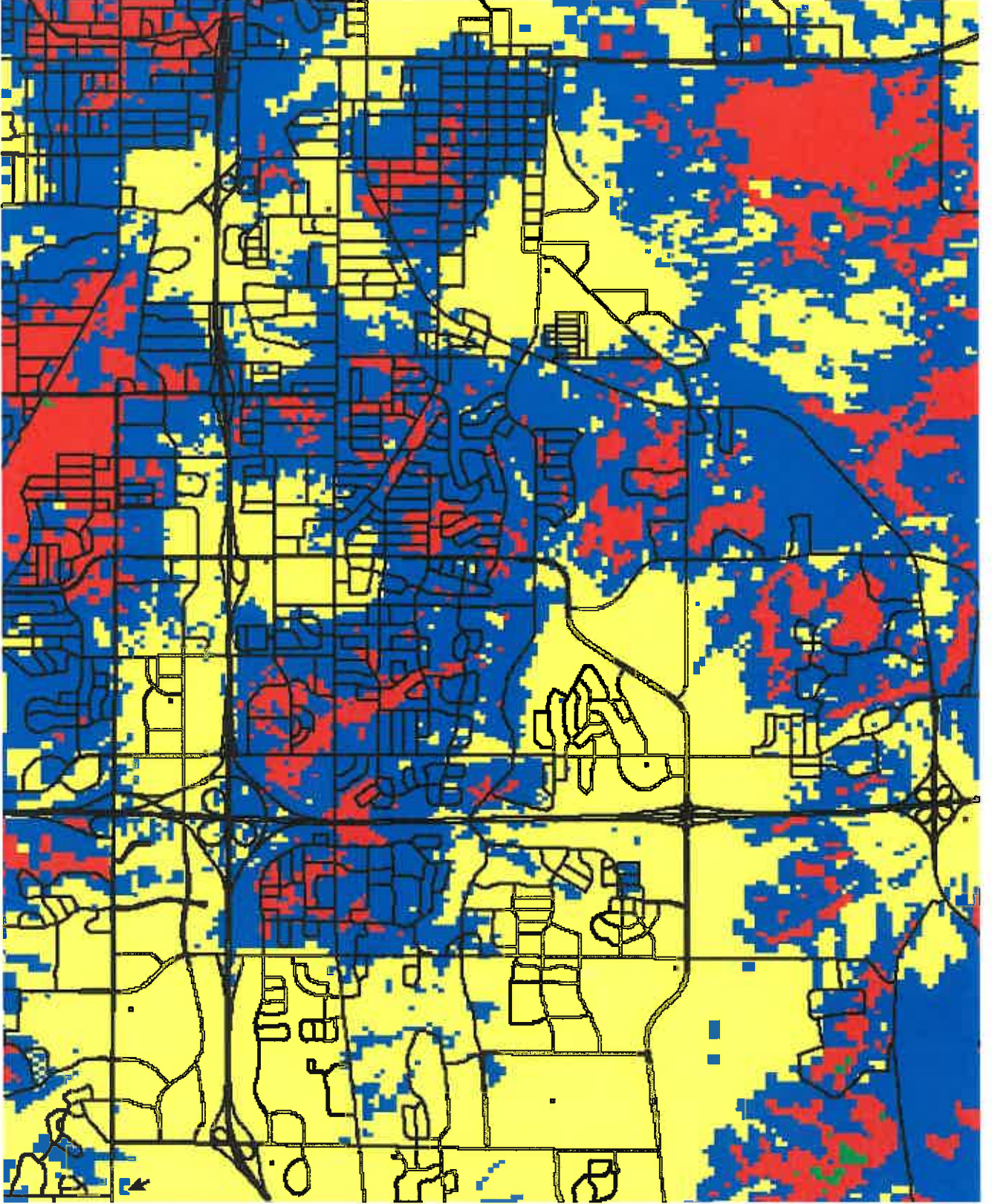
WEST DES MOINES 2

View Facing NORTH EAST

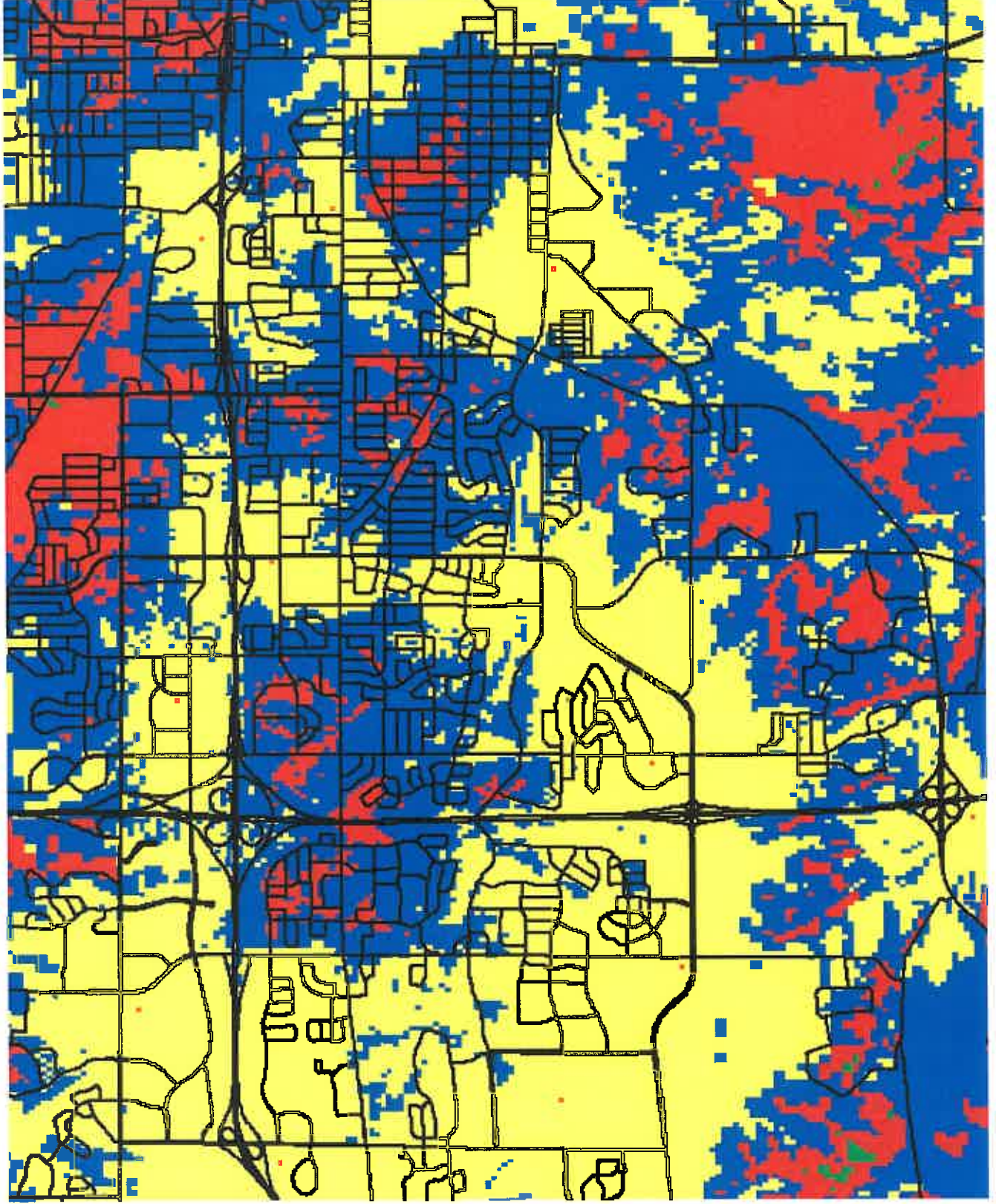


AFTER

Propagation without proposed site

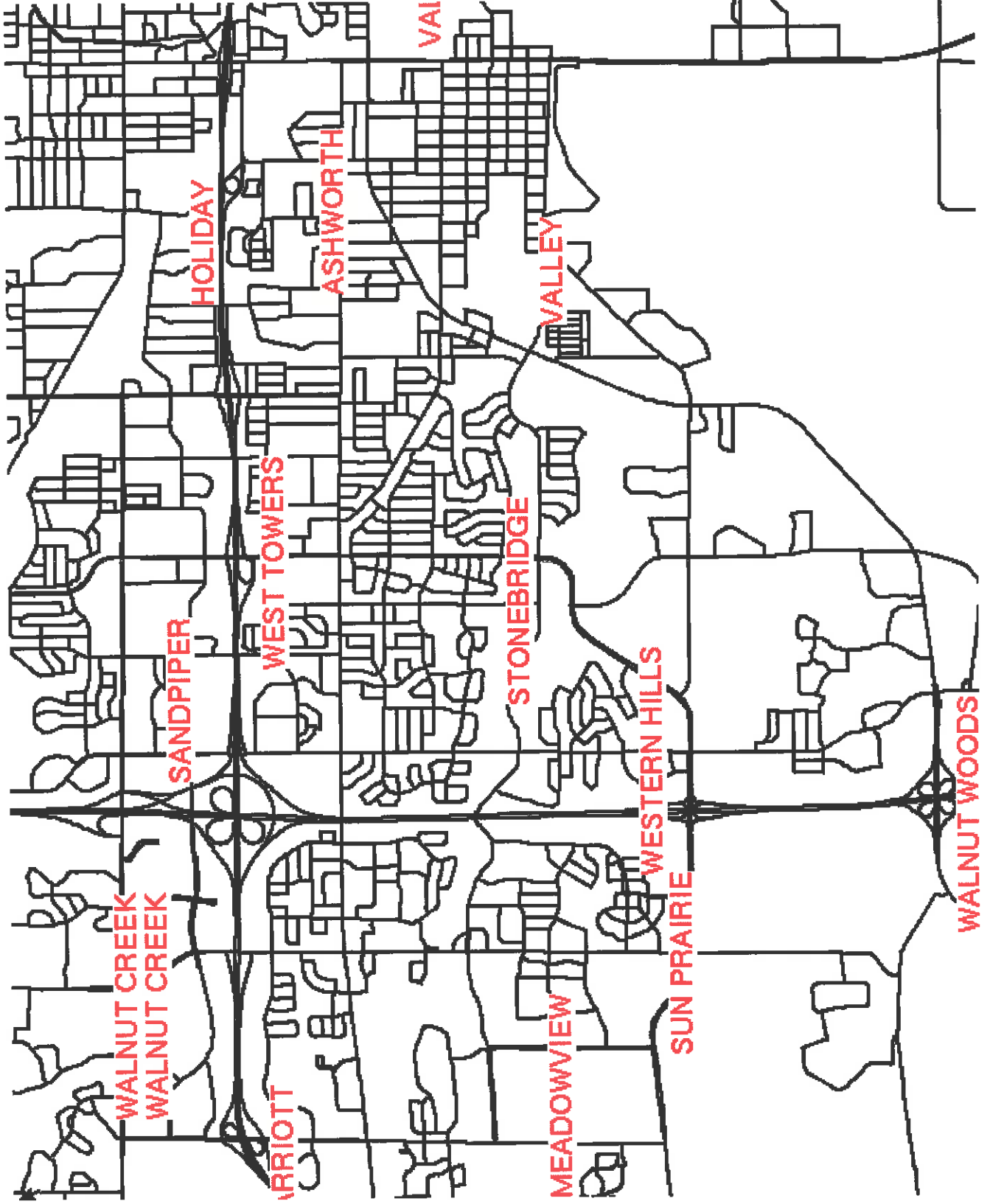


Propagation with proposed site



Signal Levels







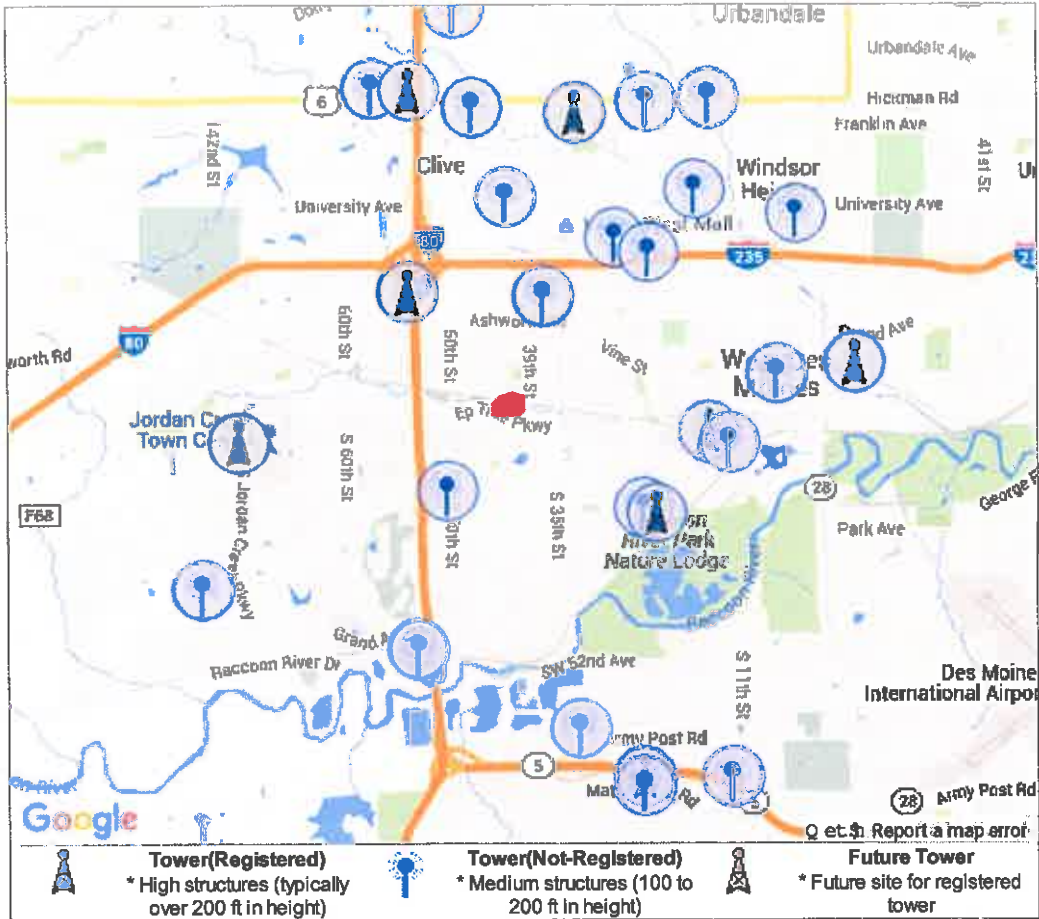

KEEP YOUR STUFF. SAVE MORE MONEY.
AT&T or T-Mobile compatible SIM only

\$0.99

BRING YOUR PHONE

See offer for details

• **Tower Structures - (4101 EP True Pkwy, West des Moines, IA 50265)**




Tower Search Results!

Alert! 30 Towers (9 Registered, 21 Not Registered) found within 4.00 miles of 4101 EP True Pkwy, West des Moines, IA 50265.

Info! The NEAREST Tower is 1.05 miles away and is owned by **United States Cellular Corp.**

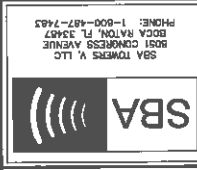
Ok! No Applications for Future Towers detected as of 01/14/16.

Tower Type	ID Num	Site Owner	Height	Dist
Registered	(1)	United States Cellular Corporation	185 feet	1.71 miles
	(2)	United States Cellular Corporation	175 feet	1.74 miles
	(3)	Verizon Wireless (vaw) Llc	128 feet	2.13 miles
	(4)	United States Cellular Corporation	60 feet	2.75 miles
	(5)	United States Cellular Corporation	115 feet	3.15 miles
	(6)	United States Cellular Corporation	44 feet	3.26 miles
	(7)	Sba Structures, Llc	199 feet	3.35 miles
	(8)	Wireless	185 feet	3.35 miles
	(9)	Sba Steel, Llc.	189 feet	3.83 miles
Not Registered	(1)	United States Cellular Corp	150 feet	1.05 miles

(2)	West Des Moines Community Schools	120 feet	1.14 miles
(3)	Us Cellular Corporation - Wi	145 feet	1.56 miles
(4)	United States Cellular Corporation	60 feet	1.92 miles
(5)	United States Cellular Corporation	130 feet	1.97 miles
(6)	Nextel Communications	150 feet	2.07 miles
(7)	American Tower-schaumburg, Il	198 feet	2.29 miles
(8)	American Tower Corp.	190 feet	2.29 miles
(9)	Nextel Communications	130 feet	2.37 miles
