

**CHARTER TOWNSHIP OF GARFIELD  
PLANNING COMMISSION MEETING**

Wednesday, October 11, 2017 - 7:00 pm  
Garfield Township Hall  
3848 Veterans Drive  
Traverse City, MI 49684  
Ph: (231) 941-1620

**A G E N D A**

**Call Meeting to Order**

**Roll Call of Commission Members**

1. **Review and Approval of the Agenda - Conflict of Interest**
2. **Minutes**
  - a. September 13, 2017
  - b. September 27, 2017
3. **Correspondence**
  - a. Haggard Plumbing and Heating-Re: Application for PURD by William Clous
  - b. Haggard Plumbing & Heating-Re: Application for SUP by City of Traverse City
4. **Reports**
  - a. Township Board
  - b. Planning Commissioners
  - c. Planning Department
5. **Business to Come Before the Commission**
  - a. PD 2017- 99 - Serra Automotive - FOF
  - b. PD 2017- 100 - City of Traverse City - Water Tank - SUP - Public Hearing
  - c. PD 2017- 101 - Fox Run - PURD - Public Hearing
  - d. PD 2017 -102 – U.S. 31 Retail
  - e. Buffalo Ridge PUD
6. **Public Comment**
7. **Items for Next Agenda** – October 25, 2017
  - a. Cancellation
8. **Adjournment**

**Joe Robertson, Secretary  
Garfield Township Planning Commission  
3848 Veterans Drive  
Traverse City, MI 49684**

Garfield Township will provide necessary reasonable auxiliary aids and services, such as signers for hearing impaired and audio tapes of printed materials being considered at the meeting to individuals with disabilities upon the provision of reasonable advance notice to Garfield Township. Individuals with disabilities requiring auxiliary aids or services should contact Garfield Township by writing or calling Lanie McManus, Clerk, Ph: (231) 941-1620, or TDD #922

**CHARTER TOWNSHIP OF GARFIELD  
PLANNING COMMISSION MEETING  
September 13, 2017**

**Call Meeting to Order:** Chair Racine called the meeting to order at 7:00pm at the Garfield Township Hall, 3848 Veterans Drive, Traverse City, MI 49684.

**Roll Call of Commission Members:**

Present: Steve Duell, Joe Robertson, Chris DeGood, Joe McManus, Pat Cline, Gil Uithol and John Racine

Staff Present: Rob Larrea

**1. Review and Approval of the Agenda – Conflict of Interest (7:00)**

Racine declared a conflict with Item 5a.

*Uithol moved and Cline seconded to approve the agenda as presented.*

*Yeas: Uithol, Cline, Duell, Robertson, DeGood, McManus, Racine*

*Nays: None*

**2. Minutes (7:00)**

**a. August 23, 2017 Regular Meeting Minutes**

*Duell moved and Uithol seconded to approve the August 23, 2017 Regular Meeting Minutes as presented.*

*Yeas: Duell, Uithol, DeGood, McManus, Cline, Robertson, Racine*

*Nays: None*

**3. Correspondence (7:01)**

Letter of support for Serra application

**4. Reports (7:01)**

**Township Board Report**

Duell reported that the board approved the Metro Fire Budget at 2.35 mills and will be sending bids out for the reconstruction of the entryway of Heritage Way Estates. Amendment No. 8 to the zoning ordinance was passed. He informed commissioners that if their term is up, they will need to fill out a form for reappointment.

**Planning Commissioners**

Chris DeGood said that the Parks and Recreation Commission reviewed a conceptual plan and a timeline for completion of the Master Plan for the Parks.

**Planning Department****P&R Survey**

Larrea reminded commissioners that the Parks and Rec survey is on the website and he would appreciate if they took the survey.

**5. Business to Come Before the Commission****a. PD 2017-87 Serra Automotive Public Hearing (7:07)**

Chair Racine excused himself. Larrea said that this addresses the parcel which consists of 2.9 acres located at 940 Boon Street and 1302 Garfield. The property was granted a conditional rezoning to C-2 with restrictions in 2007 to accommodate an expansion of the car dealership. The proposed Conditional Rezoning Agreement looks at changes in buffers, the addition of a car wash, and a new drive for entry and exit. Larrea said the lighting plan is complete and appropriate.

Karrie Zeits, representing the applicant, shared a PowerPoint with Commissioners which outlined the request to amend conditions associated with a buffer, car wash and the driveway. The PowerPoint covered the history of the property in regards to zoning. Zeits said that the proposed drive now aligns with the alley which commissioners asked for at the last meeting. Signs would be posted for no left turns. The landscape plan proposes a buffer and additional coniferous trees above and beyond the ordinance requirements. She indicated that the proposed car wash is in question because it would have to meet a 40 decibel level as indicated in the ordinance. Jim Touhy, property manager, said the car wash is only for use of the business and would not be open to the public.

Vice Chair McManus opened the Public Hearing at 7:40pm.

*Tom Elliot* of 936 Boon Street spoke regarding the buffer.

*Alison Gillespie* of Arbutus Court spoke regarding the buffer, proposed sidewalk and noise from a proposed car wash.

*William Nemitz* of Arbutus Court spoke regarding the berm and sidewalks and proposes more evergreens.

*David Elliot* of 936 Boon commented on the sidewalks and the buffer.

Vice Chair McManus closed the Public Hearing at 7:59pm.

Larrea said that most concerns have been met but the buffer could be altered if Commissioners had concerns. He added that the major concern at this time is the proposed car wash. Commissioners discussed the car wash and whether it was an obtrusive use. Commissioners suggested moving the car wash onto another area of the property where it may be

able to meet the 40 decibel requirement. Karrie Zeits reiterated that if a car wash was not able to meet the 40 decibel requirement, it would not be installed and the applicant may come back to the commission with a sound study since 40 decibels is very low for any car wash. Commissioners discussed the buffer and the applicant said that they tried to provide a dense screen.

*DeGood moved and Duell seconded to direct staff to prepare Findings of Fact for commissioner review in the matter of Serra Automotive.*

*Yeas: DeGood, Duell, Uithol, Robertson, Cline, McManus*

*Nays: None*

**b. PD 2017-88- City of Traverse City – Water Tank SUP – Introduction (8:37)**

The application requests approval of a Special Use Permit to add a 2,000,000 gallon water tank at LaFranier Road on a property that currently has a 4,000,000 existing tank on it. Major essential services are allowed in the agricultural district by special use permit. Art Kruger, Utility Director for the City of Traverse City said that in order to perform maintenance on the larger tank, a smaller tank needs to be installed. The only waiver they are requesting is on the proposed landscape plan. Commissioners discussed stormwater runoff and thought it may need to be addressed. Because the project requires a SUP, there are general and specific standards that need to be addressed such as vehicular circulation, a sidewalk, lighting, landscaping and stormwater needs.

*DeGood moved and Duell seconded THAT application SUP 2017-2 submitted by the City of Traverse City for a Special Use Permit to construct a major essential service BE ACCEPTED and scheduled for public hearing at the regular meeting to be held on October 11, 2017 subject to the applicant providing additional detail as required by the Planning Department regarding stormwater drainage plans, lighting, walkway specifications and safety concerns.*

*Yeas: DeGood, Duell, McManus, Uithol, Robertson, Cline, Racine*

*Nays: None*

**c. PD 2017-89 – Fox Run – PURD – Introduction (8:57)**

The property is zoned R-3 Multi-Family and is approximately 8 acres in size of which 3.75 acres is open space. Bill Crain, representing Eastwood Custom Homes proposes 84 units to be placed on the westerly portion of the site. He added that the site is ready for this project and a PURD would allow for dimensional flexibility in lieu of public amenities. Crain indicated that the Road Commission would not need a traffic study and that the applicant will meet with Metro Fire for review and will hook up to water and sewer to meet emergency service requirements. The pedestrian access would be sidewalk infrastructure within the facility and all landscaping will meet ordinance standards. Because of the topography and slope on the

property, a buffer would not be feasible along Garfield Road however, there would be more landscaping inside the facility itself. Landscaping would stop along the wetland line and the parking plan and snow storage plans are acceptable. Commissioners discussed the proposed project and asked questions. Walking trails will be constructed through the wetlands but DEQ approval may be needed. Commissioners had many questions regarding sidewalks, buffers and landscaping. A site visit before the next meeting will be planned to further review the site.

*McManus moved and Cline seconded THAT application PURD-2017-01 submitted by William Clous for a Multi-Family Development BE ACCEPTED and scheduled for public hearing at the regular meeting to be held on October 11, 2017, subject to the applicant providing additional detail as required by the Planning Department.*

*Yeas: McManus, Cline, DeGood, Uithol, Robertson, Duell, Racine  
Nays: None*

**7. Public Comment (9:43)**

Bill Crain commented on the 40 decibel issue with Serra Automotive.

**8. Items For Next Agenda September 27, 2017 (9:44)**

- a. Master Plan
- b. Site Visit at Fox Run

Commissioners had brief discussions regarding medical marijuana and short term rentals.

**9. Adjournment**

*Duell moved to adjourn the meeting at 9:53*

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Joe Robertson, Secretary  
Garfield Township Planning  
Commission  
3848 Veterans Drive  
Traverse City, MI 49684

**CHARTER TOWNSHIP OF GARFIELD  
SPECIAL PLANNING COMMISSION MEETING  
September 27, 2017**

**Call Meeting to Order:** Chair Racine called the meeting to order at 5:30 pm. The meeting took place on-site at the Proposed Fox Run Development located at the Intersection of Garfield Road and Garfield Woods Drive, Traverse City, MI 49684.

**Roll Call of Commission Members:**

Present: Steve Duell, Joe Robertson (5:35 pm), Chris DeGood, Joe McManus, Pat Cline, Gil Uithol and John Racine

Guest Present: Bill Crane & Travis Clous

**1. Review and Approval of the Agenda – Conflict of Interest**

*Uithol moved and DeGood seconded to approve the agenda as presented.*

*Yeas: Uithol, DeGood, Duell, Robertson, McManus, Cline, Racine*

*Nays: None*

**2. Business to Come Before the Commission**

**a. PD 2017-94 – Fox Run – PURD – Site Visit**

The applicant provided the Commission with a revised site plan. Items of discussion included the existing retention pond, proposed density, proposed sidewalks along Garfield Road, 30 X 30 gravel parking area located on easement to the conservancy property, pathways leading to the conservancy, and landscaping. Commission members asked that the applicant speak with the DEQ regarding any required permits and to try to incorporate a small centralized playground within the development. The Commission adjourned the topic until the public hearing at the regular Planning Commission meeting scheduled for October 11, 2017.

**7. Public Comment**

**8. Items for Next Agenda – October 11, 2017**

- a. Serra -FOF
- b. Fox Run - PH
- c. TC Water Reservoir – PH

9. **Adjournment**

*DeGood moved to adjourn the meeting at 6:24 P.M.*

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Joe Robertson, Secretary  
Garfield Township Planning  
Commission  
3848 Veterans Drive  
Traverse City, MI 49684

*Haggard's*  
**PLUMBING and HEATING**  
"Business of Quality and Service"  
"Charlevoix-the-Beautiful"  
haggardsinc@hotmail.com

Date: September 27, 2017

To: Garfield Township Hall  
3848 Veterans Dr.  
Traverse City, MI 49684

RE: Application by William Clous to construct a Planned Unit Property Parcel#05-130-003-00

To Whom it May Concern,

Upon reviewing the above Notice of Public Hearing of the Zoning Board of Appeals, I would like to express my view with the above case's requests. Haggard's Plumbing & Heating is not at all opposed to the changes of the property and/or the request to the Zoning Board. If a property owner is fortunate enough to have the ability and the resources in this time of economical struggles to either build and/or improve their existing property, we would like to see their request granted. It would prove positive for the local, county, state and country to do all we can to improve and promote growth in any way possible.

Sincerely,

*Haggard's Plumbing & Heating*



*Haggard's*  
**PLUMBING and HEATING**  
"Business of Quality and Service"  
"Charlevoix-the-Beautiful"  
haggardsinc@hotmail.com

Date: September 27, 2017

To: Garfield Township Hall  
3848 Veterans Dr.  
Traverse City, MI 49684


RE: Special Use Permit to construct a major essential service on the subject property  
Parcel#05-023-011-00, located at 2930 Lafranier Rd, Traverse City, MI

To Whom it May Concern,

Upon reviewing the above Notice of Public Hearing of the Zoning Board of Appeals, I would like to express my view with the above case's requests. Haggard's Plumbing & Heating is not at all opposed to the changes of the property and/or the request to the Zoning Board. If a property owner is fortunate enough to have the ability and the resources in this time of economical struggles to either build and/or improve their existing property, we would like to see their request granted. It would prove positive for the local, county, state and country to do all we can to improve and promote growth in any way possible.

Sincerely,

*Haggard's Plumbing & Heating*

 <b>Charter Township of Garfield</b> Planning Department Report No. 2017-99			
Prepared:	October 5, 2017	Pages:	Page 1 of 5
Meeting:	October 11, 2017 - Planning Commission	Attachments:	<input checked="" type="checkbox"/>
Subject:	Proposed Amendment to Conditional Rezoning Agreement		
File No.	Z-2017-03 - CRA	Parcel No.	05-014-005-00
Applicant:	Serra Works of Traverse City, LLC		
Owner(s):	Serra Works of Traverse City, LLC		

**SUBJECT PROPERTY:**

The subject property is approximately 2.9 acres in size and located at 940 Boon Street. It fronts both Boon Street and Garfield Road. This property was granted a conditional rezoning to C-2 (now C-G) with restrictions in 2007 to accommodate an expansion of the car dealership.



**PURPOSE OF APPLICATION:**

The Conditional Rezoning Agreement (CRA) set certain stipulations and timelines to ensure the property was developed in a timely manner, which may or may not have been met. Regardless, the procedure for approval of an application and major amendment is the same. Therefore, the application before you will replace the language currently in place and include a site plan, as required.

The plan contemplates various changes in vegetative buffers, the addition of a car wash (with restrictions) and ingress/egress modifications. The Planning Commission felt a non-automated wash bay was more appropriate until noise and use restrictions (no public use) could meet the standards of the ordinance as an automobile laundry.

Certain issues were discussed, as outlined below and will be viewed as specific standards to the request.

### 1. Boon Street landscape buffer

The public voiced concern regarding the lack of buffer proposed on the north side of the property abutting Boon Street. The Planning Commission requested adding larger conifers than that required by the zoning ordinance (*6 feet required*).

- a. The applicant will increase the planting size of the conifers from 6 feet to 8-10 feet to create a tiered vegetative buffer.

### 2. Car Wash

The public voiced concern with the addition of an automated car wash due to the noise levels and added traffic associated with the use. The applicant has proposed to have the car wash as indicated on the site plan, but with the following stipulations:

- a. The automobile laundry will be labeled a "wash bay" and may be permitted without noise generating mechanicals customarily associated with an automated car wash.
  - a. Any modification to the "wash bay" to include noise generating mechanicals shall first be reviewed, following a public hearing, by the Planning Commission.
  - b. A noise study shall be performed prior to a determination of (a) above and following installation of mechanicals, if approved and providing evidence that noise will not be detrimental to the surrounding neighborhoods.
- b. The automobile laundry shall not be open to the public.

### 3. Garfield Road Entrance / Driveway Alignment

The planning commission identified the lack of alignment with driveways across Garfield Road as a concern. The applicant has proposed the following to address concerns:

- a. To eliminate left turning movements onto Garfield Road by posting a "No Left Turn" sign to resolve vehicular areas of conflict.

### 4. Boon Street Entrance

The Planning Commission had concern with the location of the Boon Street curb cut and lack of alignment with the alley located to the north. The applicant has proposed the following to address concerns:

- a. The applicant relocated the entrance away from the neighboring property and agreed to (1) one curb cut along Boon Street.
- b. The applicant has aligned the entrance with the alley to the north as shown on the 8-10-17 site plan.

### 5. Lighting

Lighting, as submitted is appropriate.

**STAFF COMMENT:**

The application was introduced to the Planning Commission at their July 12, 2017 meeting and scheduled for a public hearing on September 13, 2017.

To aid in the discussion, the following approval criteria are offered for consideration:

**Section 421.E Approval Criteria of Zoning Map Amendment**

In its review of an application for rezoning, the Township should consider, but is not necessarily limited to, the criteria as defined in § 421.E.1 Master Plan Consistency through § 421.E.8 Other Factors. No single factor is controlling; instead, each must be weighed in relation to the other standards.

The applicant shall have the burden of justifying the amendment, including identifying specific reasons warranting the amendment, and providing any supporting data and information.

**(1) Master Plan Consistency**

*The Planning Commission may consider this standard to be **met** for the following reasons:*

- The Master Plan identifies this area as Mixed Use Business due to its location and proximity to Traverse City. The car dealership use proposed in 2007, and at the time of the conditional rezoning agreement, was deemed compatible with the intent of the plan.
- The proposed Master Plan eliminates the Mixed Use Business designation and replaces it with a more accurate Commercial designation. Therefore, the request complies with the proposed Master Plan as well.

**(2) Adverse Impacts on Neighboring Lands**

*The Planning Commission may consider this standard to be **met** for the following reasons:*

- The proposed conditional rezoning request has been restricted to improve compatibility with neighboring properties.
- The project, as proposed, has been designed to limit any adverse impact on the residential properties to the north and west of the project by locating ingress/egress locations to the site and away from the residential homes.
- Landscaping will be provided in accordance with the buffer standards. The applicant has agreed to increase coniferous plantings in number and size from 6 feet in height at the time of planting to 8-10 ft in height at the time of planting to create a more tiered effect.
- The non-automated "wash bay" is deemed compatible due to the lack of automated dryers, alarms and other noises produced by an Automobile Laundry.
- The "wash bay" will not be open to the public.

**(3) Suitability as Presently Zoned**

*The Planning Commission may consider this standard to be **met** for the following reasons:*

- The property is currently split zoned with the western parcel being conditionally rezoned C-G (with restriction) and the eastern portion being zoned C-G (without

restriction) both of which are suitable as presently zoned to support the use as submitted.

**(4) Changed Conditions**

*The Planning Commission may consider this standard **to not apply**.*

**(5) Health, Safety, and Welfare**

*The Planning Commission may consider this standard to be **met** for the following reasons:*

- The project as proposed and restricted protects and encourages the public health, safety and welfare by installing sidewalks, limiting vehicular turning movements, aligning ingress and egress locations and eliminating vegetation in conflict with FAA standards.

**(6) Public Policy**

*The Planning Commission may consider this standard to be **met** for the following reasons:*

- The use is limited by the conditions of the application and zoning ordinance, complies with the master plan, non-motorized plan, and current growth patterns of the area.

**(7) Size of Tract**

*The Planning Commission may consider this standard to be **met** for the following reasons:*

- Due to the historic development pattern of this area, parcels are traditionally small and the request is restricted to a small area for compatibility purposes, and in accordance with FAA restrictions.
- This standard is in place to avoid small acreage rezoning of land that could be described as spot zoning. This request is not considered as such due to the surrounding uses and the historic zoning being commercial.

**ACTION REQUESTED:**

The Planning Commission acts as the recommending body to the Township Board in any application for zoning ordinance or map amendment.

Following an opportunity for applicant presentation, public comment, commission discussion, and if the Planning Commission is prepared to make a recommendation, the following separate motions in support of approval are offered for consideration:

THAT the Findings of Fact for Application Z-2017-03, attached to PD Report 2017-99 and forming part of this motion, BE APPROVED (*to be adopted only after review of the finding of fact document*).

The following motion would be appropriate to recommend approval of the application:

THAT application Z-2017-03 submitted by Serra Works of Traverse City, LLC to conditionally rezone lands along Boon Street, as described, BE RECOMMENDED

FOR APPROVAL to the Garfield Township Board based on the approved Findings of Fact and for reasons set out in report PD-2017-99 with the following conditions:

1. All relevant material to be included as a part of the Conditional Rezoning Agreement (CRA) and including the agreement itself shall be drafted and reviewed by the township attorney prior to the introduction of the agreement to the Township Board.

Any additional information that the Planning Commission determines to be necessary should be added to either motion. If the Planning Commission is not satisfied with the level of information provided, the above motion would be premature and should not be adopted.



**Charter Township of Garfield**  
Planning Department Report No. 2017-100

Prepared:	October 4, 2017	Pages:	1 of 3
Meeting:	October 11, 2017 Planning Commission	Attachments:	<input checked="" type="checkbox"/>
Subject:	LaFranier Water Reservoir - Major Essential Service - SUP		
Applicant:	City of Traverse City		

**INTRODUCTION**

The application requests approval of a Special Use Permit to add a 2,000,000 gallon water tank at 2930 LaFranier Road on a property that currently has an existing 4,000,000 gallon tank. The current water storage reservoir has been in existence since 1972 and is situated on approximately 5 acres of land. An aerial photograph has been attached for your review.

**SUBJECT PROPERTY**

The proposed water reservoir is to be located directly behind the current water reservoir. The property has a 0-1% slope which is likely the result of grading the property when the original reservoir was constructed. It is mostly wooded on all sides with older growth mature trees. The parcel is absent streams, watercourses or wetlands, and has soils suitable for stormwater and /or overflow infiltration.

**STAFF COMMENT**

Major Essential Service installations are a use permitted in the agricultural district by way of a special use permit. The property is currently and historically has been zoned agricultural. However, records of this use are non-existent, as are similar uses of this age. The specific concerns identified with the project are identified below and are treated as a finding at the time Staff is directed to draft findings on the project.

*Note: The planning commission at the introductory meeting requested Staff to prepare findings for the October 11, 2017 meeting however proper findings could not be addressed until public comment is taken at the public hearing.*

**Vehicular Circulation**

The Planning Commission may find this issue to be resolved for the following reasons:

1. The property is accessed by a single point of ingress/egress from La Franier Road and is not proposed to be modified beyond meeting updated GTCRC requirements.
2. A turnaround is currently in place to ensure emergency services can access and maneuver within the site.

**Non-motorized**

The Planning Commission may find this issue to be resolved for the following reasons:

1. A sidewalk is proposed along the parcel's frontage as required by the non-motorized plan.
2. The sidewalk will be installed at a width of 5 feet and has been located appropriately.

**Lighting**

The Planning Commission may find this issue to be resolved for the following reasons:

## Garfield Township Planning Department

1. Lighting and light types are in compliance with the Garfield Township Zoning Ordinance.

### Site Grading and Stormwater

The Planning Commission may find this issue to be resolved for the following reasons:

1. The site is required to have an overflow pond, which is illustrated on the site plan and currently in place. Stormwater finalization is required prior to permitting and as a condition of approval.

### **ACTION REQUESTED:**

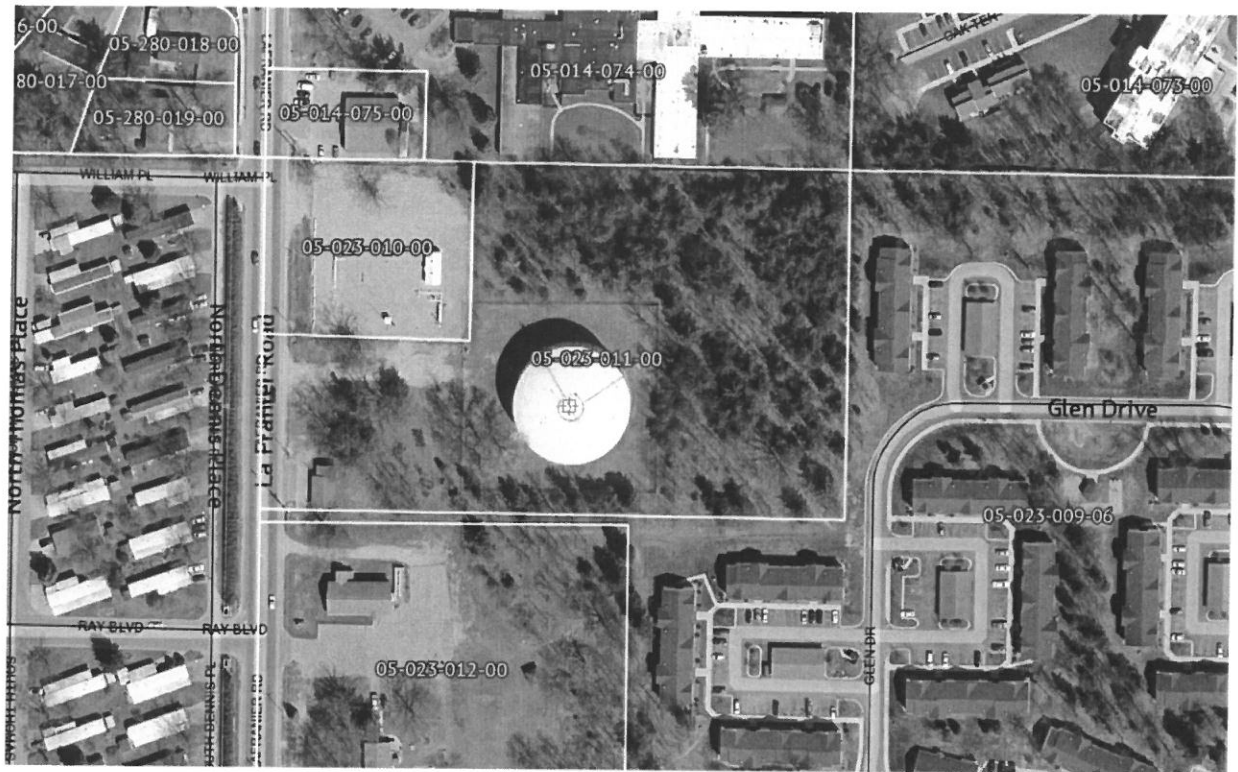
The purpose of this meeting is to hold a public hearing on the application, hear and discuss any concerns associated with the use. As such, following an opportunity for public input and commissioner discussion, the following motion is offered for consideration:

**MOTION THAT** the Findings of Fact for Application SUP-2017-02, be prepared for consideration at the next available planning commission meeting.