(10)	Blank	490 feet	2.71 miles
(11)	American Tower	164 feet	2.79 miles
(12)	Verizon Wireless	69 feet	2.83 miles
(13)	Usivt Inc	99 feet	2.94 miles
(14)	Nextel Partners Inc	95 feet	3.11 miles
(15)	Telecorp	139 feet	3.36 miles
(16)	Western Pcs I Corp	196 feet	3.41 miles
(17)	United States Cellular Corporation	99 feet	3.53 miles
(18)	Racom Corporation	140 feet	3.63 miles
(19)	Us Cellular Corporation	125 feet	3.67 miles
(20)	Iowa Department Of Transportation	100 feet	3.87 miles
(21)	Des Moines Skywave, Inc.	471 feet	3.95 miles
 Future (No Towers Detected)			

© 2004-2009 by General Data Resources, Inc.

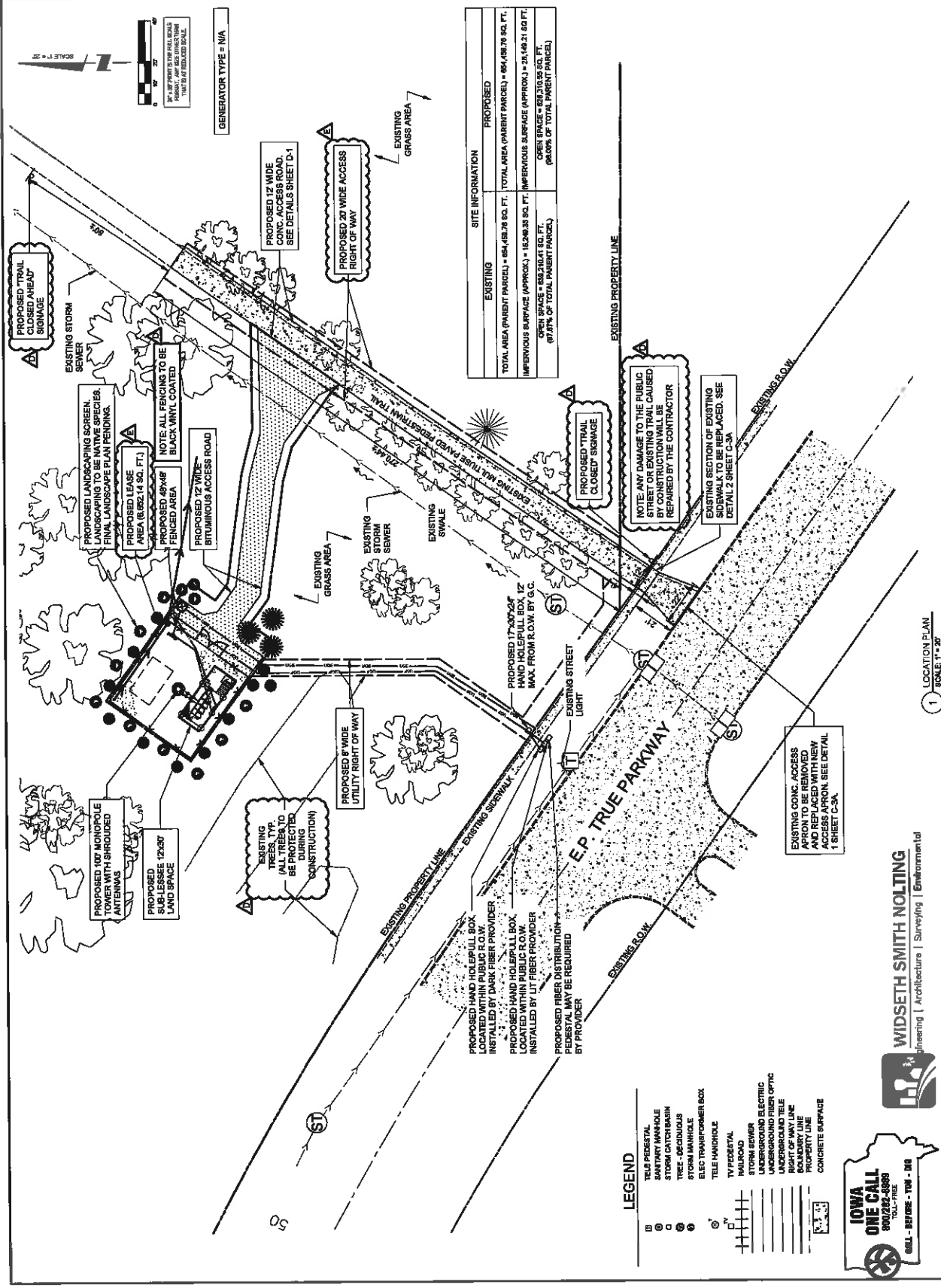




NO.	DATE	DESCRIPTION
1	08/19	ISSUED FOR REVIEW
2	08/19	REVISED PER COMMENTS
3	08/19	REVISED PER COMMENTS
4	08/19	REVISED PER COMMENTS
5	08/19	REVISED PER COMMENTS
6	08/19	REVISED PER COMMENTS
7	08/19	REVISED PER COMMENTS
8	08/19	REVISED PER COMMENTS
9	08/19	REVISED PER COMMENTS
10	08/19	REVISED PER COMMENTS

IA15833-B
 WEST
 DES MOINES 2
 4101 E.P. TRUE PARKWAY
 WEST DES MOINES, IA 50265

DATE:	08/19
PROJECT:	WEST DES MOINES 2
LOCATION PLAN	
SHEET NUMBER	LP



EXISTING	PROPOSED
TOTAL AREA (PARENT PARCEL) = 664,483.76 SQ. FT.	TOTAL AREA (PARENT PARCEL) = 664,483.76 SQ. FT.
IMPERVIOUS SURFACE (APPROX.) = 152,963.58 SQ. FT.	IMPERVIOUS SURFACE (APPROX.) = 20,149.21 SQ. FT.
PERCENT IMPERVIOUS SURFACE (APPROX.) = 23.02%	PERCENT IMPERVIOUS SURFACE (APPROX.) = 3.03%



LEGEND

- T&P PEDESTAL
- SANITARY MANHOLE
- STORM CATCH BASIN
- TREE - DECIDUOUS
- STORM MANHOLE
- ELEC TRANSFORMER BOX
- TELE MANHOLE
- TV PEDESTAL
- RAILROAD
- STORM SEWER
- UNDERGROUND ELECTRIC
- UNDERGROUND FIBER OPTIC
- UTILITY MANHOLE
- RIGHT OF WAY LINE
- BOUNDARY LINE
- PROPERTY LINE
- CONCRETE SURFACE

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1 LOCATION PLAN
 SCALE 1" = 20'