Any additional information that the Planning Commission determines to be necessary should be added to this motion. If the Planning Commission is not satisfied with the level of information provided to date, the above motion would be premature and should not be adopted.





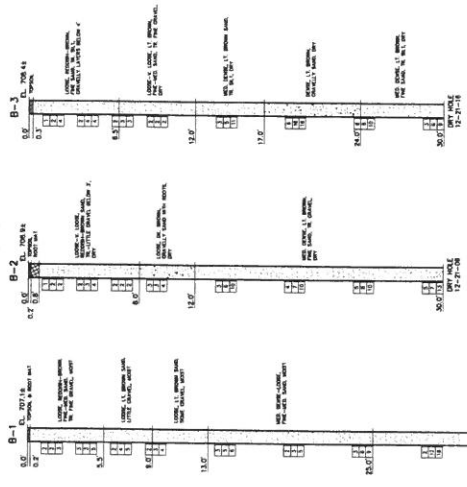




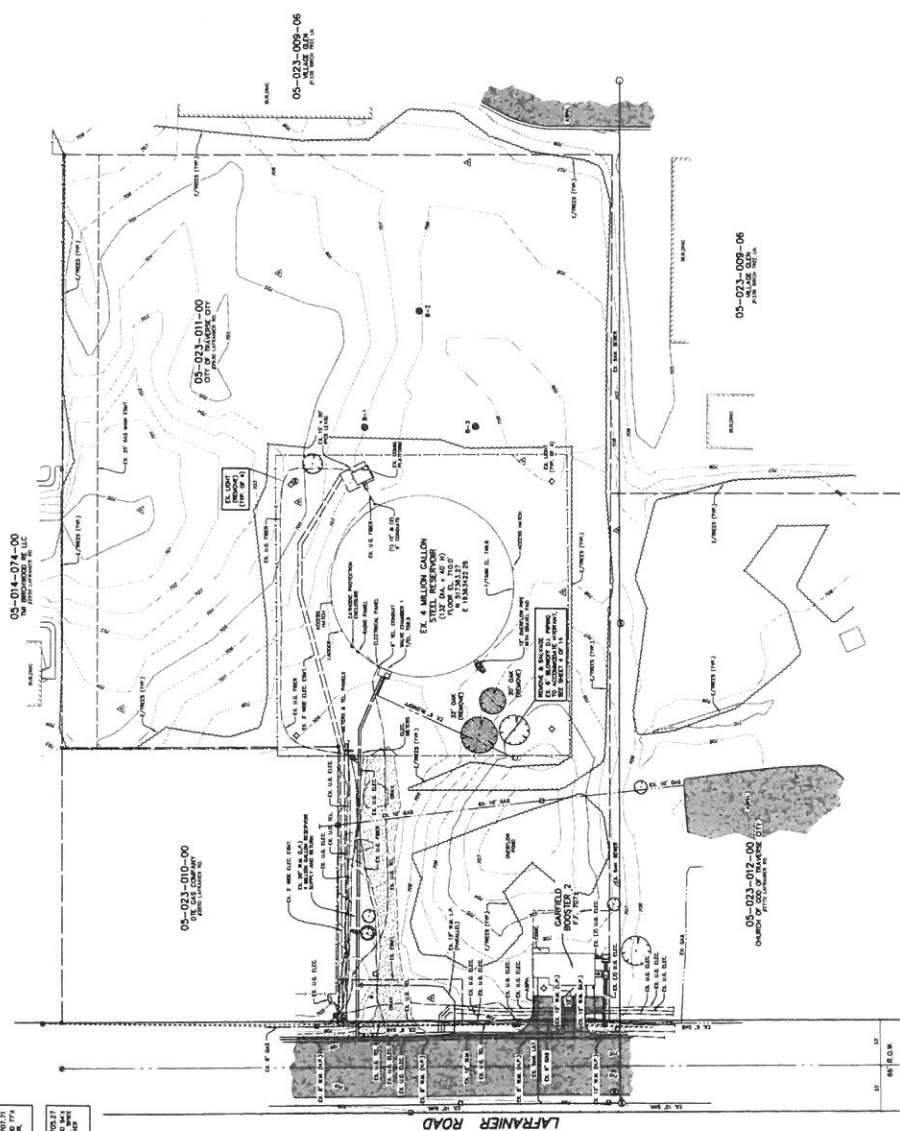
PROJECT NO. 2160529  
 SHEET NO. 2 of 14  
 CITY OF WAVERNE CITY  
 WATER SYSTEM IMPROVEMENTS  
 1.5 MILLION GALLON RESERVOIR

**SOIL BORING LOGS**

SCALE: 1" = 1' VERTICAL



- NOTES**
1. THE CONTRACTOR SHALL MAINTAIN A RECORD OF ALL TESTS PERFORMED AROUND THE PERIMETER OF THE TANK AND TO THE NEIGHBORING EAST OF THE TANK.
  2. THE CONTRACTOR SHALL MAINTAIN THE OPERATION OF THE EXISTING WATER SYSTEM THROUGHOUT THE CONSTRUCTION PERIOD. THE CONTRACTOR SHALL MAINTAIN THE WATER MAINS AND SANITARY MAINS IN USE THROUGHOUT THE CONSTRUCTION PERIOD. THE CONTRACTOR SHALL MAINTAIN THE EXISTING ELECTRICAL SYSTEMS AND CONTROLS TO BE IN USE THROUGHOUT THE CONSTRUCTION PERIOD.
  3. THE CONTRACTOR SHALL MAINTAIN THE EXISTING ELECTRICAL SYSTEMS AND CONTROLS TO BE IN USE THROUGHOUT THE CONSTRUCTION PERIOD.
  4. THE CONTRACTOR SHALL MAINTAIN THE EXISTING ELECTRICAL SYSTEMS AND CONTROLS TO BE IN USE THROUGHOUT THE CONSTRUCTION PERIOD.



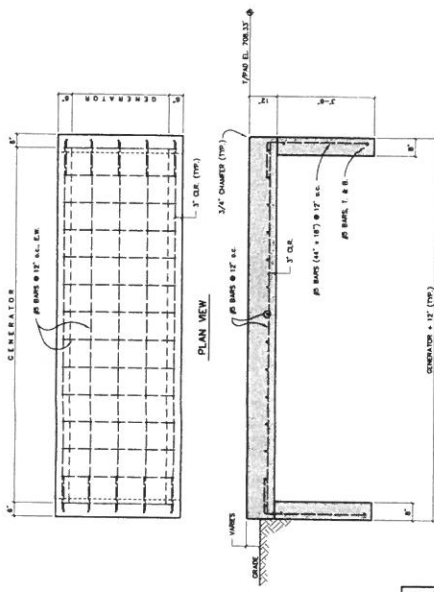
North  
**EXISTING SITE PLAN**  
 SCALE: 1" = 40'



NO.	REVISIONS	BY	DATE	DESCRIPTION
1		SMITH	JUNE 17, 2011	AS SHOWN
2		SMITH	JUNE 17, 2011	AS SHOWN
3		SMITH	JUNE 17, 2011	AS SHOWN

PROJECT NO. 2160529  
 SHEET NO. 2 of 14  
 CITY OF WAVERNE CITY  
 WATER SYSTEM IMPROVEMENTS  
 1.5 MILLION GALLON RESERVOIR  
**EXISTING SITE PLAN**

PROJECT DATA INFORMATION  
 PROJECT NO. 2160529  
 SHEET NO. 2 of 14  
 CITY OF WAVERNE CITY  
 WATER SYSTEM IMPROVEMENTS  
 1.5 MILLION GALLON RESERVOIR



**GENERATOR PAD DETAIL**  
 SCALE: 1" = 8'  
 NORTH

**NOTES**  
 1. PROVIDE A DETAIL FOR ALL STRUCTURES AND CHECK FOR PROPER PLACEMENT OF REINFORCEMENT BARS.  
 2. THE CONTRACTOR SHALL VERIFY THE FINAL FOUNDATION DESIGN & CHECK.



**TYPICAL GRAVEL DRIVEWAY SECTION**  
 SCALE: 1" = 8'



**TYPICAL SWALE SECTION**  
 SCALE: 1" = 8'

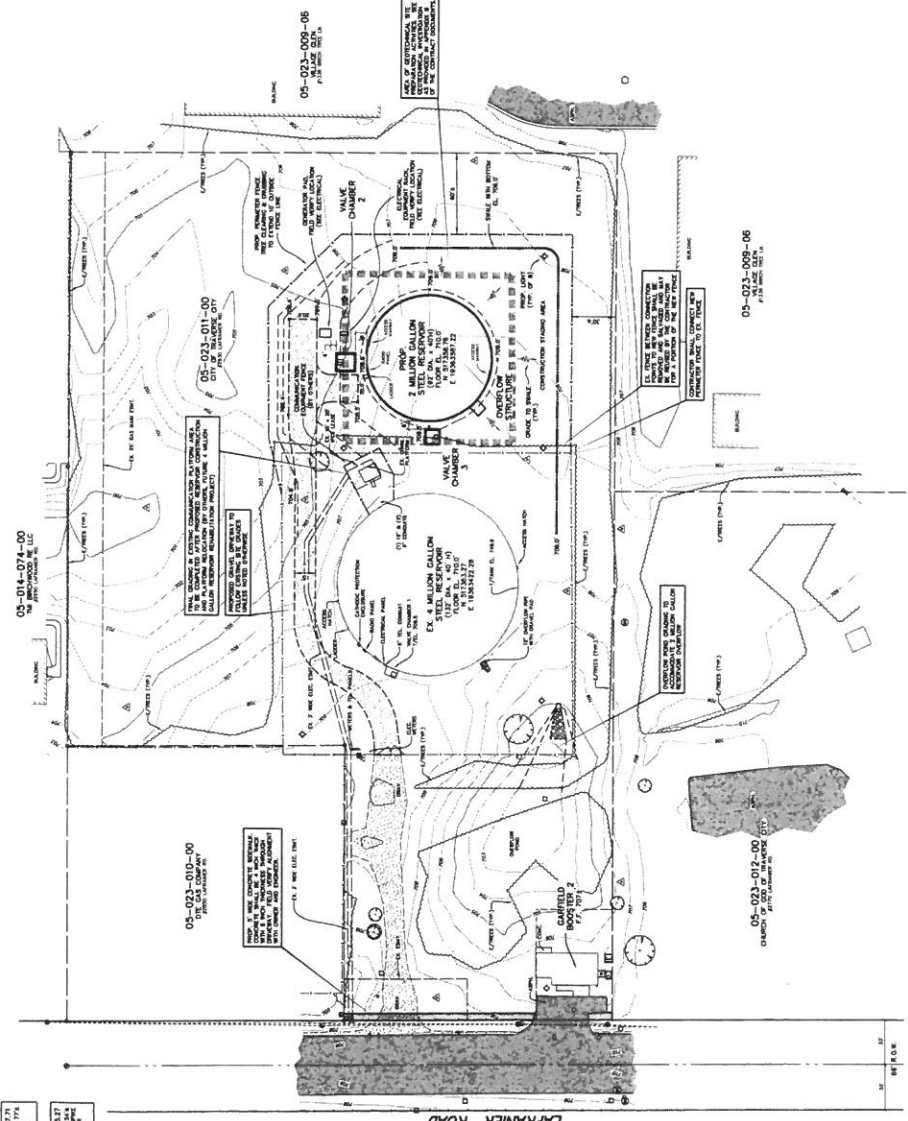
STEEL TANK OPTION  
 CITY OF SAN ANTONIO  
 WATER SYSTEM IMPROVEMENTS  
 SAN ANTONIO WATER TREATMENT PLANT

PROJECT NO.  
 2160629  
 SHEET NO.  
**3 of 14**

**Prein & Newhof**  
 Engineers & Surveyors & Environmental Laboratory

NO.	REVISIONS	BY	DATE	DESCRIPTION
1	CORRECTED TYPING ERRORS	K.L.L./J.P.P.	JUNE 17, 2011	

CONTRACTOR SHALL VERIFY THE FINAL FOUNDATION DESIGN & CHECK.  
 THE CONTRACTOR SHALL VERIFY THE FINAL FOUNDATION DESIGN & CHECK.



**PROPOSED SITE PLAN**  
 SCALE: 1" = 40'  
 NORTH

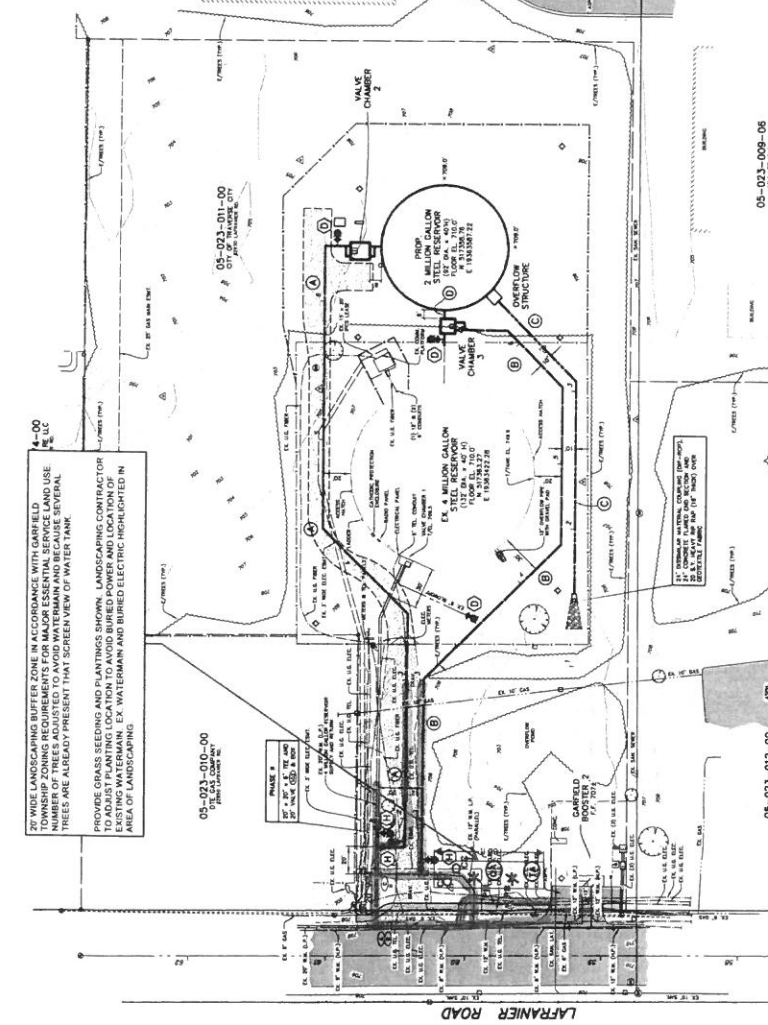
**STORM CALCULATIONS**  
 1. 10-YEAR 24 HOUR STORM = 3.37 INCHES  
 2. TOTAL VOLUME RUNOFF FROM TANK WITH C = 100, 1,000 CFS  
 3. 10-YEAR 24 HOUR STORM = 3.37 INCHES  
 4. 10-YEAR 24 HOUR STORM = 3.37 INCHES  
 5. SWALE CAPACITY WAS 0.5 FEET DEEPENING, 1,000 CFS

**REVISIONS**  
 NO. DATE  
 1 05-014-074-00  
 2 05-023-010-00  
 3 05-023-011-00  
 4 05-023-012-00  
 5 05-023-009-06

**PROJECT DATA INFORMATION**  
 PROJECT NO. 2160629  
 SHEET NO. 3 OF 14  
 DATE: JUNE 17, 2011  
 DRAWN BY: K.L.L./J.P.P.  
 CHECKED BY: K.L.L./J.P.P.  
 PROJECT LOCATION: SAN ANTONIO WATER TREATMENT PLANT

PROVIDE 30' WIDE LANDSCAPING BUFFER ZONE IN ACCORDANCE WITH GARFIELD TOWNSHIP ZONING REQUIREMENTS FOR MAJOR ESSENTIAL SERVICE LAND USE. PROVIDE LANDSCAPING BUFFER ZONE TO SCREEN VIEW OF WATER TANK. THERE ARE ALREADY PRESENT THAT SCREEN VIEW OF WATER TANK.

PROVIDE GRASS SEEDING AND PLANTINGS SHOWN. LANDSCAPING CONTRACTOR TO ADJUST PLANTING LOCATION TO AVOID BURIED POWER AND LOCATION OF EXISTING UTILITY. EX. WATER MAIN AND BURIED ELECTRIC HIGHLIGHTED IN AREA OF LANDSCAPING.



### LANDSCAPING TABLE

ABV.	SCIENTIFIC NAME	COMMON NAME	SIZE	QUANTITY
TA	TELA AMERICANA	BASWOOD	2' GALPER	
CA	QUERCUS ALBIDA	WHITE OAK	2' GALPER	
CC	CARPINUS CAROLINIANA	MUSCLEWOOD	2' GALPER	
PM	PICEA MARMIANA	BLACK SPRUCE	6 FEET	
PS	PRUNUS SPANISHA	JACKPINE	6 FEET	

**NOTES**

- ALL PIPING SHALL BE PHASE I PIPING UNLESS DESIGNATED FOR ADDITIONAL SCHEDULE.
- VALVES, GATES AND CHECKS ARE TO BE PROVIDED AS SHOWN. THE VALVE OPERATIONS SHALL BE AS FOLLOWS: 1. OPERATOR OF THE 4 MILLION GALLON RESERVOIR SHALL BE MAINTAINED WITH A SUCCESSFUL PERFORMANCE TEST OF THE NEW 3 MILLION GALLON RESERVOIR HAS BEEN COMPLETED. 2. THE 2 MILLION GALLON RESERVOIR SHALL BE IN SERVICE AND ITS SUCCESSFUL PERFORMANCE TEST COMPLETED PRIOR TO VALVE #03 INSTALLATION.

**YARD PIPING PROFILE LEGEND**

MARK	DESCRIPTION
(A)	18" x 24" 2 MILLION GALLON RESERVOIR SUPPLY AND RETURN
(B)	18" x 24" DEDICATED SUPPLY TO GARFIELD ROOSTER 2
(C)	24" 2 MILLION GALLON RESERVOIR OVERFLOW
(D)	24" OUTLET FROM 1 MILLION GALLON RESERVOIR WITH GATE AND ASSOCIATED RESTRICTION TO GARFIELD ROOSTER 2

**YARD PIPING LEGEND**

MARK	DESCRIPTION
(1)	DEDICATED SUPPLY TO INCLUDE 6" VALVE & 8" 3" HORIZONTAL AND ASSOCIATED RESTRICTION JOINT PIPING (TYP. OF 3)
(2)	ISOLATION JOINT TO INCLUDE 6" VALVE & 8" 3" HORIZONTAL AND ASSOCIATED RESTRICTION JOINT PIPING (TYP. OF 3)
(3)	REGULAR JOISTABLE TO INCLUDE 6" VALVE & 8" 3" HORIZONTAL AND ASSOCIATED RESTRICTION JOINT PIPING (TYP. OF 3)

NOTE: ALL HYDRAULICS SHALL CONFORM TO CITY OF TRAMVERSE CITY STANDARDS



### VALVE SCHEDULE

No.	QTY	SIZE, IN.	TYPE	CLASS	FUNCTION	CONTROL	REMARKS
(1)	20	8"	BPV	1000	FLOW CONTROL/ISOLATION	ELECTRIC	VALVE CHAMBER 1, SUPPLY & RETURN FROM 4 M.G. RESERVOIR
(2)	8	8"	GATE	1000	ISOLATION	MANUAL	VALVE CHAMBER 1
(3)	1	20"	GATE	1500	ISOLATION	MANUAL	USE FOR DIRECT SUPPLY & RETURN FROM 2 M.G. RESERVOIR
(4)	1	20"	BPV	1500	FLOW CONTROL/ISOLATION	MANUAL	USE FOR DIRECT SUPPLY & RETURN FROM 2 M.G. RESERVOIR
(5)	1	24"	BPV	1500	FLOW CONTROL/ISOLATION	ELECTRIC	DIRECT SUPPLY, SEE NOTE 2
(6)	2	16"	BPV	1500	ISOLATION	MANUAL	VALVE CHAMBER 2, SUPPLY & RETURN FROM 2 M.G. RESERVOIR
(7)	1	16"	CHECK	1500	ISOLATION	MANUAL	VALVE CHAMBER 2
(8)	1	16"	BPV	1500	ISOLATION	MANUAL	VALVE CHAMBER 2, RETURN FROM 2 M.G. RESERVOIR
(9)	4	18"	BPV	1500	ISOLATION	MANUAL	VALVE CHAMBER 3, FUTURE CONNECTION BETWEEN RESERVOIRS
(10)	2	18"	CHECK	1500	ISOLATION	MANUAL	VALVE CHAMBER 3, FUTURE CONNECTION BETWEEN RESERVOIRS
(11)	4	8"	BPV	1500	ISOLATION	MANUAL	VALVE CHAMBER 3, FUTURE CONNECTION BETWEEN RESERVOIRS

**NOTES**

- OPERATOR OF THE 4 MILLION GALLON RESERVOIR SHALL BE MAINTAINED WITH A SUCCESSFUL PERFORMANCE TEST OF THE NEW 3 MILLION GALLON RESERVOIR HAS BEEN COMPLETED.
- THE 2 MILLION GALLON RESERVOIR SHALL BE IN SERVICE AND ITS SUCCESSFUL PERFORMANCE TEST COMPLETED PRIOR TO VALVE #03 INSTALLATION.

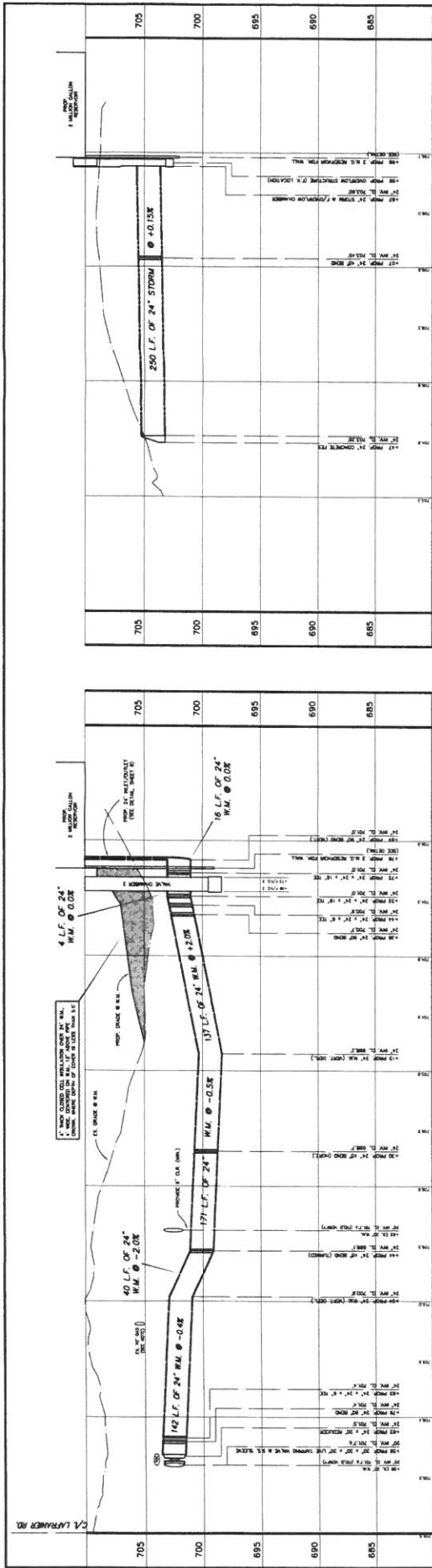
PROJECT NO. 2160629  
SHEET NO. 4 OF 14

CITY OF TRAMVERSE CITY  
GRAND TRAVELER COUNTY, MISSOURI  
WATER SYSTEM IMPROVEMENTS  
BARON'S 2 MILLION GALLON RESERVOIR  
YARD PIPING PLAN & DETAILS

**Prein&Newhof**  
Engineers - Surveyors - Environmental - Laboratory

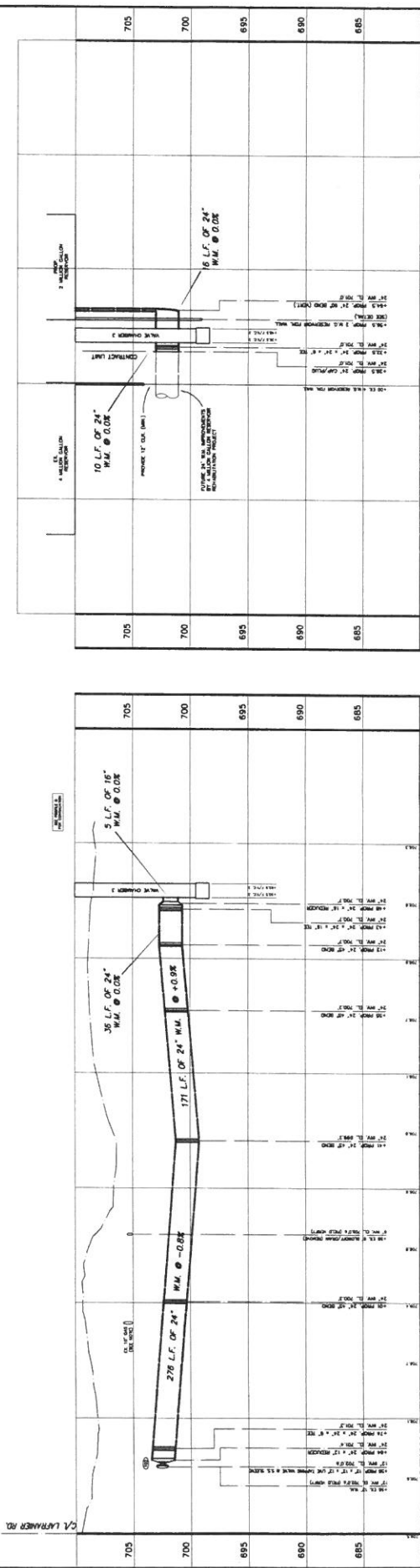
NO.	REVISIONS	DATE	BY	DESCRIPTION
		JUNE 17		ISSUE FOR PERMIT
		JUNE 17		FOR CONSTRUCTION