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PHONE: 1-800-487-7483

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600 Busse Highway
Park Ridge, IL 60068
PH: 847/998-6400
FAX: 847/998-6401

NO	DATE	REVISIONS
1		ISSUED FOR REVIEW
2		REVISED PER COMMENTS
3		REVISED PER COMMENTS
4		REVISED PER COMMENTS
5		REVISED PER COMMENTS
6		REVISED PER COMMENTS
7		REVISED PER COMMENTS
8		REVISED PER COMMENTS
9		REVISED PER COMMENTS
10		REVISED PER COMMENTS

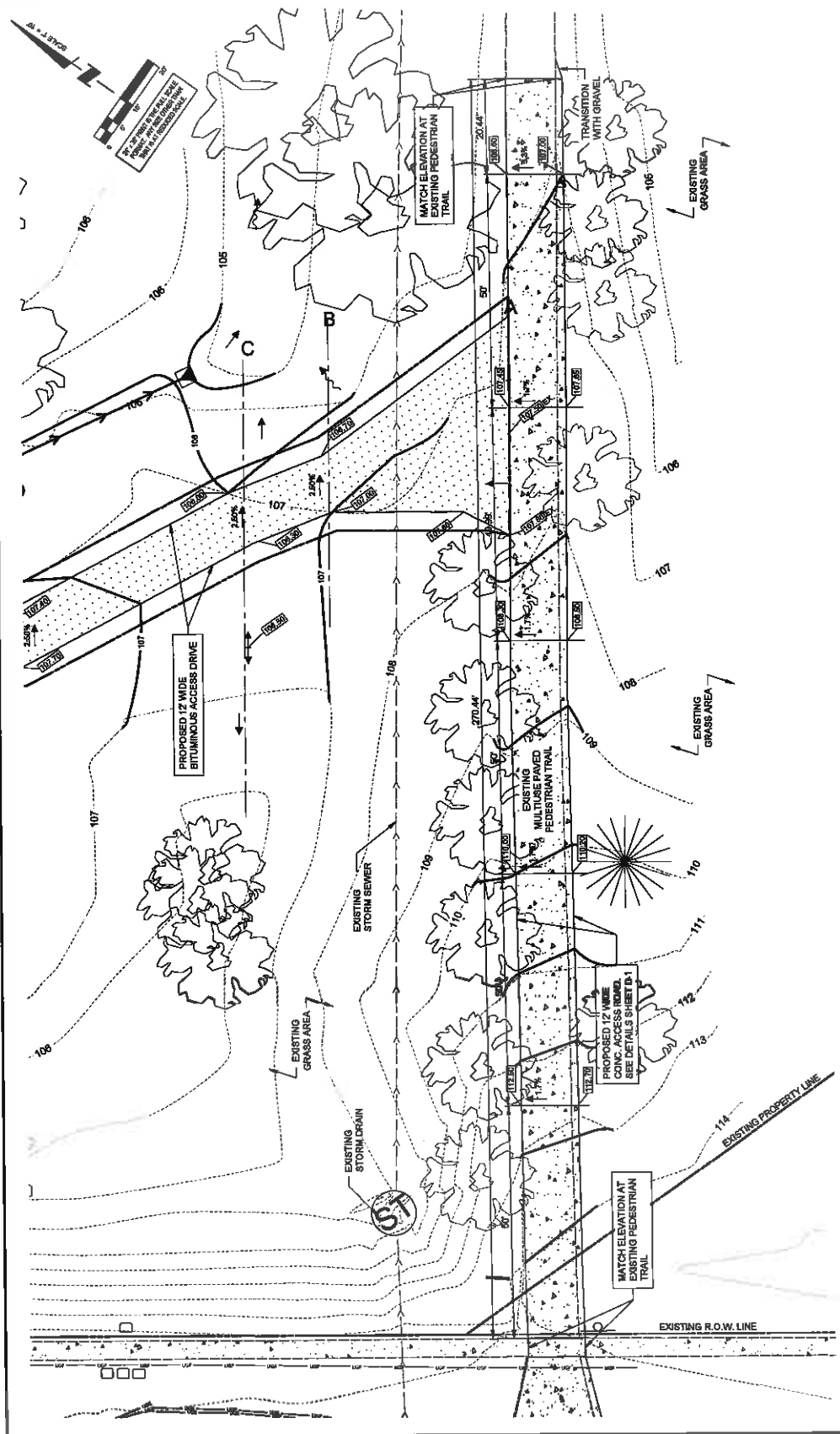
IA15833-B
**WEST
DES MOINES 2**

4101 E.P. TRUE PARKWAY
WEST DES MOINES, IA 50266

DRAWN BY:	JAS
CHECKED BY:	DM
DATE:	08/18
PROJECT #:	1719

SHEET TITLE
**SITE GRADING PLAN
(SHEET 2)**

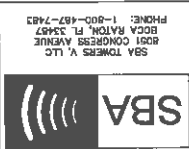
SHEET NUMBER
C-2A



FEMA FIRM
MAP NUMBER
1802310009C
REVISED 02-16-06
ESTIMATED BFE (100 YEAR FLOOD ELEVATION) = 885.50
VDM DATUM BFE (100 YEAR FLOOD ELEVATION) = 111.50



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 600 Busee Highway
 Park Ridge, IL 60068
 PH: 847/698-8400
 FX: 847/698-8401

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8				
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10				

IA15833-B
WEST
DES MOINES 2
 4101 E.P. TRUE PARKWAY
 WEST DES MOINES IA 50265

DRAWN BY:	JAS
CHECKED BY:	DA
DATE:	08/13
PROJECT #:	7979
SHEET TITLE:	COMPENSATORY STORAGE
8-27 NUMBER:	C-2B

WDM DATUM BFE (100 YEAR FLOOD ELEVATION) = 111.50

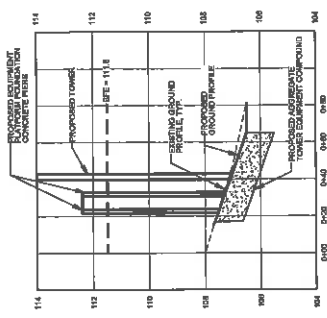
STATION	CUT AREA S.F.	FILL AREA S.F.	AVG. CUT S.F.	AVG. FILL S.F.	DISTANCE L.F.	CUT C.F.	FILL C.F.
A+0+00	0.0	0.0	0.0	0.0	39.0	0.0	79.0
B+0+39	0.0	4.0	2.0	2.0	16.0	394.2	36.0
C+0+57	43.7	0.0	21.8	1.4	48.0	1,051.2	67.2
D+1+05	0.0	0.0	2.8	1.4	22.0	30.8	30.8
E+1+27	0.0	0.0	1.4	3.0	12.0	16.9	36.0
F+1+39	0.0	6.9	3.3	3.0	22.0	73.9	66.0
G+1+62	6.5	0.0	3.3	0.0	22.0	49.7	0.0
H+1+87	24.6	0.0	12.3	0.0	12.0	147.8	0.0
I+1+89	0.0	0.0	12.3	0.0	12.0	0.0	147.8
						2,106.5	317.0

COMPENSATORY STORAGE CALCULATIONS

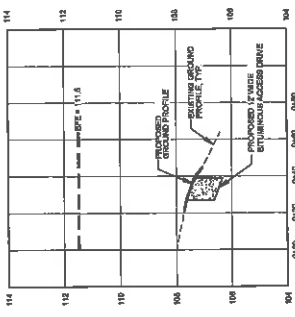
FILL DATA:
 FILL TO FINISHED GRADE = 317.0 CU.F.
 PROPOSED STRUCTURES IN BFE = 30.8 CU.F.
 EQUIPMENT PIER - 2' DIA (10) = 130.5 CU.F.
 METAL STAIRS = 16.0 CU.F.
 WIDENED PATH = 106.0 CU.F.
TOTAL BFE FILL = 692.3 CU.F.

CUT DATA:
 CUT FOR COMPENSATORY STORAGE = 2,106.5 CU.F.
TOTAL BFE CUT = 2,106.5 CU.F.

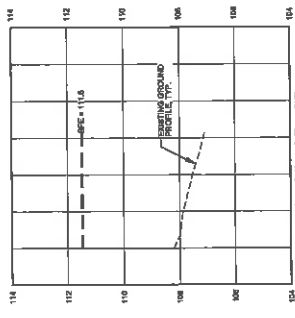
OVERALL 1,804.2 CU.F. ADDITIONAL COMPENSATORY STORAGE



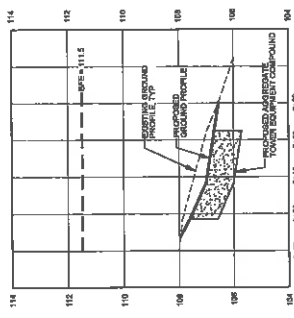
CROSS SECTION 'A'
1:48



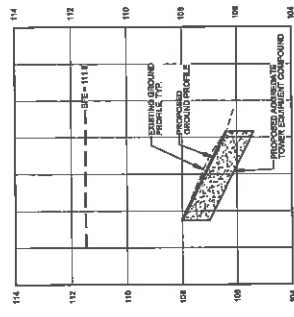
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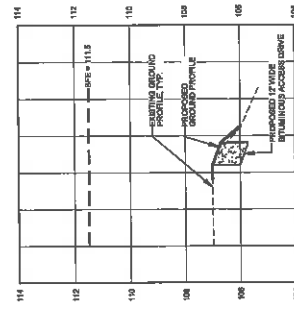
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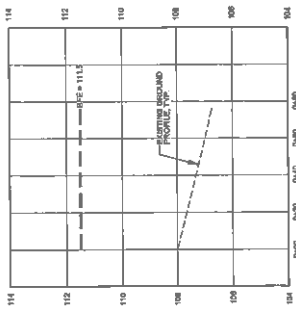
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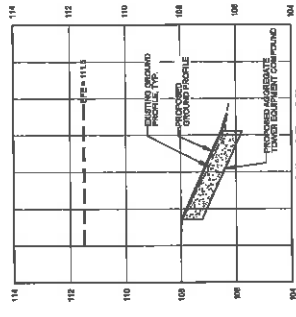
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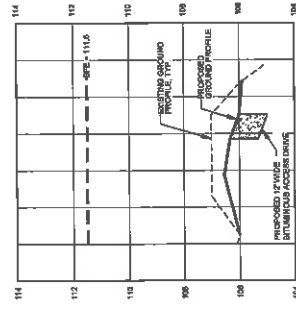
CROSS SECTION 'F'
1:48



CROSS SECTION 'G'
1:48




CROSS SECTION 'H'
1:48




CROSS SECTION 'I'
1:48

1 CROSS SECTIONS
 SCALE: 1" = 30' HORIZONTAL, 1" = 2' VERTICAL



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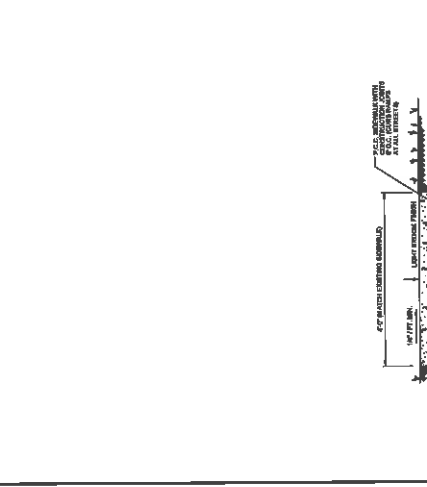
NO.	DATE	REVISION
1		ISSUED FOR REVIEW
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3		REVISION FOR COMMENTS
4		REVISION FOR COMMENTS
5		REVISION FOR COMMENTS
6		REVISION FOR COMMENTS
7		9/20/18