PROJECT PLANS INFORMATION  
DATE: 06/17/2014  
TIME: 10:00 AM  
DRAWN BY: J. H. HARRIS  
CHECKED BY: J. H. HARRIS  
SCALE: AS SHOWN



PROFILE (A) - 24" RESERVOIR SUPPLY & RETURN

PROFILE (B) - 24" RESERVOIR OVERFLOW



PROFILE (C) - 24" DEDICATED SUPPLY TO GARFIELD BOOSTER 2

PROFILE (D) - 24" DEDICATED SUPPLY INCLUDING FUTURE IMPROVEMENTS BY 4 MILLION GALLON RESERVOIR REHABILITATION PROJECT

GENERAL NOTES

1. ALL WATER MAIN AND OVERFLOW PIPING SHALL BE RESTRAINED DUCTILE IRON.
2. WHERE 24" x 24" x 4 B.T.E. IS NOTED, IT SHALL INCLUDE F, VALVE & 10L. 2" HYDRANT AND ASSOCIATED 6"
3. EXACT HORIZONTAL AND VERTICAL LOCATION OF GAS MAIN IS UNKNOWN. CONTACT THE UTILITY PRIOR TO EXCAVATING.
4. PROFILES SHOWN ARE FOR THE STEEL TANK OPTION. PROFILES WILL BE UPDATED TO ACCOMMODATE FOUNDATION AND HYDRO-COMPENSATORS FOR THE PRESTRESSED CONCRETE OPTION, IF DIRECTED BY OWNER.

PROFILES: 1" = 40' (VERT)  
1" = 2' (HORIZ)

811  
CALL BEFORE YOU DIG  
A SERVICE TO THE COMMUNITY  
FOR THE PROTECTION OF PUBLIC SAFETY  
AND THE ENVIRONMENT

NO.	REVISION	BY	DATE

SMITH  
JUNE 17  
2012  
CITY OF GARFIELD  
CITY ENGINEER

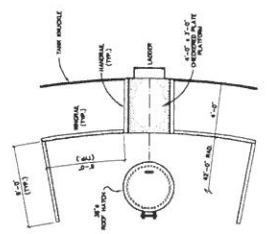
PROJECT NO.  
2160529  
SHEET NO.  
5 of 14  
CITY OF GARFIELD  
GARFIELD COUNTY  
WATER SYSTEM IMPROVEMENTS  
BY 4 MILLION GALLON RESERVOIR  
YARD PIPING PROFILES

PREIN & NEWHOF  
Engineering - Surveying - Environmental Laboratory



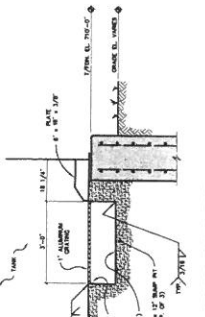
NO.	REVISIONS	BY	DATE	APP'D

STEEL TANK OPTION  
ENGINEERS & ARCHITECTS  
Prein & Newhof  
Engineers - Surveyors & Environmental Laboratory



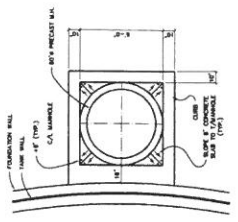
TANK ACCESS DETAIL  
SCALE: 1/4" = 1'-0"

NOTE  
PROVIDE LADDER, FALL RESTRAINT, PROTECTIVE HANDRAILS, AND ALL WORKING SURFACES STANDING



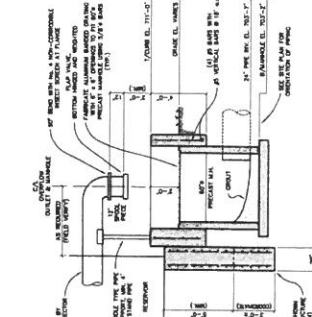
FLOOR SUMP DETAIL  
SCALE: 1/2" = 1'-0"

NOTE  
USE 1\"/>



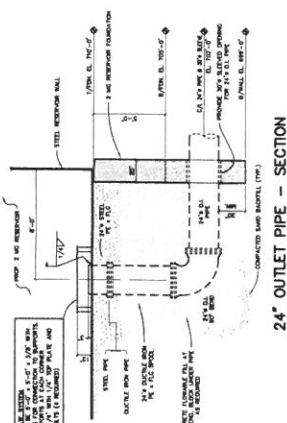
OVERFLOW STRUCTURE - PLAN  
SCALE: 1/4" = 1'-0"

NOTE  
DRAWING NOT SHOWN FOR CLARITY



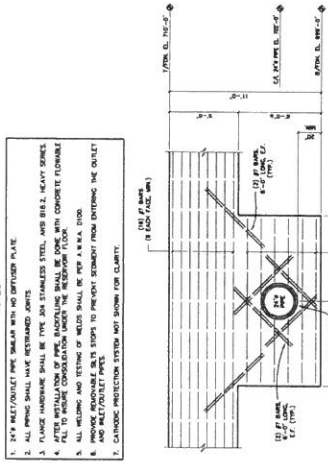
OVERFLOW STRUCTURE - SECTION  
SCALE: 1/4" = 1'-0"

NOTE  
DRAWING NOT SHOWN FOR CLARITY



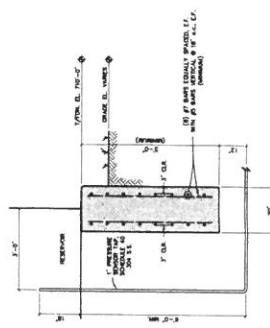
24\"/>

NOTE  
1. 24\"/>



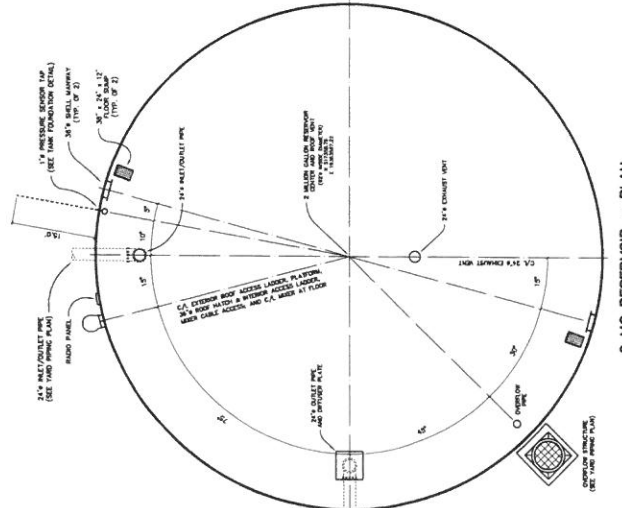
INLET/OUTLET PIPE & OUTLET PIPE WALL DETAIL  
SCALE: 1/4" = 1'-0"

NOTE  
6\"/>



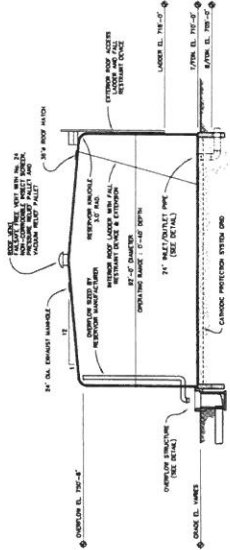
TANK FOUNDATION DETAIL  
SCALE: 1/2" = 1'-0"

NOTE  
1. USE 4\"/>



2 MG RESERVOIR - PLAN  
SCALE: 1" = 10'

NOTE  
1. 4\"/>



2 MG RESERVOIR - SECTION  
SCALE: 1" = 20'

NOTE  
DRAWING NOT SHOWN FOR CLARITY



PRESTRESSED CONCRETE TANK OPTION NOTES

MODIFICATIONS TO THE STEEL TANK OPTION DRAWINGS SHOWN ON SHEET 7-10. THE PRESTRESSED CONCRETE TANK OPTION SHALL ACCOMMODATE THE PRESTRESSED CONCRETE TANK OPTION. THE CONTRACTOR SHALL MAINTAIN THE SAME CENTERLINE AS THE STEEL TANK OPTION. THE CONTRACTOR SHALL MAINTAIN THE SAME CENTERLINE AS THE STEEL TANK OPTION. THE CONTRACTOR SHALL MAINTAIN THE SAME CENTERLINE AS THE STEEL TANK OPTION.

1. THE 24" DIA. OUTLET PIPE SHALL BE CLASS 55 CONCRETE TANK FLOOR SLAB.
2. DEFUSER PLATE SHALL BE STAINLESS STEEL, MINIMUM OF 5'-0" DIA. WITH SUPPORTS ANCHORED TO THE CONCRETE TANK FLOOR. WITH SUPPORTS ANCHORED TO THE CONCRETE TANK FLOOR.
3. OVERFLOW PIPING EXTENDING TO TANK SHALL BE DUCTILE IRON. MINIMUM WALL THICKNESS SHALL BE CLASS 55.

**SHEET 3 - PROPOSED SITE PLAN & DETAILS**  
 1. THE CENTER OF THE TANK FOR THE PRESTRESSED CONCRETE OPTION SHALL BE 50' EAST OF THE LOCATION SHOWN IN THE LARGER FOUNDATION DIAMETER AND MAINTAIN SATISFACTORY CLEARANCE FOR FOUNDATION CONSTRUCTION ACTIVITY.  
 2. THE VALVE CHAMBER DISTANCES FROM THE OUTSIDE OF THE TANK FOUNDATION SHALL BE ADJUSTED AS REQUIRED TO ACCOMMODATE RESERVOIR CONSTRUCTION. PIPING CENTERLINE ELEVATIONS SHALL SATISFACTORY EARTH COVER.  
 3. THE FINISHED GRADE CONCEPT AS SHOWN SHALL BE ADJUSTED AS REQUIRED FOR THE PRESTRESSED CONCRETE OPTION.  
 4. MAINTAIN 70% SLOPE AT FOUNDATION FACE AND 70% SLOPE AT FOUNDATION LOCATION AS SHOWN.  
 5. ADJUST 1 ON A SLOPE FROM 70% SLOPE TO FINISHED GRADE TO MAINTAIN THE 70% SLOPE AT FOUNDATION LOCATION AS SHOWN.  
 6. SEE YARD PIPING PLAN AND YARD PIPING PROFILE NOTES BELOW FOR VALVE CHAMBER 2 AND VALVE CHAMBER 3 LOCATIONS.  
 7. THE OVERFLOW STRUCTURE LOCATION SHALL BE MOVED TO THE OUTSIDE DIAMETER. THE OVERFLOW PIPE CENTERLINE SHALL MATCH THE OVERFLOW STRUCTURE CENTERLINE.  
 8. THE TOP ELEVATION OF THE OPERATOR PAD IS TO BE REVISED TO 100.00 FEET. THE OPERATOR PAD SHALL BE 4' DIA. AT FOUR (4) FEET ABOVE FINISHED GRADE AT SOUTH LIMIT. HOLD THE SOUTH LIMIT OF OPERATOR PAD AT FOUR (4) FEET ABOVE FINISHED GRADE AT SOUTH LIMIT.

**SHEET 4 - YARD PIPING PLAN & PHASE 1 AND PHASE 2**  
 1. MAINTAIN 70% SLOPE AT FOUNDATION FACE AND 70% SLOPE AT FOUNDATION LOCATION AS SHOWN.  
 2. ADJUST 1 ON A SLOPE FROM 70% SLOPE TO FINISHED GRADE TO MAINTAIN THE 70% SLOPE AT FOUNDATION LOCATION AS SHOWN.  
 3. SEE YARD PIPING PLAN AND YARD PIPING PROFILE NOTES BELOW FOR VALVE CHAMBER 2 AND VALVE CHAMBER 3 LOCATIONS.  
 4. THE OVERFLOW STRUCTURE LOCATION SHALL BE MOVED TO THE OUTSIDE DIAMETER. THE OVERFLOW PIPE CENTERLINE SHALL MATCH THE OVERFLOW STRUCTURE CENTERLINE.  
 5. THE TOP ELEVATION OF THE OPERATOR PAD IS TO BE REVISED TO 100.00 FEET. THE OPERATOR PAD SHALL BE 4' DIA. AT FOUR (4) FEET ABOVE FINISHED GRADE AT SOUTH LIMIT. HOLD THE SOUTH LIMIT OF OPERATOR PAD AT FOUR (4) FEET ABOVE FINISHED GRADE AT SOUTH LIMIT.

THE LOCATION OF THE INLET/OUTLET PIPING, INLET PIPING AND OVERFLOW STRUCTURE IN PROFILE SHALL BE MAINTAINED AS SHOWN IN THE 24" GALLON RESERVOIR PLAN ON SHEET 7-10. THE CONTRACTOR SHALL MAINTAIN THE SAME CENTERLINE AS THE STEEL TANK OPTION. THE CONTRACTOR SHALL MAINTAIN THE SAME CENTERLINE AS THE STEEL TANK OPTION.

1. IN PROFILE A, EXTEND THE NORTH-SOUTH RUNNING 24" LINE EAST TO ACCOMMODATE THE 24" GALLON RESERVOIR. MAINTAIN VALVE CHAMBER 2 CENTERLINE WITHIN THE SOUTH LIMIT OF THE VALVE CHAMBER 2 SHALL BE REVISION, IF REQUIRED, TO ACCOMMODATE SETTLEMENT.
2. IN PROFILE B, EXTEND THE NORTH-SOUTH RUNNING 24" LINE EAST TO ACCOMMODATE THE 24" GALLON RESERVOIR. MAINTAIN VALVE CHAMBER 3 CENTERLINE WITHIN THE SOUTH LIMIT OF THE VALVE CHAMBER 3 SHALL BE REVISION, IF REQUIRED, TO ACCOMMODATE SETTLEMENT.
3. IN PROFILE C, REDUCE THE LENGTH OF OVERFLOW PIPING AND MAINTAIN VALVE CHAMBER 3 CENTERLINE WITHIN THE SOUTH LIMIT OF THE VALVE CHAMBER 3 SHALL BE REVISION, IF REQUIRED, TO ACCOMMODATE SETTLEMENT.
4. IN PROFILE D, MAINTAIN ALIGNMENT WITH THE NORTH-SOUTH CENTERLINE OF THE OPERATOR PAD. THE OPERATOR PAD SHALL BE 4' DIA. AT FOUR (4) FEET ABOVE FINISHED GRADE AT SOUTH LIMIT. HOLD THE SOUTH LIMIT OF OPERATOR PAD AT FOUR (4) FEET ABOVE FINISHED GRADE AT SOUTH LIMIT.

**SHEET 5 - YARD PIPING PROFILES**  
 1. IN PROFILES A AND D, ADJUST THE FOUNDATION AND SLEEVE FOUNDATION RADIUS FOR THE PRESTRESSED CONCRETE TANK OPTION. THE FOUNDATION RADIUS FOR THE PRESTRESSED CONCRETE TANK OPTION SHALL BE ADJUSTED AS REQUIRED.  
 2. IN PROFILE A, EXTEND THE EAST-WEST RUNNING LINE SIX (6) FEET EAST TO MAINTAIN ALIGNMENT WITH THE CENTERLINE OF THE 24" GALLON RESERVOIR. MAINTAIN VALVE CHAMBER 2 CENTERLINE WITHIN THE SOUTH LIMIT OF VALVE CHAMBER 2 SHALL BE REVISION, IF REQUIRED.  
 3. IN PROFILE D, MAINTAIN ALIGNMENT WITH THE NORTH-SOUTH CENTERLINE OF THE OPERATOR PAD. THE OPERATOR PAD SHALL BE 4' DIA. AT FOUR (4) FEET ABOVE FINISHED GRADE AT SOUTH LIMIT. HOLD THE SOUTH LIMIT OF OPERATOR PAD AT FOUR (4) FEET ABOVE FINISHED GRADE AT SOUTH LIMIT.

INTERSECTION WITH THE SECTION OF PROFILE B RUNNING NORTH TO SOUTH. THE CONTRACTOR SHALL MAINTAIN THE SAME CENTERLINE AS THE STEEL TANK OPTION. THE CONTRACTOR SHALL MAINTAIN THE SAME CENTERLINE AS THE STEEL TANK OPTION.

1. IN PROFILE A, EXTEND THE NORTH-SOUTH RUNNING 24" LINE EAST TO ACCOMMODATE THE 24" GALLON RESERVOIR. MAINTAIN VALVE CHAMBER 2 CENTERLINE WITHIN THE SOUTH LIMIT OF THE VALVE CHAMBER 2 SHALL BE REVISION, IF REQUIRED, TO ACCOMMODATE SETTLEMENT.
2. IN PROFILE B, EXTEND THE NORTH-SOUTH RUNNING 24" LINE EAST TO ACCOMMODATE THE 24" GALLON RESERVOIR. MAINTAIN VALVE CHAMBER 3 CENTERLINE WITHIN THE SOUTH LIMIT OF THE VALVE CHAMBER 3 SHALL BE REVISION, IF REQUIRED, TO ACCOMMODATE SETTLEMENT.
3. IN PROFILE C, REDUCE THE LENGTH OF OVERFLOW PIPING AND MAINTAIN VALVE CHAMBER 3 CENTERLINE WITHIN THE SOUTH LIMIT OF THE VALVE CHAMBER 3 SHALL BE REVISION, IF REQUIRED, TO ACCOMMODATE SETTLEMENT.
4. IN PROFILE D, MAINTAIN ALIGNMENT WITH THE NORTH-SOUTH CENTERLINE OF THE OPERATOR PAD. THE OPERATOR PAD SHALL BE 4' DIA. AT FOUR (4) FEET ABOVE FINISHED GRADE AT SOUTH LIMIT. HOLD THE SOUTH LIMIT OF OPERATOR PAD AT FOUR (4) FEET ABOVE FINISHED GRADE AT SOUTH LIMIT.

**SHEET 6 - CONSTRUCTION SEQUENCING**  
 1. MAINTAIN 70% SLOPE AT FOUNDATION FACE AND 70% SLOPE AT FOUNDATION LOCATION AS SHOWN.  
 2. ADJUST 1 ON A SLOPE FROM 70% SLOPE TO FINISHED GRADE TO MAINTAIN THE 70% SLOPE AT FOUNDATION LOCATION AS SHOWN.  
 3. SEE YARD PIPING PLAN AND YARD PIPING PROFILE NOTES BELOW FOR VALVE CHAMBER 2 AND VALVE CHAMBER 3 LOCATIONS.  
 4. THE OVERFLOW STRUCTURE LOCATION SHALL BE MOVED TO THE OUTSIDE DIAMETER. THE OVERFLOW PIPE CENTERLINE SHALL MATCH THE OVERFLOW STRUCTURE CENTERLINE.  
 5. THE TOP ELEVATION OF THE OPERATOR PAD IS TO BE REVISED TO 100.00 FEET. THE OPERATOR PAD SHALL BE 4' DIA. AT FOUR (4) FEET ABOVE FINISHED GRADE AT SOUTH LIMIT. HOLD THE SOUTH LIMIT OF OPERATOR PAD AT FOUR (4) FEET ABOVE FINISHED GRADE AT SOUTH LIMIT.

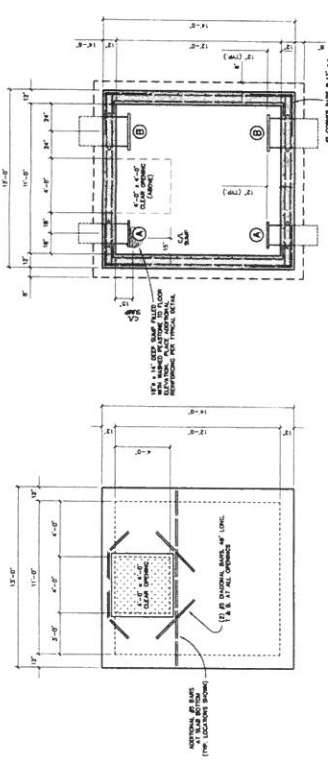
**SECTION 7-10 - ENLARGED VALVE CHAMBER 2 PLAN**  
 1. ELIMINATE POWER SUPPLY ACTIVITY TO SUPPORT THE TWO (2) VALVE CHAMBERS WITHIN THE STRUCTURE. THE CONTRACTOR SHALL MAINTAIN THE SAME CENTERLINE AS THE STEEL TANK OPTION. THE CONTRACTOR SHALL MAINTAIN THE SAME CENTERLINE AS THE STEEL TANK OPTION.

1. THERE ARE TWO (2) CATHODIC PROTECTION SYSTEMS FOR THE STEEL TANK OPTION. THEY ARE AS FOLLOWS:  
 • NET INTERIOR CATHODIC PROTECTION SYSTEM  
 • BASE PLATE CATHODIC PROTECTION SYSTEM  
 THESE SYSTEMS ARE NOT REQUIRED FOR THE PRESTRESSED TANK OPTION.  
 2. PANEL BOARD B72-LP (PROPOSED)  
 RELOCATE CIRCUIT 7 - NET INTERIOR CATHODIC PROTECTION SYSTEM AS "SPARE".  
 RELOCATE CIRCUIT 9 - BASE PLATE CATHODIC PROTECTION SYSTEM AS "SPARE".  
**SHEET 10 - SIGNAL JOURNALS & DETAILS**  
 THERE ARE TWO (2) CATHODIC PROTECTION SYSTEMS FOR THE STEEL TANK OPTION. THEY ARE AS FOLLOWS:  
 • NET INTERIOR CATHODIC PROTECTION SYSTEM  
 • BASE PLATE CATHODIC PROTECTION SYSTEM  
 THESE SYSTEMS ARE NOT REQUIRED FOR THE PRESTRESSED TANK OPTION.  
 2. PANEL BOARD B72-LP (PROPOSED)  
 RELOCATE CIRCUIT 7 - NET INTERIOR CATHODIC PROTECTION SYSTEM AS "SPARE".  
 RELOCATE CIRCUIT 9 - BASE PLATE CATHODIC PROTECTION SYSTEM AS "SPARE".

**NOTE**  
 UPDATED CONSTRUCTION DRAWINGS REFLECTING THE PRESTRESSED RESERVOIR REQUIREMENTS AND INFORMATION PRESENTED ABOVE WILL BE PROVIDED TO THE CONTRACTOR FOR THE PRESTRESSED CONCRETE TANK OPTION. THE CONTRACTOR SHALL MAINTAIN THE SAME CENTERLINE AS THE STEEL TANK OPTION. THE CONTRACTOR SHALL MAINTAIN THE SAME CENTERLINE AS THE STEEL TANK OPTION.

PRESTRESSED CONCRETE TANK OPTION

PROJECT NO. 2160629	SHEET NO. 8 of 14
CITY OF TRANSFER CITY OHIO WADE COUNTY, OHIO WATER SYSTEM IMPROVEMENTS BELOW 1 MILLION GALLON RESERVOIR PRESTRESSED CONCRETE TANK	
 Engineers & Surveyors & Environmental Laboratory	
DATE JUNE 17, 2014	DATE JUNE 17, 2014
BY C.A.P.	BY C.A.P.
CHECKED BY C.A.P.	CHECKED BY C.A.P.



TOP SLAB

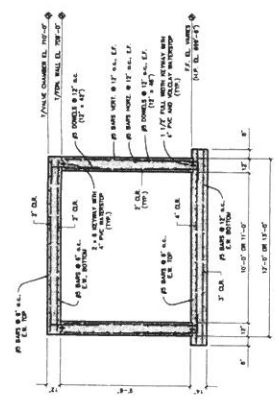
BELOW GRADE

**VALVE CHAMBER 2 - STRUCTURAL**

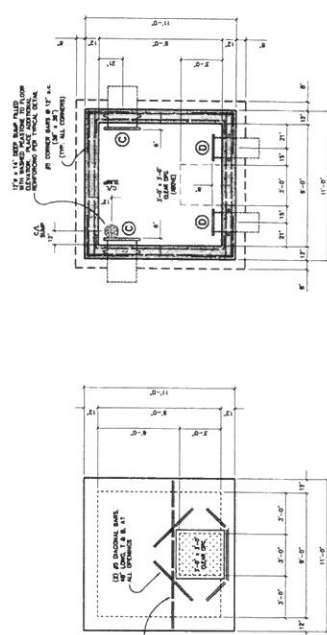
North

SCALE: 1/4" = 1'-0"

- NOTES**
- CONTRACTOR SHALL CORRODATE REINFORCING OF THE 1.5 PRESSURE CONTAINMENT WALLS AND FLOOR SLAB TO THE REQUIRED DEPTH AND PROVIDE PROTECTIVE COATING TO THE REINFORCING. THE REINFORCING SHALL BE PROTECTED BY A 1/2" THICK POLYETHYLENE SHEETING. THE SHEETING SHALL BE INSTALLED OVER THE REINFORCING AND SHALL BE SEAMED TOGETHER AT JOINTS. THE SHEETING SHALL BE INSTALLED OVER THE REINFORCING AND SHALL BE SEAMED TOGETHER AT JOINTS.
  - EXTERIOR END COMPROBATION OF WALL PIPE SHALL BE AS REQUIRED FOR INSULATED JOINT DUCTILE IRON PIPE.
  - INTERNALLY CAST WALL PIPES NOT SHOWN IN SECTIONAL VIEW FOR CLARITY.