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WEST
DES MOINES 2

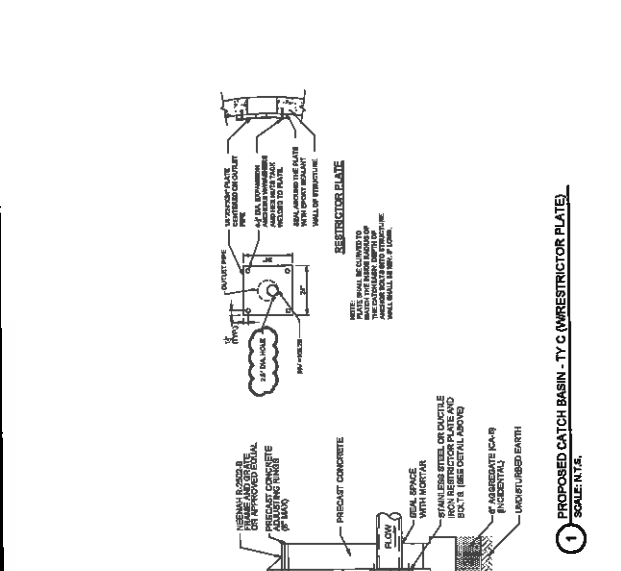
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WEST DES MOINES, IA 50265

DESIGNED BY:	JAB
CHECKED BY:	DM
DATE:	8/15/18
PROJECT #:	7178

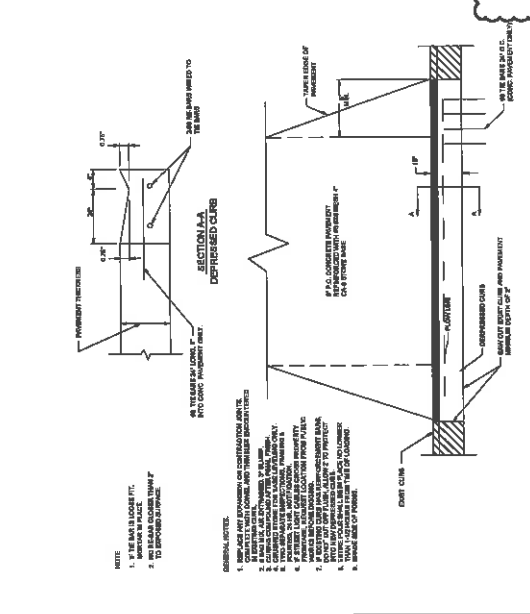
C-3A
SHEET NUMBER



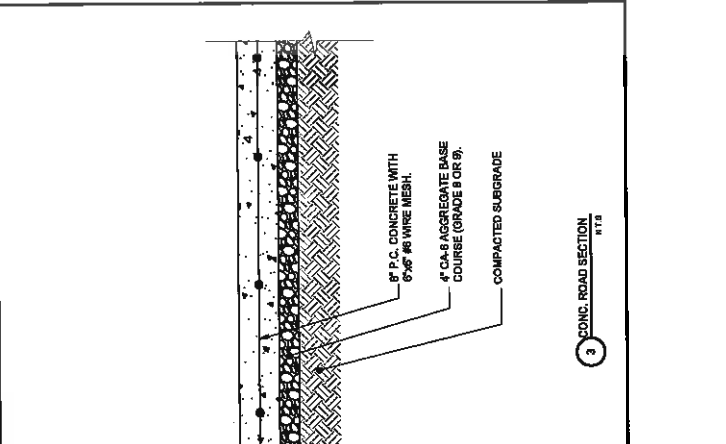
2 CONCRETE SIDEWALK
N.T.S.



1 PROPOSED CATCH BASIN - TY C (W/RESTRICTOR PLATE)
SCALE: N.T.S.

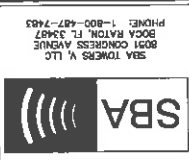


4 DRIVEWAY ENTRANCE DETAIL
N.T.S.



3 CONC. ROAD SECTION
N.T.S.

SITE DETAILS



SEA TOWERS V. LLC
 3000 S. W. 10TH AVENUE
 BOCA RATON, FL 33497
 PHONE: 1-800-427-7483



600 Buses Highway
 Fork Ridge, IL 60068
 Phone: 847/828-8400
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1		ISSUED FOR REVIEW
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11		REVISED PER COMMENTS
12		REVISED PER COMMENTS

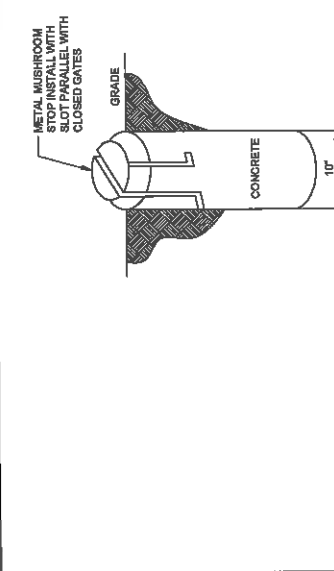
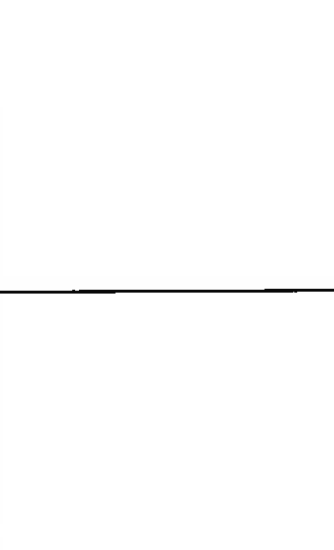
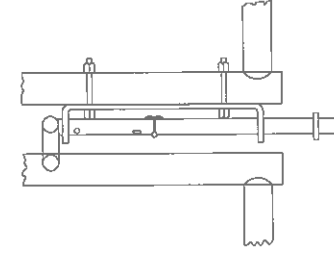
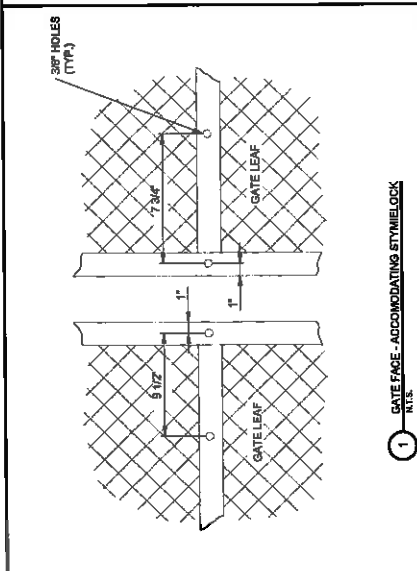
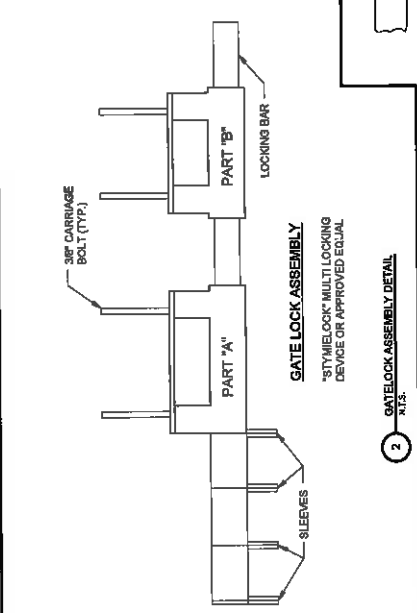
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 WEST DES MOINES, IA 50265

DRAWN BY:	DM
CHECKED BY:	DM
DATE:	8/10/16
PROJECT #:	7034

SHEET TITLE
 FENCE DETAILS
 SHEET NUMBER
C-5

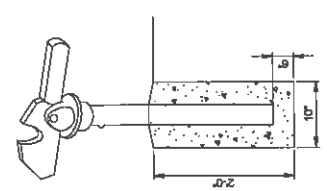
STYMILOCK INSTALLATION

1. DRILL 3/8" HOLES IN THE GATE LEAF USING THE GATE DIMENSIONS PROVIDED.
2. INSERT THE SLEEVES INTO THE HOLES DRILLED IN THE GATE LEAF AND PUSH THE BOLTS THROUGH THE HOLES DRILLED IN THE GATE FIGURE. PUT THE NUT AND THE LOCKWASHER ON AND TIGHTEN AND CUT THE EXCESS BOLT OFF. DO THE SAME WITH PART "A".
3. ADD THE NUMBER OF SLEEVES NEEDED FOR THE NUMBER OF LOCKS AND SLIDE THE LOCKING BAR INTO PLACE THROUGH BOTH PART "A" AND PART "B". NOW THE LOCKING BAR IS IN PLACE THROUGH BOTH PART "A" AND PART "B". NOW
4. IF THE GATE HAS NO CENTER BAR IN THE GATE LEAF YOU MAY NEED TO MOUNT THE STYMILOCK VERTICALLY USING THE SAME DIMENSIONS GIVEN ON THE GATE FACE.
5. VERTICAL APPLICATION MAY ALSO BE USED ON SLIDING GATES WITH MULTIPLE LOCKS.



4 DROP ROD ASSEMBLY DETAIL
 N.T.S.

3 MUSHROOM STOP DETAIL
 N.T.S.



6 GATE KEEPER DETAIL
 N.T.S.

5 LATCH ASSEMBLY DETAIL
 N.T.S.

SBA

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Park Ridge, IL 60068
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Fax: 847/698-6401

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Fax: 847/698-6401

891 TOWERS V. LLC
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5916	REVISED PER COMMENTS	01/11/16
5917	REVISED PER COMMENTS	01/11/16
5918	REVISED PER COMMENTS	01/11/16
5919	REVISED PER COMMENTS	01/11/16
5920	REVISED PER COMMENTS	01/11/16
5921	REVISED PER COMMENTS	01/11/16
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WEST

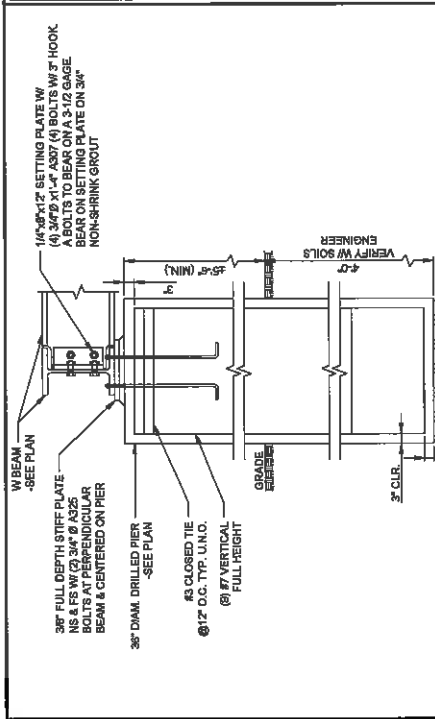
DES MOINES 2

4101 E.P. TRUE PARKWAY
WEST DES MOINES, IA 50265

DESIGNED BY:	JAS
DRAWN BY:	DA
CHECKED BY:	DA
DATE:	01/11/16
PROJECT #:	15833
SHEET #:	158

FOUNDATION & FRAMING PLAN

S-1

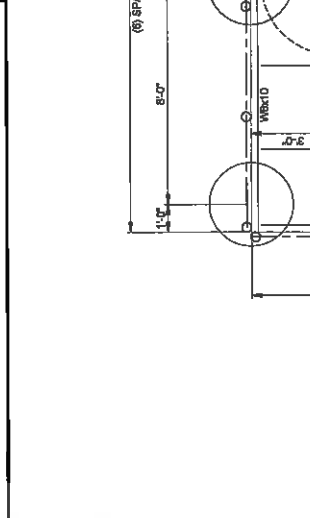


DRILLED PIER DETAIL

16" DIA. DRILLED PIER
36" DIA. DRILLED PIER
3/4" DIA. REBAR
4" CONC. PAD W/ 36" DIA. DRILLED PIER
STEEL HANDRAIL
STEEL PLATFORM
2,000 PSF NET SOIL BEARING
-VERIFY IN FIELD
-SEE SOIL REPORT