SECTIONAL VIEW



TOP SLAB

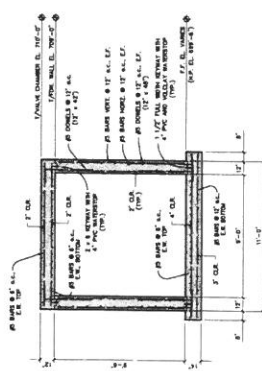
BELOW GRADE

**VALVE CHAMBER 3 - STRUCTURAL**

North

SCALE: 1/4" = 1'-0"

- NOTES**
- EXTERIOR END COMPROBATION OF WALL PIPE SHALL BE AS REQUIRED FOR INSULATED JOINT DUCTILE IRON PIPE.
  - INTERNALLY CAST WALL PIPES NOT SHOWN IN SECTIONAL VIEW FOR CLARITY.



SECTIONAL VIEW

**WALL PIPE LEGEND**

- (A) 18" D.I. WALL PIPE FLANGE WITH INTERNAL WATERSTOP, C.A. E.L. 702'-5" (TOP OF 2) WALL PIPE TO 1.5" DIA. WALL PIPE
- (B) 24" D.I. WALL PIPE FLANGE WITH INTERNAL WATERSTOP, C.A. E.L. 702'-5" (TOP OF 2) WALL PIPE TO 1.5" DIA. WALL PIPE
- (C) 24" D.I. WALL PIPE FLANGE WITH INTERNAL WATERSTOP, C.A. E.L. 702'-5" (TOP OF 2) WALL PIPE TO 1.5" DIA. WALL PIPE
- (D) 24" D.I. WALL PIPE FLANGE WITH INTERNAL WATERSTOP, C.A. E.L. 702'-5" (TOP OF 2) WALL PIPE TO 1.5" DIA. WALL PIPE

NO.		REVISIONS		DATE		BY		DATE		BY		DATE		BY	

**STEEL TANK OPTION**

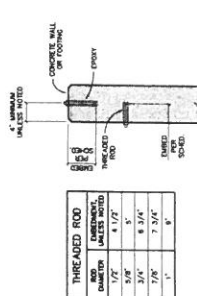
CITY OF TRANSVERSE CITY  
GRAND TRAVELER COUNTY, MICHIGAN  
WATER SYSTEM IMPROVEMENTS  
BAYLOR 2 MILLION GALLON RESERVOIR

**Prein&Newhof**  
Engineers-Architects-Environmental-Laboratory

DESIGNED BY: SMITH  
CHECKED BY: JUNE 17  
DATE: 11/17/11  
D.A.R.  
DATE: 11/17/11

PROJECT NO. 2160629  
SHEET NO. 9 OF 14

**VALVE CHAMBERS - STRUCTURAL**



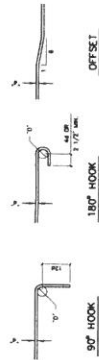
THREAD ROD DIAMETER	EMBEDMENT LENGTHS (UNLESS NOTED)
1/2"	8 1/2"
3/4"	8 3/4"
1"	7 3/4"
1 1/8"	8"

**EPOXY ADHESIVE ANCHORS**

SCALE: 1" = 1'-0"

NOTES

1. EMBEDMENT SHALL BE AS SHOWN UNLESS NOTED OTHERWISE.
2. SURFACE TO BE EMBEDDED SHALL BE CLEAN AND FREE OF OIL, DIRT, RUST OR ANY OTHER CONTAMINATION.
3. HOLE SIZE AND CLEAN HOLE PRIOR TO PLACING EPOXY PER MANUFACTURER'S INSTRUCTIONS.
4. INITIAL CURE/PROTECTIVE COATINGS SHALL BE AS SHOWN OR AS PER MANUFACTURER'S INSTRUCTIONS.
5. ALL EPOXY ADHESIVE INSTALLATIONS SHALL COMPLY WITH THE EMBEDMENT NOTES.
6. SPECIAL INSPECTION OF REINFORCING STEEL INSTALLATION IS REQUIRED.

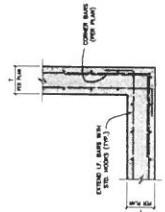


**REBAR BENDS & END HOOKS**

SCALE: 1" = 1'-0"

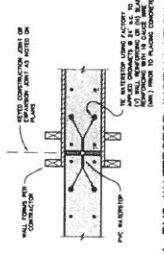
NOTE

1. 90° HOOK SHALL BE 12" LONG.
2. 180° HOOK SHALL BE 12" LONG.
3. ALL BENDS SHALL BE MADE COLD.



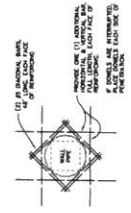
**CORNER DETAIL (TWO LAYERS)**

SCALE: 1/2" = 1'-0"



**TYPICAL PVC WATERSTOP INSTALLATION**

SCALE: 1" = 1'-0"



**TYPICAL WALL STEEL FOR PIPE OR RECTANGULAR PENETRATIONS 12" TO 24"**

SCALE: 1/2" = 1'-0"

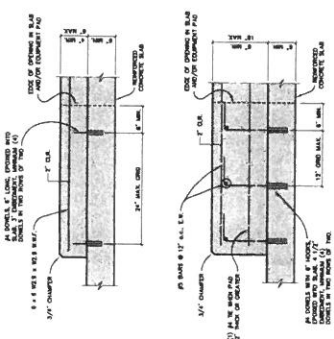
**EMBEDDED BOLTS**

SCALE: 1" = 1'-0"

NOTES

1. FOUNDATION BOLT PLATE ANCHOR BOLTS SHALL HAVE A MINIMUM 7" EMBEDMENT.
2. ANCHOR BOLTS LOCATED IN THE TOPS OF COLUMNS SHALL HAVE A MINIMUM OF 2" EMBEDMENT IN ADDITION TO THAT NOTED IN THE ABOVE SCHEDULE.
3. PLACING CONCRETE OF GRANT. SECURELY TIED IN PLACE PRIOR TO AND WHILE PLACING.
4. ANCHOR BOLTS SHALL BE HEADED MACHINE BOLTS.
5. AS SHOWN QUALITY SHALL BE THE MINIMUM REQUIRED BOLT GRADE.
6. BOLT ENDING MATERIAL SHALL BE AS SHOWN.

BOLT EMBEDMENT DIAMETER (UNLESS NOTED)	EMBEDMENT LENGTHS (UNLESS NOTED)
1/2"	4"
3/4"	5"
1"	6"
1 1/8"	7"
1 1/2"	8"

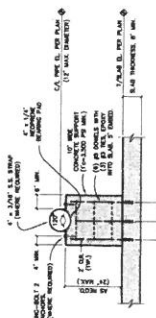


**EQUIPMENT PAD DETAILS**

SCALE: 1" = 1'-0"

NOTE

1. REBAR AND CONCRETE PAD CONSTRUCTION SHALL BE AS SHOWN UNLESS NOTED OTHERWISE.
2. REBAR SHALL BE AS SHOWN UNLESS NOTED OTHERWISE.
3. ALL BENDS SHALL BE MADE COLD.



**CONCRETE PIPE SUPPORT**

SCALE: 1/2" = 1'-0"

STEEL TANK OPTION

CITY OF INDIANAPOLIS  
WATER SYSTEM IMPROVEMENTS  
DIVISION OF WATER UTILITIES

**Prein&Newhof**  
Engineers - Scientists - Environmental Laboratory

NO.	REVISIONS	BY	DATE	DESCRIPTION
			JUNE 17	DATE
			JUNE 17	DATE
			JUNE 17	DATE

PROJECT NO. 2160629  
SHEET NO. 10 of 14

TYPICAL STRUCTURAL DETAILS

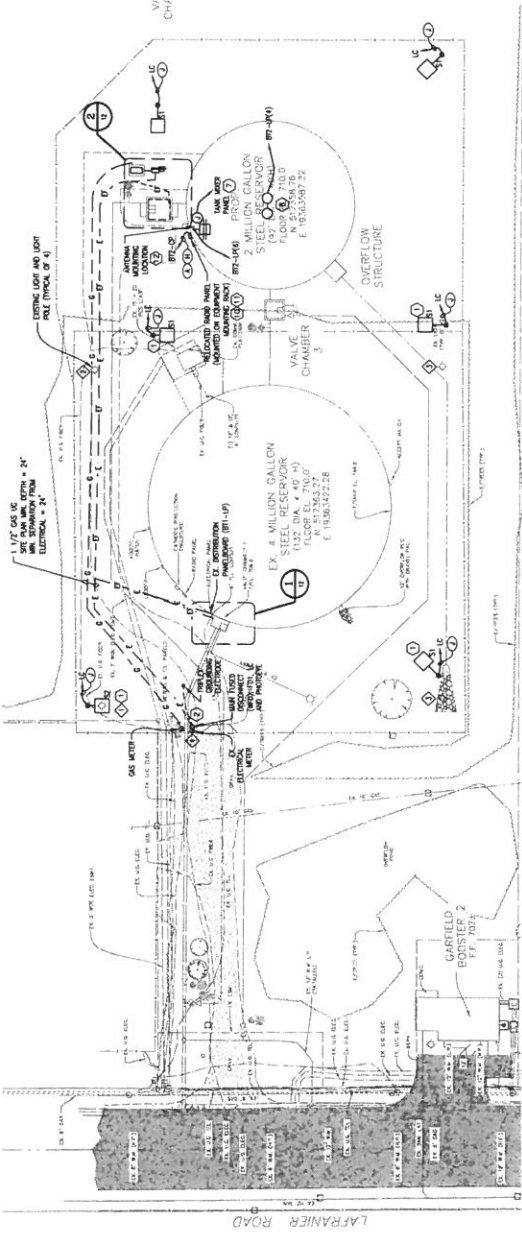


**CONSTRUCTION NOTES:** (DIAMOND SYMBOLS PLAN VIEW)

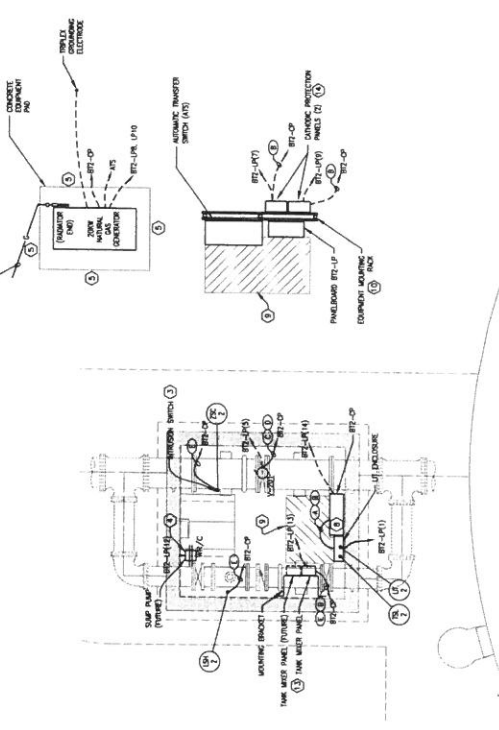
- DISCONNECT AND REMOVE EXISTING LIGHT FIXTURE. EXISTING WOOD LIGHT POLE TO REMAIN AND BE REUSED.
- DISCONNECT AND REMOVE EXISTING LIGHT FIXTURE. REMOVE WOOD LIGHT POLE TO BE RELOCATED AND REINSTALLED WITH NEW LIGHT FIXTURE.
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- DISCONNECT AND REMOVE EXISTING WIRE FUSED DISCONNECT AND EQUIPMENT RACK STRUCTURE.
- DISCONNECT AND REMOVE EXISTING TELEPHONE SERVICE, INCLUDING ARMORED CONDUIT IN CONDUIT RACK AND REMOVE EXISTING CONDUIT BUILT ABOVE BASE OF TANK AND SERVING EXISTING EQUIPMENT THAT ARE NOT TO REMAIN.