- A. EQUIPMENT PLATFORM FOUNDATION**
- REFER TO CIVIL DRAWINGS FOR ORIENTATION OF THE FOUNDATIONS.
 - EQUIPMENT PLATFORM FOUNDATION IS DESIGNED FOR THE FOLLOWING LOADS:
FLOOR LIVE LOAD: 160 PSF
 - THE CONTRACTOR SHALL NOTIFY THE CLIENT'S GEOTECHNICAL ENGINEER TO COORDINATE HAVING A FIELD REPRESENTATIVE ON SITE FOR TESTING AND INSPECTION.
 - ASSUME BEARING CAPACITY = 2,000 PSF TO BE VERIFIED
- B. EQUIPMENT ENCLOSURE**
- THE EQUIPMENT ENCLOSURE IS A PRE-FABRICATED BUILDING MANUFACTURED BY PERSEONA, MINNEAPOLIS, MN. THE EQUIPMENT ENCLOSURE SHALL BE FURNISHED AND INSTALLED BY THE OWNER UNDER SEPARATE CONTRACT PER THE OWNER AND MANUFACTURER SPECIFICATIONS.
- C. CONCRETE NOTES**
- ALL CONCRETE WORK SHALL CONFORM TO THE REQUIREMENTS OF AC 308 AND ACI 301, LATEST EDITION. THESE DOCUMENTS SHALL BE AVAILABLE IN THE FIELD OFFICE.
 - EXCEPT WHERE OTHERWISE INDICATED, CONCRETE SHALL BE NORMAL WEIGHT AND WITH MINIMUM 28-DAY COMPRESSIVE STRENGTHS OF F=4000 PSI. ALL EXTERIOR EXPOSED CONCRETE SHALL BE AIR ENTRAINMENT WITH 6% AIR CONTENT.
 - REINFORCING BARS SHALL CONFORM TO ASTM A618, GRADE 60. ALL WELDED WIRE FABRIC SHALL CONFORM TO ASTM A186.
 - ALL FOUNDATIONS SHALL BEAR A MINIMUM OF 2'-0" BELOW FINISHED GRADE.
 - CONCRETE MIX DESIGN SHALL BE SUBMITTED TO ARCHITECT/ENGINEERS FOR REVIEW.

- GENERAL STEEL NOTES**
- ALL STRUCTURAL STEEL WORK SHALL CONFORM TO THE AISC SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS, LATEST EDITION, AND THE AISC CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES, LATEST EDITION, EXCEPT AS MODIFIED BELOW OR IN THE SPECIFICATIONS.
 - ALL STRUCTURAL STEEL W. SHAPES SHALL CONFORM TO ASTM A572 OR A582 GRADE 50. ALL OTHER STRUCTURAL STEEL SHAPES, PLATES, AND BARS SHALL CONFORM TO ASTM A992 OR A588, UNLESS NOTED OTHERWISE. ALL WELDED JOINTS SHALL CONFORM TO ASTM A588 GRADE 50. ALL WELDED JOINTS SHALL CONFORM TO ASTM A588 GRADE 50 AND BE COMPATIBLE WITH TIGER ELECTRODES.
 - ALL WELDING SHALL BE DONE BY QUALIFIED WELDERS AND SHALL CONFORM TO AWS D1.1 STRUCTURAL STEEL WELDING CODE, LATEST EDITION. ALL WELDING ELECTRODES SHALL BE E70X.
 - THE CONTRACTOR SHALL FIELD VERIFY ALL MEASUREMENTS AND EXISTING CONDITIONS.
 - IF CONDITIONS VARY FROM THOSE ON THE DRAWINGS, THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY.
 - THE CONTRACTOR SHALL OBSERVE ALL SAFETY RULES DICTATED BY CODE AND GOOD PRACTICE.
 - SHOULD UNFORESEEN CONDITIONS OR OTHER CAUSES NECESSITATE THE CONTRACTOR SHALL NOTIFY THE ENGINEER BEFORE PERFORMING THESE CHANGES.
- MISCELLANEOUS NOTES**
- STRUCTURAL DRAWINGS ARE INTENDED TO BE USED WITH ARCHITECTURAL, MECHANICAL AND SHELTER MANUFACTURER DRAWINGS. CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE REQUIREMENTS OF ALL DRAWINGS INTO THEIR SHOP DRAWINGS AND WORK.
 - NO OPENINGS, OTHER THAN THOSE SHOWN ON DESIGN DRAWINGS AND APPROVED SHOP DRAWINGS, SHALL BE MADE WITHOUT THE WRITTEN APPROVAL OF THE ARCHITECT.
 - NO CHANGE IN SIZE OR DIMENSION OF STRUCTURAL MEMBERS SHALL BE MADE WITHOUT THE WRITTEN APPROVAL OF THE ARCHITECT.
 - OPENINGS OF 1'-0" AND LESS ON A SIDE ARE GENERALLY NOT SHOWN ON THE STRUCTURAL DRAWINGS. REFER TO ARCHITECTURAL AND MECHANICAL DRAWINGS FOR LOCATIONS AND DIMENSIONS OF THOSE OPENINGS. PROVIDE SHOP DRAWINGS PER TYPICAL DETAILS SHOWN ON STRUCTURAL DRAWINGS.
 - THE CONTRACTOR IS TO LIMIT THE AMOUNT OF STRUCTURAL FRAMING, BRACING AND CONNECTIONS TO BE MADE AT THE TIME THE LOADS ARE IMPOSED.
 - THE STRUCTURE IS DESIGNED TO FUNCTION AS A UNIT UPON COMPLETION. SUPPORTS SHALL FURNISH ALL TEMPORARY BRACING AND/OR CONSTRUCTION METHODS AND/OR SEQUENCES.
 - DO NOT SCALE THESE DRAWINGS. USE DIMENSIONS.
 - CONTRACTOR'S CONSTRUCTION AND/OR ERECTION SEQUENCES SHALL BE RECOGNIZED AND CONSIDERED IN THE DESIGN OF THE STRUCTURE. EXPANSION JOINTS SHOWN ON THE DRAWINGS HAVE BEEN DESIGNED TO ACCOMMODATE ANTICIPATED THERMAL MOVEMENT AFTER THE BUILDING IS COMPLETE.
 - THE CONTRACTOR SHALL INFORM THE ARCHITECT IN WRITING OF ANY DEVIATION FROM THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL NOT BE RELIEVED OF THE RESPONSIBILITY FOR SUCH DEVIATION BY THE ARCHITECT'S APPROVAL OF SHOP DRAWINGS. THE ARCHITECT'S APPROVAL OF SUCH DEVIATION AT THE TIME OF SUBMISSION, AND THE ARCHITECT HAS GIVEN WRITTEN APPROVAL TO THE SPECIFIC DEVIATION.
 - ALL THINGS WHICH IN THE OPINION OF THE CONTRACTOR APPEAR TO BE OMISSIONS, ERRORS, CONFLICTS AND AMBIGUITIES IN THE PLANS AND SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT. PLANS AND/OR SPECIFICATIONS WILL BE CORRECTED, OR A WRITTEN INTERPRETATION OF THE PLANS AND/OR SPECIFICATIONS WILL BE EFFECTED WORK PROCEEDS.



FOUNDATION & FRAMING PLAN

16'-0" (8) SPACES @ 2'-0"

8'-0" 3'-0" 3'-0" 3'-0" 3'-0" 3'-0" 3'-0" 3'-0"

16'-0" 8'-0" 8'-0" 8'-0" 8'-0" 8'-0" 8'-0" 8'-0"

11'-9" 5'-6" 5'-6" 5'-6" 5'-6" 5'-6" 5'-6" 5'-6"

36" DIA. DRILLED PIER (7 TYP.)

STEEL HANDRAIL

STEEL PLATFORM

4"X8" CONC. PAD W/ 36" DIA. DRILLED PIER

FIBER JUNCTION BOX

110 TREADS @ 3"

(11) RISERS @ 7"

NOTE:

-FOOTINGS: 24" # 8 PIER TO APPROXIMATELY 1'-0" BELOW FINISHED GRADE

-PIER TO EXTEND 48" (MIN.) ABOVE GRADE

1. VERIFY ALL DIMENSIONS, ELEVATIONS, AND CONDITIONS IN FIELD AND WITH SHELTER MANUFACTURER.

2. ALL STEEL TO BE GALVANIZED.

G1 = BARE GRATING (6W 1'24"18" BY 1" MANICHOLES (OR EQUIVA))

IOWA ONE CALL

800.282.4000

CALL - BEFORE - YOU - DIG

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DES MOINES 2

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WEST DES MOINES, IA 50265

FOUNDATION & FRAMING PLAN

S-1

NOTE:

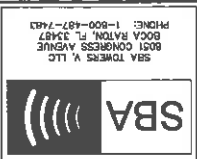
-FOOTINGS: 24" # 8 PIER TO APPROXIMATELY 1'-0" BELOW FINISHED GRADE

-PIER TO EXTEND 48" (MIN.) ABOVE GRADE

1. VERIFY ALL DIMENSIONS, ELEVATIONS, AND CONDITIONS IN FIELD AND WITH SHELTER MANUFACTURER.

2. ALL STEEL TO BE GALVANIZED.

G1 = BARE GRATING (6W 1'24"18" BY 1" MANICHOLES (OR EQUIVA))



NO.	DATE	REVISIONS
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7	08/17/18	REVISED PER COMMENTS

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WEST
DES MOINES 2

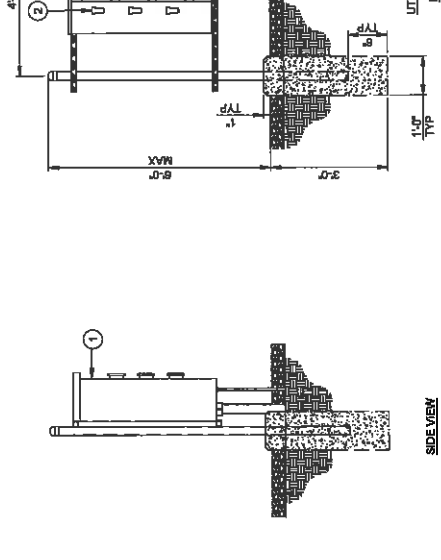
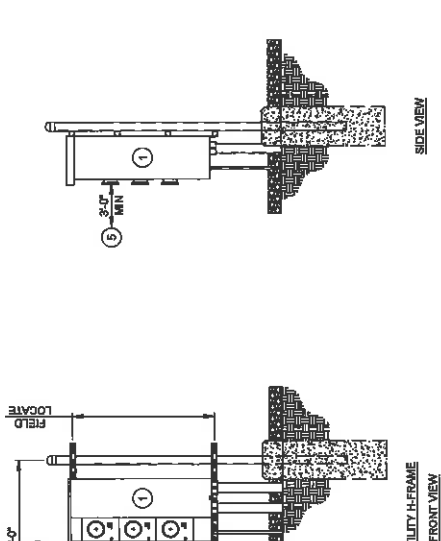
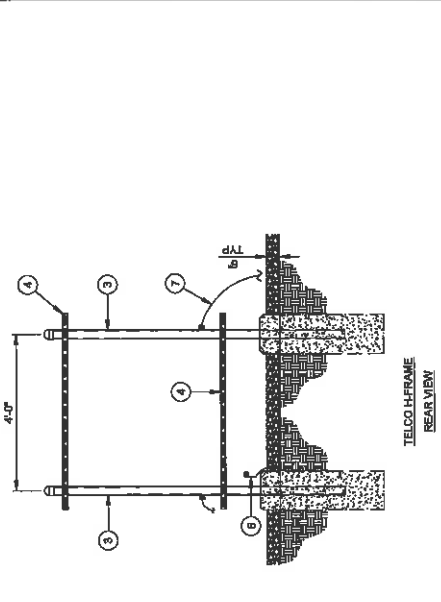
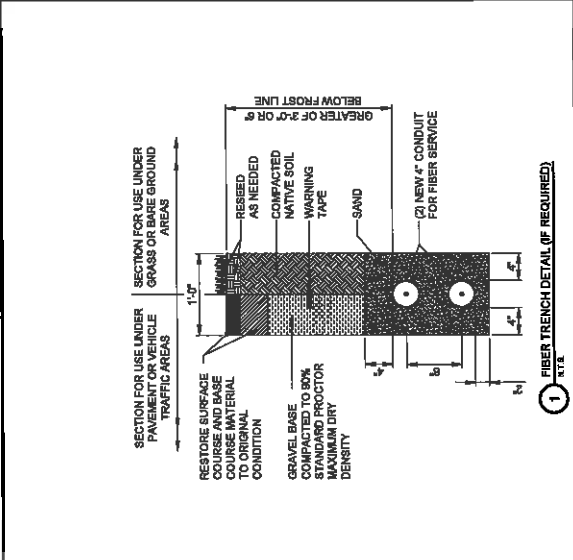
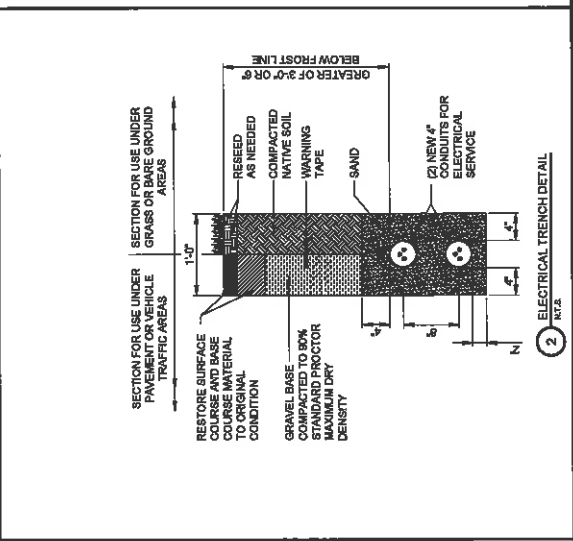
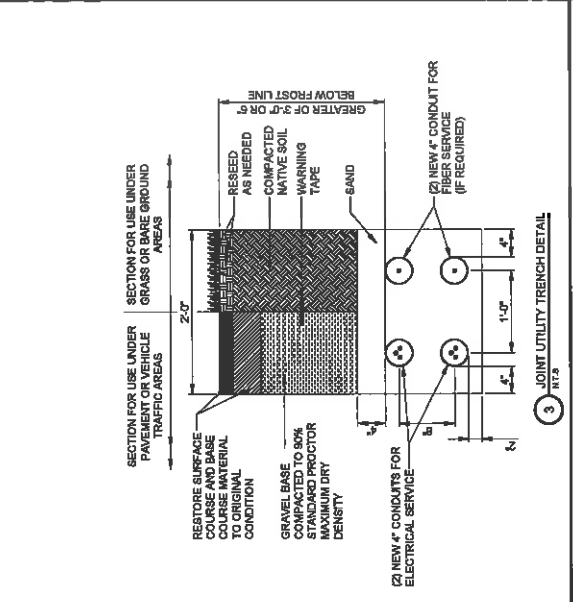
4101 E.P. TRUE PARKWAY
WEST DES MOINES, IA 50265

DRAWN BY: JAG
CHECKED BY: OM
DATE: 08/17/18
PROJECT #: 7079

SHEET TITLE
UTILITY DETAILS

8487 NUMBER

E-2



- BALLOON REFERENCE NOTES:
- 800A, 1200ZAV, 1 PHASE, 3 WIRE, 3 POSITION METERING CENTER (200A MAX CIRCUIT BREAKER) (SQUARE D METER PAK OR EQUAL)
 - 200A SBA SERVICE DISCONNECT (SQUARE D CATALOG OR EQUAL)
 - 3" NOMINAL GALVANIZED STEEL PIPE WITH PIPE CAP
 - HORIZONTAL SUPPORT MEMBER (UNISTRUT P1000, OR APPROVED EQUAL)
 - CONTRACTOR TO MAINTAIN 3'-0" MINIMUM CLEARANCE FROM METERING CENTER TO NEAREST OBSTRUCTION
 - #6 GROUND WIRE COILED AT POST. CONNECT TO GROUNDING SYSTEM (TYP. EACH LEG)
 - #2 AWG BARE SOLID TINNED COPPER WIRE ROUTED TO GROUNDING SYSTEM (TYP. EACH LEG)
- 1** UTILITY & TELCO H-FRAME DETAIL
N.T.S.

SBA
SBA TOWERS V. LLC
8021 CONGRESS AVENUE
BOCA RATON, FL 33487
PHONE: 1-800-487-7463

TERRA
COMMUNICATIONS SERVICES, LLC
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Fax: 847/898-6401

NO.	DATE	DESCRIPTION
1	01/19/15	ISSUED FOR REVIEW
2	01/20/15	REVISED PER COMMENTS
3	01/21/15	REVISED PER COMMENTS
4	01/21/15	REVISED PER COMMENTS
5	01/21/15	REVISED PER COMMENTS

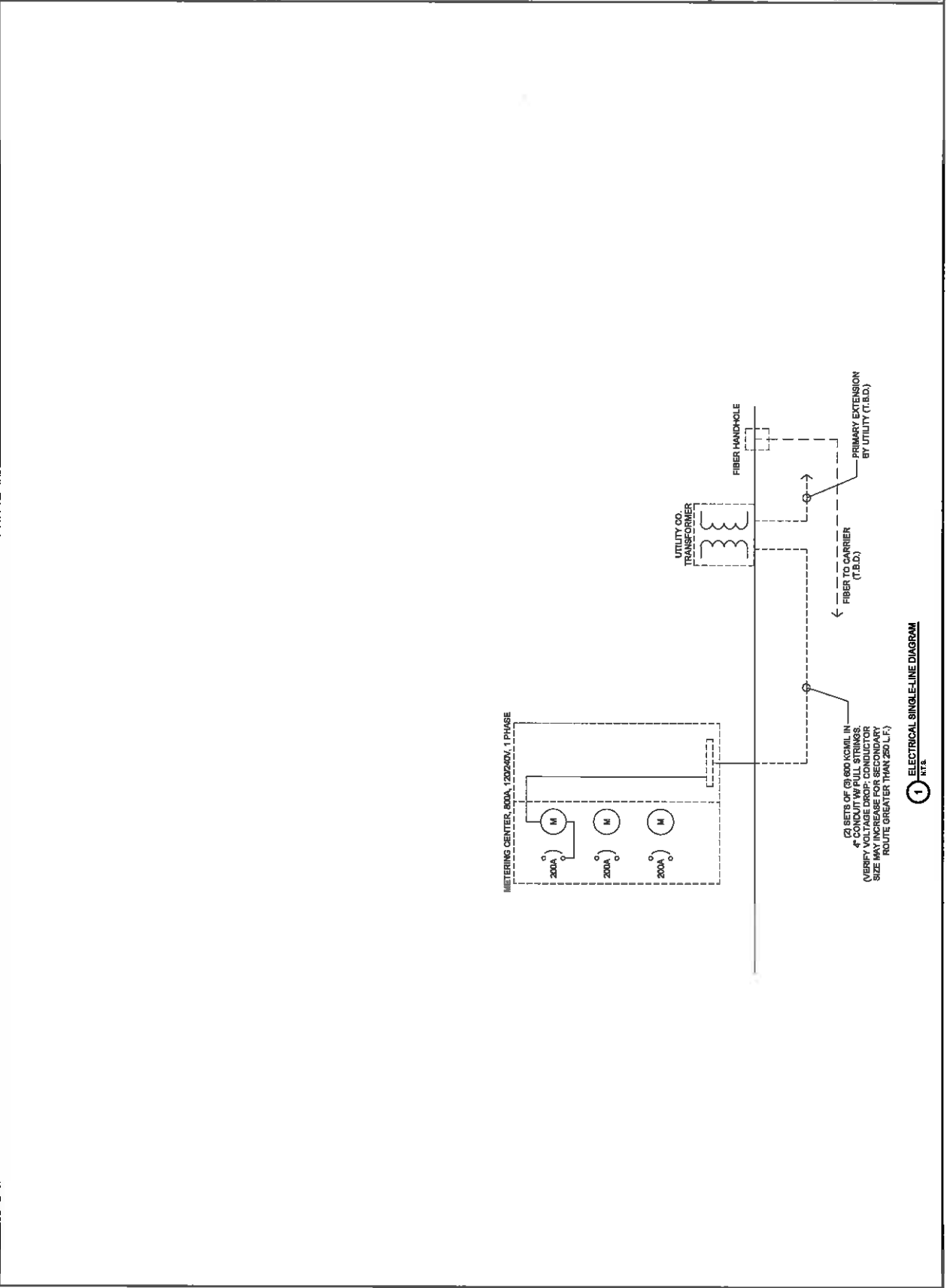
IA15833-B
WEST
DES MOINES 2

4101 E.P. TRULIE PARKWAY
WEST DES MOINES, IA 50268

DESIGNED BY:	JAKS
CHECKED BY:	DM
DATE:	08/15/14
PROJECT #:	7079

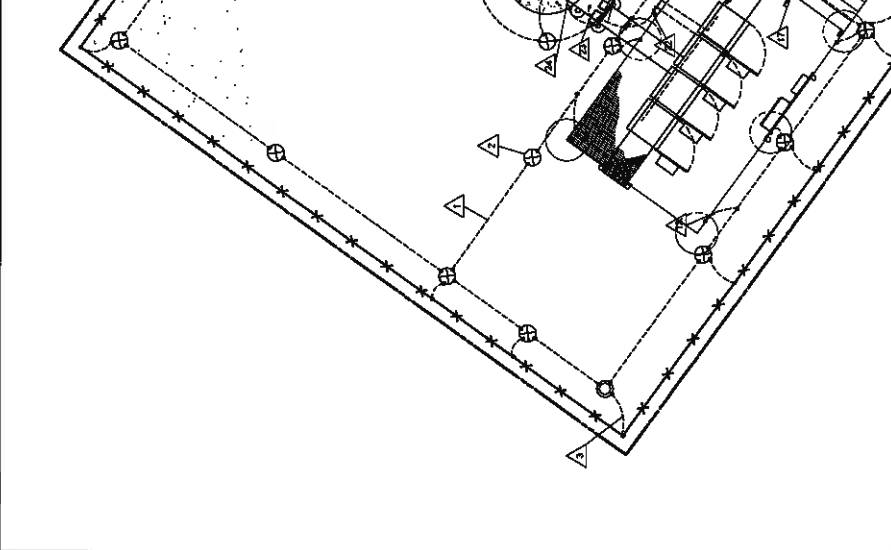
SHEET TITLE
SINGLE LINE DIAGRAM
& PANEL SCHEDULE

SHEET NUMBER
E-3



- TYPICAL KEYS: GROUNDING NOTES**
- 1. #2 AWG TIND SOLID BASE COPPER CONDUCTOR 1/2" BELOW GRADE (TYPICAL) MINIMUM 24" BEYOND TOWER
 - 2. 5/8" DIA COPPER CLAD GROUND ROD
 - 3. GROUND ALL CORNER POSTS WITH MECHANICAL PIPE CONNECTORS PERIPHERAL GROUND RING SHOULD BE INSTALLED 1/2" INSIDE THE FINISH LINE. THE TOWER GROUND RING SHOULD BE INSTALLED A MINIMUM TWO FEET OFF OF ANY STRUCTURE
 - 4. #2 AWG TIND SOLID COPPER CONDUCTOR RUN FROM HOOD TO MUFFLER WITH PIPE CLAMP GROUND (SEE DETAIL SHEET E-7)
 - 5. #2 AWG TIND SOLID COPPER CONDUCTOR RUN TO FILLER WITH GROUND JUMPER TO VENT WITH PIPE CLAMP GROUND (SEE DETAIL SHEET E-7)
 - 6. MAINTAIN TWO FOOT DISTANCE OFF OF STRUCTURES.
 - 7. GROUND TELEPHONE SERVICE ENTRANCE (SEE DETAIL SHEET E-7).
 - 8. ELECTRIC METER AND ELECTRIC SERVICE GROUNDING (SEE DETAIL SHEET E-3), COORDINATE ALTERNATE WITH FM
 - 9. GROUND COAXIAL ANTENNA CABLES TO GROUND BAR BY ANTENNA HOOD (SEE DETAIL SHEET E-7) FROM ENCLOSURE AND INSTALL GROUND RING ON EACH CABLE GROUND
 - 10. EXTERNALLY WELD COPPER GROUND BAR TAIL TO EXTERIOR HALO GROUND RING (ZOTHEMIC CONNECTION TYPE TA) BY ANTEENNA CONTRACTOR. FINAL CONNECTION BY ELECTRICAL CONTRACTOR.
 - 11. #2 AWG TIND SOLID COPPER CONDUCTOR GROUND BOND NON ISOLATED WITH 100' LONG 5/8" DIA X 10'-0" LONG COPPER WIRE WELDED TAILS (HARPER 08T 14850W)
 - 12. GROUND CABLE WAVEGUIDE BRIDGE (TYP) BY ELECTRICAL CONTRACTOR.
 - 13. 4" DIA X 1/2" TIND INSULATED COPPER GROUND BAR, NON ISOLATED WITH 100' LONG 5/8" DIA X 10'-0" LONG COPPER WIRE WELDED TAILS (HARPER 08T 14850W)
 - 14. GROUND ANTENNA CABLES TO GROUND BAR AT ANTENNA ELEVATION OF TOWER. GROUND BASE GROUND BAR TO GROUND HALO.
 - 15. BOND PROPOSED TOWER GROUND RING TO PROPOSED GROUND RING WITH #2 AWG TIND SOLID COPPER CONDUCTOR IN 2 LOCATIONS.
 - 16. SHELTER GROUND RING TO BE INSTALLED AT THE SHELTER. SHELTER GROUND RING TO BE WELDED AT ESB AND DOUBLE WELDED IN SHELTER.
 - 17. TIE THE SHELTER INTERNAL WIRE TO THE EXTERNAL GROUND RING VIA #2 AWG TIND COPPER LEADS WITH GAINWELD CONNECTIONS.

- ELECTRICAL SYMBOLS**
- 1. SURFACE ELECTRICAL PANELBOARD
 - 2. ELECTRIC SERVICE METER
 - 3. TRANSFORMER
 - 4. UNDERGROUND ELECTRICAL CONDUIT RUN
 - 5. UNDERGROUND TELEPHONE CONDUIT RUN
 - 6. SOLID BASE COPPER WIRE #2 AWG TIND MIN. 24" BELOW GRADE (HARPER L-2) OR EQUAL, OR AS APPROVED.
 - 7. 5/8" DIA X 10'-0" LONG COPPER CLAD GROUND ROD
 - 8. GROUND BAR WITH INSPECTION WELL.
 - 9. EXOTHERMIC WELD (COPWELD)
 - 10. MECHANICAL GROUND CONNECTION
- CONTRACTOR RESPONSIBLE FOR VERIFYING UTILITIES PRIOR TO ANY EXCAVATION**



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Coral Gables, FL 33134
PH: 305-447-8988
FAX: 305-447-8988-6401

REVISIONS

NO.	DATE	DESCRIPTION
A		ISSUED FOR REVIEW
B		REVISED PER COMMENTS
C		REVISED PER COMMENTS
D		REVISED PER COMMENTS
E		REVISED PER COMMENTS
F		REVISED PER COMMENTS
G		REVISED PER COMMENTS
H		REVISED PER COMMENTS
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V		REVISED PER COMMENTS
W		REVISED PER COMMENTS
X		REVISED PER COMMENTS
Y		REVISED PER COMMENTS
Z		REVISED PER COMMENTS

IA15833-B
WEST
DES MOINES 2

4101 E.P. TRUE PARKWAY
WEST DES MOINES, IA 50266

SHEET NUMBER
G-1

SHEET TITLE
SITE GROUNDING PLAN

DRAWN BY: JMS
CHECKED BY: DM
DATE: 08/10/2010
PROJECT #: 7079

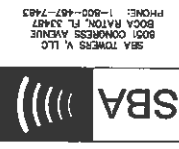
IOWA ONE CALL
800-4-A-SHARES
TOLL-FREE
CALL - BEFORE YOU DIG

NO OPEN FIRE HAZARD

SCALE: 1" = 10'

1. ALL CONNECTIONS TO GROUND BAR SHALL BE COATED WITH A RUST-INHIBITING COMPOUND

2. CONTRACTOR RESPONSIBLE FOR VERIFYING UTILITIES PRIOR TO ANY EXCAVATION

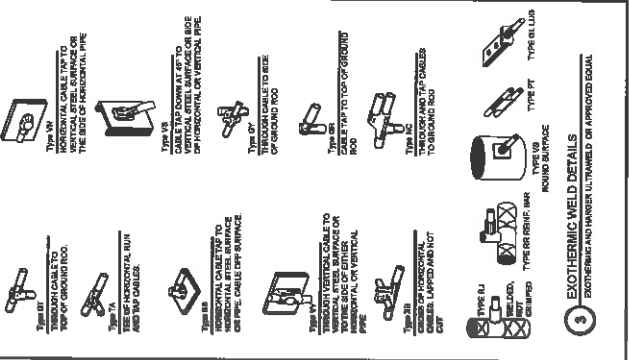
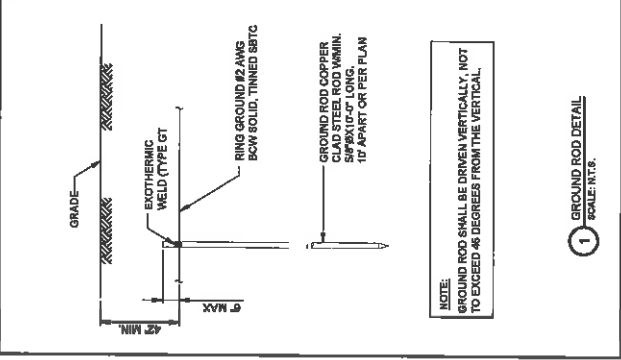
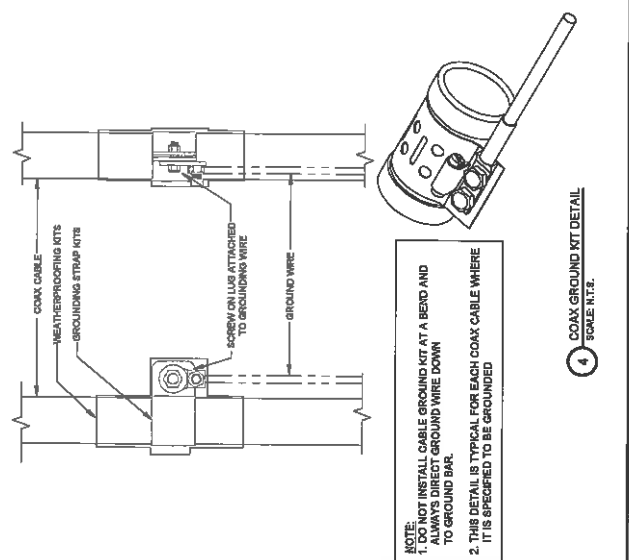
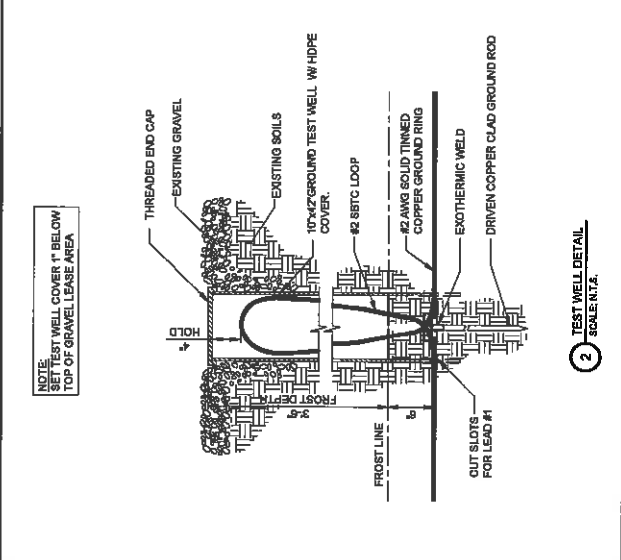
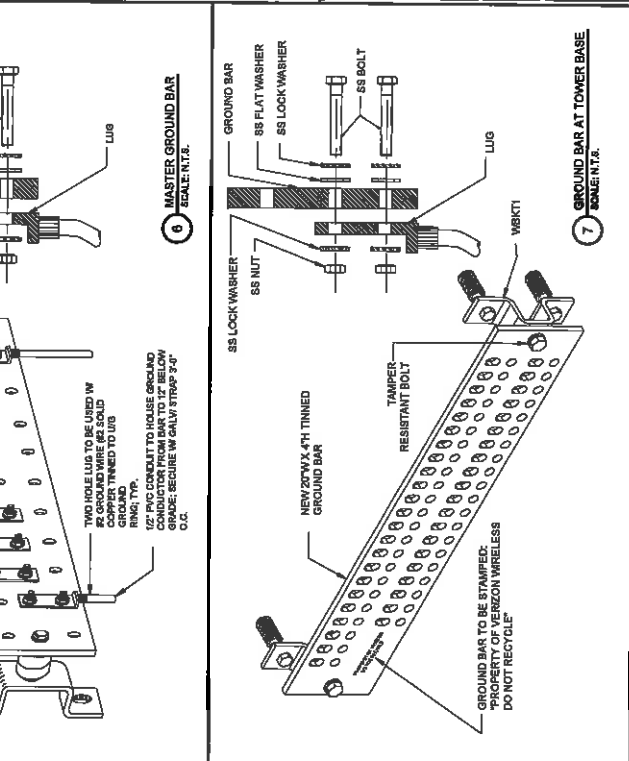
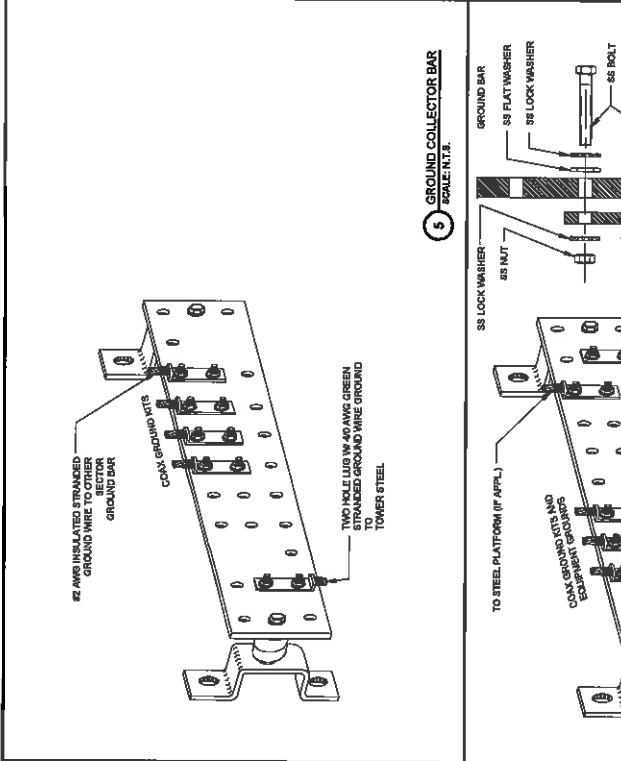


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2	08/15/18	REVIEWED PER COMMENTS
3	08/15/18	REVIEWED PER COMMENTS
4	08/15/18	REVIEWED PER COMMENTS
5	08/15/18	REVIEWED PER COMMENTS
6	08/15/18	REVIEWED PER COMMENTS
7	08/15/18	REVIEWED PER COMMENTS
8	08/15/18	REVIEWED PER COMMENTS
9	08/15/18	REVIEWED PER COMMENTS
10	08/15/18	REVIEWED PER COMMENTS

IA15833-B
WEST DES MOINES 2
 4101 E.P. TRILE PARKWAY
 WEST DES MOINES, IA 50265

PROJECT: WEST DES MOINES 2
 DATE: 08/15/18
 CHECKED BY: DM
 DRAWN BY: JAG

SHEET TITLE: GROUNDING DETAILS
 SHEET NUMBER: G-4



SBA

SBA THOMAS V. LLC
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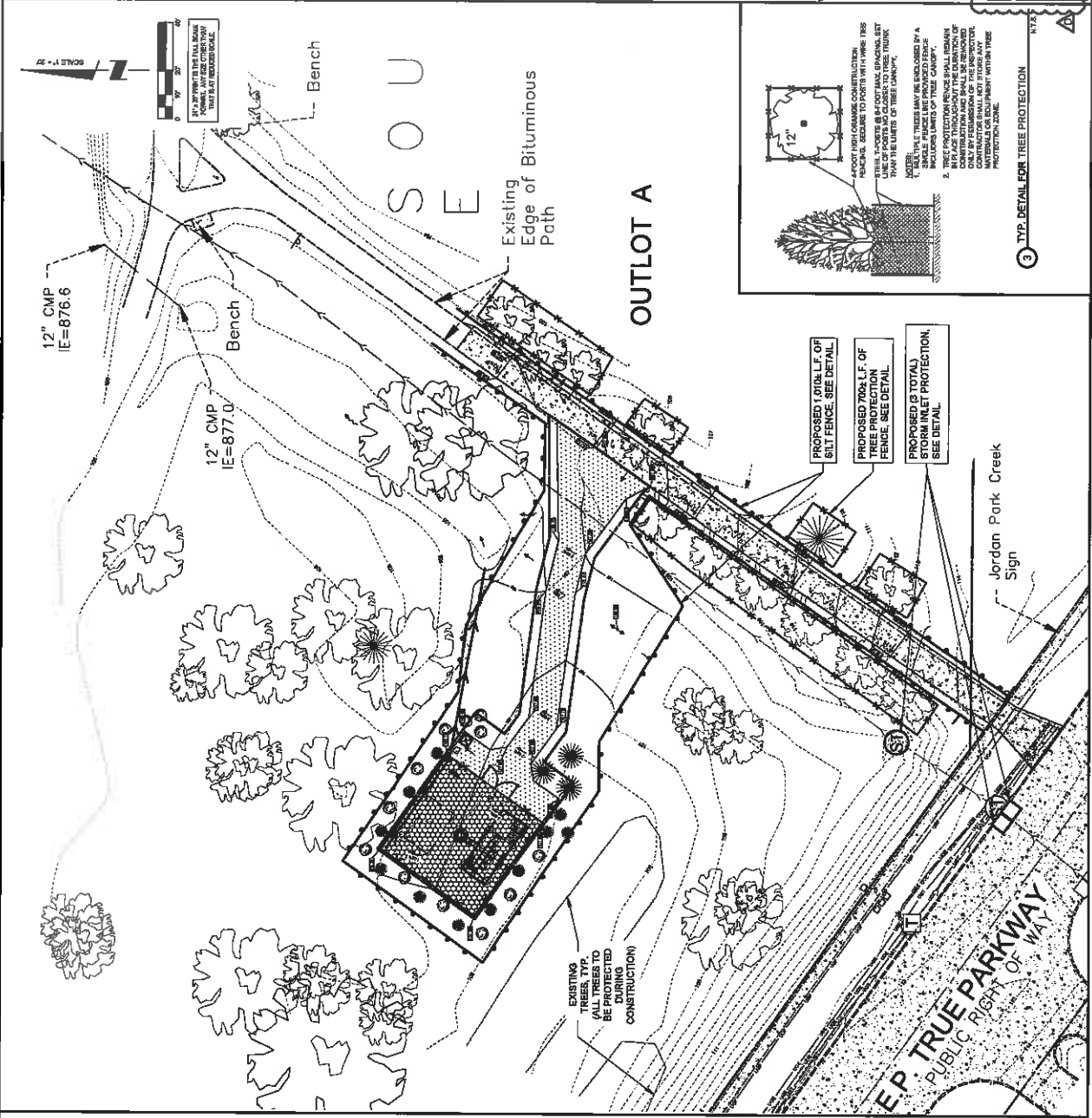
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1	11/18/16	ISSUED FOR REVIEW
2	11/18/16	REVISION PER COMMENTS
3	11/18/16	REVISION PER COMMENTS
4	11/18/16	REVISION PER COMMENTS
5	11/18/16	REVISION PER COMMENTS
6	11/18/16	REVISION PER COMMENTS
7	11/18/16	REVISION PER COMMENTS
8	11/18/16	REVISION PER COMMENTS
9	11/18/16	REVISION PER COMMENTS
10	11/18/16	REVISION PER COMMENTS

IA15833-B
WEST DES MOINES 2
 1101 E. TRUE PARKWAY
 WEST DES MOINES, IA 50268

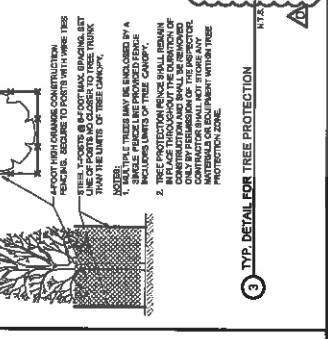
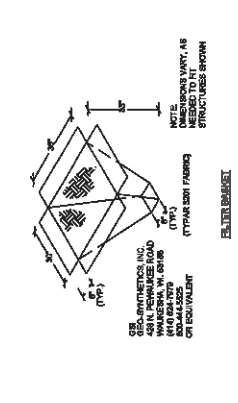
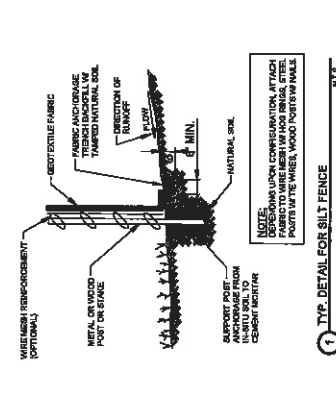
DESIGNED BY:	JAM
CHECKED BY:	DM
DATE:	REV
PROJECT #:	REV

EROSION CONTROL PLAN

SHEET NUMBER
EC-1



- EROSION CONTROL NOTES:**
- SOIL DISTURBANCE SHALL BE CONDUCTED IN SUCH A MANNER TO MINIMIZE EROSION. AREAS OF THE DEVELOPMENT SITE THAT ARE NOT GRADED SHALL BE PROTECTED FROM CONSTRUCTION TRAFFIC OR OTHER DISTURBANCE UNTIL FINAL SEEDING IS PERFORMED.
 - PROPERTIES AND CHANNELS ADJOINING THE DEVELOPMENT SHALL BE PROTECTED FROM EROSION AND SEDIMENTATION.
 - SOIL EROSION AND SEDIMENT CONTROL FEATURES SHALL BE CONSTRUCTED PRIOR TO THE COMMENCEMENT OF HYDROLOGIC DISTURBANCE OF UPLAND AREAS.
 - DISTURBED AREAS SHALL BE STABILIZED WITH TEMPORARY OR PERMANENT MEASURES WITHIN SEVEN (7) CALENDAR DAYS FOLLOWING THE END OF ACTIVE HYDROLOGIC DISTURBANCE.
 - IF DRAINAGE SERVICES ARE USED, ADJOINING PROPERTIES AND DISCHARGE SHALL BE PROTECTED FROM EROSION. DISCHARGES SHALL BE ROUTED THROUGH AN EFFECTIVE SEDIMENT CONTROL MEASURE. PERMANENT TRAP, SEDIMENT BASIN, OR OTHER APPROPRIATE MEASURES.
 - ALL TEMPORARY SOIL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD. STABILIZATION IS ACHIEVED OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED, TRAPPED SEDIMENT AND OTHER DISTURBED SOIL AREAS SHALL BE PERMANENTLY STABILIZED.
 - SOIL STOCKPILES SHALL NOT BE LOCATED IN A FLOOD-PRONE AREA OR DESIGNATED BUFFER OF SURFACE WATERS.
 - THE CONTRACTOR SHALL PROVIDE ADEQUATE BARRIERS FOR THE PROTECTION OF ALL CONSTRUCTION MATERIAL DEBRIS GENERATED DURING THE DEVELOPMENT PROCESS. THE CONTRACTOR SHALL NOT CAUSE OR PERMIT THE DUMPING, DEPOSITING, DROPPING, THROWING, OR PLACING OF MATERIALS, DEBRIS, OR OTHER CONSTRUCTION MATERIAL ONTO ANY DEVELOPMENT SITE, CHANNEL, OR SURFACE WATER. THE CONTRACTOR SHALL MAINTAIN THE DEVELOPMENT SITE FREE OF CONSTRUCTION MATERIAL DEBRIS.
 - ALL TEMPORARY AND PERMANENT EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED IN AN EFFECTIVE WORKING CONDITION.



- PROPOSED 100% L.F. OF SILT FENCE. SEE DETAIL.
- PROPOSED 70% L.F. OF TREE PROTECTION FENCE. SEE DETAIL.
- PROPOSED (3) TOTAL STORM INLET PROTECTION. SEE DETAIL.

3 TYP. DETAIL FOR TREE PROTECTION
 N.T.S.

1 TYP. DETAIL FOR SILT FENCE
 N.T.S.

2 TYP. DETAIL FOR STORM INLET PROTECTION
 N.T.S.



SBA TOWERS V, LLC
2051 CONGRESS AVENUE
BOCA RATON, FL 33437
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800 Russel Highway
P.O. Box 6400
P.O. Box 6400
West Des Moines, IA 50326
TEL: 515-281-1100
FAX: 515-281-1101

NO.	DATE	DESCRIPTION	BY	CHKD.

IA15833-B
WEST
DES MOINES 2

4101 E. TRUIE PARKWAY
WEST DES MOINES, IA 50326

QUANTITY:	240
ORDERED BY:	DM
DATE:	06/16
PROJECT:	7075

SHEET TITLE
TRUCK TURNING
EXHIBIT

SHEET NUMBER
1