**PLAN NOTES:** (CIRCLE SYMBOLS PLAN VIEW)

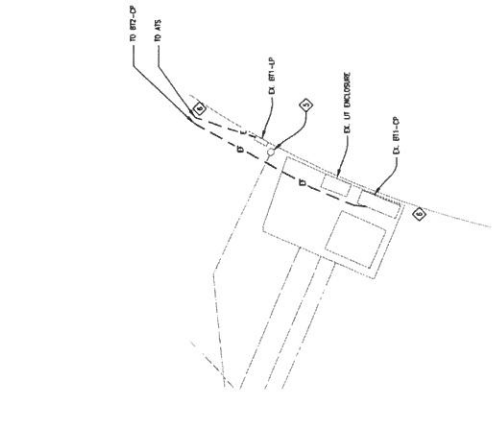
- REMOVE EXISTING LIGHT FIXTURE. EXISTING WOOD LIGHT POLE TO REMAIN AND BE REUSED.
- REMOVE EXISTING LIGHT FIXTURE. REMOVE WOOD LIGHT POLE TO BE RELOCATED AND REINSTALLED WITH NEW LIGHT FIXTURE.
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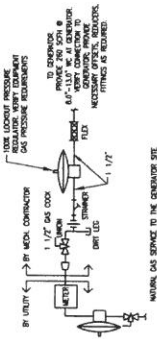
**ELECTRICAL SITE PLAN - PROPOSED**  
SCALE: 1/4" = 1'-0"  
North



**ENLARGED VALVE CHAMBER 2 PLAN**  
SCALE: 1/4" = 1'-0"  
North



**ENLARGED VALVE CHAMBER 1 PLAN**  
SCALE: 1/4" = 1'-0"  
North



**GAS PIPING TO GENERATOR**  
SCALE: 1/4" = 1'-0"  
REFER TO CONCRETE BUILDING ELECTRICAL PLAN

MARK	DESCRIPTION
(A)	3/4" RHT OMB - 3/4"
(B)	3/4" RHT OMB - 3/4"
(C)	3/4" RHT OMB - 3/4"
(D)	3/4" RHT OMB - 3/4"
(E)	3/4" RHT OMB - 3/4"
(F)	3/4" RHT OMB - 3/4"
(G)	3/4" RHT OMB - 3/4"
(H)	3/4" RHT OMB - 3/4"
(I)	3/4" RHT OMB - 3/4"
(J)	3/4" RHT OMB - 3/4"
(K)	3/4" RHT OMB - 3/4"

STEEL TANK OPTION	
CITY OF TRANSVERSE CITY	PROJECT NO. 2160629
OSAGE WATERS COMPANY, MOBILE	SHEET NO. 12 OF 14
WATER SYSTEM IMPROVEMENTS	
BAYLOR 2 MILLION GALLON RESERVOIR	
ELECTRICAL SITE PLANS	

**Century A&E**  
Facilities Design  
1177 Cahoon Avenue  
Harrisonville, MO 64583  
Phone: 816.436.1027 Fax: 816.436.2529 www.centuryaandesign.com

NO.	REVISIONS	BY	DATE	REASON

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PANEL NAME: BT1-LP (EXISTING)		JOB NUMBER: _____		JOB NAME: _____																																																																																																																																																										
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<p>CONNECTIONS TO BE MADE:</p> <table border="1"> <tr> <th>FROM</th> <th>TO</th> <th>TYPE</th> </tr> <tr> <td>1</td> <td>2</td> <td>120V</td> </tr> <tr> <td>3</td> <td>4</td> <td>120V</td> </tr> <tr> <td>5</td> <td>6</td> <td>120V</td> </tr> <tr> <td>7</td> <td>8</td> <td>120V</td> </tr> <tr> <td>9</td> <td>10</td> <td>120V</td> </tr> <tr> <td>11</td> <td>12</td> <td>120V</td> </tr> <tr> <td>13</td> <td>14</td> <td>120V</td> </tr> <tr> <td>15</td> <td>16</td> <td>120V</td> </tr> <tr> <td>17</td> <td>18</td> <td>120V</td> </tr> <tr> <td>19</td> <td>20</td> <td>120V</td> </tr> <tr> <td>21</td> <td>22</td> <td>120V</td> </tr> <tr> <td>23</td> <td>24</td> <td>120V</td> </tr> <tr> <td>25</td> <td>26</td> <td>120V</td> </tr> <tr> <td>27</td> <td>28</td> <td>120V</td> </tr> <tr> <td>29</td> <td>30</td> <td>120V</td> </tr> <tr> <td>31</td> <td>32</td> <td>120V</td> </tr> <tr> <td>33</td> <td>34</td> <td>120V</td> </tr> <tr> <td>35</td> <td>36</td> <td>120V</td> </tr> <tr> <td>37</td> <td>38</td> <td>120V</td> </tr> <tr> <td>39</td> <td>40</td> <td>120V</td> </tr> <tr> <td>41</td> <td>42</td> <td>120V</td> </tr> <tr> <td>43</td> <td>44</td> <td>120V</td> </tr> <tr> <td>45</td> <td>46</td> <td>120V</td> </tr> <tr> <td>47</td> <td>48</td> <td>120V</td> </tr> <tr> <td>49</td> <td>50</td> <td>120V</td> </tr> <tr> <td>51</td> <td>52</td> <td>120V</td> </tr> <tr> <td>53</td> <td>54</td> <td>120V</td> </tr> <tr> <td>55</td> <td>56</td> <td>120V</td> </tr> <tr> <td>57</td> <td>58</td> <td>120V</td> </tr> <tr> <td>59</td> <td>60</td> <td>120V</td> </tr> <tr> <td>61</td> <td>62</td> <td>120V</td> </tr> <tr> <td>63</td> <td>64</td> <td>120V</td> </tr> <tr> <td>65</td> <td>66</td> <td>120V</td> </tr> <tr> <td>67</td> <td>68</td> <td>120V</td> </tr> <tr> <td>69</td> <td>70</td> <td>120V</td> </tr> <tr> <td>71</td> <td>72</td> <td>120V</td> </tr> <tr> <td>73</td> <td>74</td> <td>120V</td> </tr> <tr> <td>75</td> <td>76</td> <td>120V</td> </tr> <tr> <td>77</td> <td>78</td> <td>120V</td> </tr> <tr> <td>79</td> <td>80</td> <td>120V</td> </tr> <tr> <td>81</td> <td>82</td> <td>120V</td> </tr> <tr> <td>83</td> <td>84</td> <td>120V</td> </tr> <tr> <td>85</td> <td>86</td> <td>120V</td> </tr> <tr> <td>87</td> <td>88</td> <td>120V</td> </tr> <tr> <td>89</td> <td>90</td> <td>120V</td> </tr> <tr> <td>91</td> <td>92</td> <td>120V</td> </tr> <tr> <td>93</td> <td>94</td> <td>120V</td> </tr> <tr> <td>95</td> <td>96</td> <td>120V</td> </tr> <tr> <td>97</td> <td>98</td> <td>120V</td> </tr> <tr> <td>99</td> <td>100</td> <td>120V</td> </tr> </table>						FROM	TO	TYPE	1	2	120V	3	4	120V	5	6	120V	7	8	120V	9	10	120V	11	12	120V	13	14	120V	15	16	120V	17	18	120V	19	20	120V	21	22	120V	23	24	120V	25	26	120V	27	28	120V	29	30	120V	31	32	120V	33	34	120V	35	36	120V	37	38	120V	39	40	120V	41	42	120V	43	44	120V	45	46	120V	47	48	120V	49	50	120V	51	52	120V	53	54	120V	55	56	120V	57	58	120V	59	60	120V	61	62	120V	63	64	120V	65	66	120V	67	68	120V	69	70	120V	71	72	120V	73	74	120V	75	76	120V	77	78	120V	79	80	120V	81	82	120V	83	84	120V	85	86	120V	87	88	120V	89	90	120V	91	92	120V	93	94	120V	95	96	120V	97	98	120V	99	100	120V
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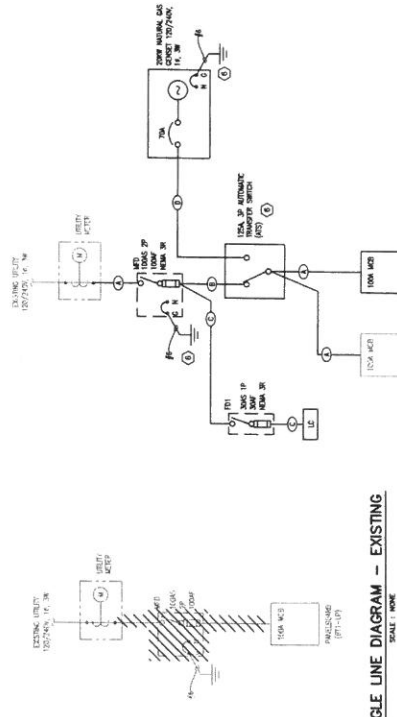
PANELBOARD BT1-LP (EXISTING)  
SCALE: NONE

PANEL NAME: BT2-LP (PROPOSED)		JOB NUMBER: _____		JOB NAME: _____																																																																																																																																																										
DATE: 11/15/15	SCALE: 1" = 12"	DATE: 11/15/15	SCALE: 1" = 12"	DATE: 11/15/15	SCALE: 1" = 12"																																																																																																																																																									
<p>CONNECTIONS TO BE MADE:</p> <table border="1"> <tr> <th>FROM</th> <th>TO</th> <th>TYPE</th> </tr> <tr> <td>1</td> <td>2</td> <td>120V</td> </tr> <tr> <td>3</td> <td>4</td> <td>120V</td> </tr> <tr> <td>5</td> <td>6</td> <td>120V</td> </tr> <tr> <td>7</td> <td>8</td> <td>120V</td> </tr> <tr> <td>9</td> <td>10</td> <td>120V</td> </tr> <tr> <td>11</td> <td>12</td> <td>120V</td> </tr> <tr> <td>13</td> <td>14</td> <td>120V</td> </tr> <tr> <td>15</td> <td>16</td> <td>120V</td> </tr> <tr> <td>17</td> <td>18</td> <td>120V</td> </tr> <tr> <td>19</td> <td>20</td> <td>120V</td> </tr> <tr> <td>21</td> <td>22</td> <td>120V</td> </tr> <tr> <td>23</td> <td>24</td> <td>120V</td> </tr> <tr> <td>25</td> <td>26</td> <td>120V</td> </tr> <tr> <td>27</td> <td>28</td> <td>120V</td> </tr> <tr> <td>29</td> <td>30</td> <td>120V</td> </tr> <tr> <td>31</td> <td>32</td> <td>120V</td> </tr> <tr> <td>33</td> <td>34</td> <td>120V</td> </tr> <tr> <td>35</td> <td>36</td> <td>120V</td> </tr> <tr> <td>37</td> <td>38</td> <td>120V</td> </tr> <tr> <td>39</td> <td>40</td> <td>120V</td> </tr> <tr> <td>41</td> <td>42</td> <td>120V</td> </tr> <tr> <td>43</td> <td>44</td> <td>120V</td> </tr> <tr> <td>45</td> <td>46</td> <td>120V</td> </tr> <tr> <td>47</td> <td>48</td> <td>120V</td> </tr> <tr> <td>49</td> <td>50</td> <td>120V</td> </tr> <tr> <td>51</td> <td>52</td> <td>120V</td> </tr> <tr> <td>53</td> <td>54</td> <td>120V</td> </tr> <tr> <td>55</td> <td>56</td> <td>120V</td> </tr> <tr> <td>57</td> <td>58</td> <td>120V</td> </tr> <tr> <td>59</td> <td>60</td> <td>120V</td> </tr> <tr> <td>61</td> <td>62</td> <td>120V</td> </tr> <tr> <td>63</td> <td>64</td> <td>120V</td> </tr> <tr> <td>65</td> <td>66</td> <td>120V</td> </tr> <tr> <td>67</td> <td>68</td> <td>120V</td> </tr> <tr> <td>69</td> <td>70</td> <td>120V</td> </tr> <tr> <td>71</td> <td>72</td> <td>120V</td> </tr> <tr> <td>73</td> <td>74</td> <td>120V</td> </tr> <tr> <td>75</td> <td>76</td> <td>120V</td> </tr> <tr> <td>77</td> <td>78</td> <td>120V</td> </tr> <tr> <td>79</td> <td>80</td> <td>120V</td> </tr> <tr> <td>81</td> <td>82</td> <td>120V</td> </tr> <tr> <td>83</td> <td>84</td> <td>120V</td> </tr> <tr> <td>85</td> <td>86</td> <td>120V</td> </tr> <tr> <td>87</td> <td>88</td> <td>120V</td> </tr> <tr> <td>89</td> <td>90</td> <td>120V</td> </tr> <tr> <td>91</td> <td>92</td> <td>120V</td> </tr> <tr> <td>93</td> <td>94</td> <td>120V</td> </tr> <tr> <td>95</td> <td>96</td> <td>120V</td> </tr> <tr> <td>97</td> <td>98</td> <td>120V</td> </tr> <tr> <td>99</td> <td>100</td> <td>120V</td> </tr> </table>						FROM	TO	TYPE	1	2	120V	3	4	120V	5	6	120V	7	8	120V	9	10	120V	11	12	120V	13	14	120V	15	16	120V	17	18	120V	19	20	120V	21	22	120V	23	24	120V	25	26	120V	27	28	120V	29	30	120V	31	32	120V	33	34	120V	35	36	120V	37	38	120V	39	40	120V	41	42	120V	43	44	120V	45	46	120V	47	48	120V	49	50	120V	51	52	120V	53	54	120V	55	56	120V	57	58	120V	59	60	120V	61	62	120V	63	64	120V	65	66	120V	67	68	120V	69	70	120V	71	72	120V	73	74	120V	75	76	120V	77	78	120V	79	80	120V	81	82	120V	83	84	120V	85	86	120V	87	88	120V	89	90	120V	91	92	120V	93	94	120V	95	96	120V	97	98	120V	99	100	120V
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PANELBOARD BT2-LP (PROPOSED)  
SCALE: NONE

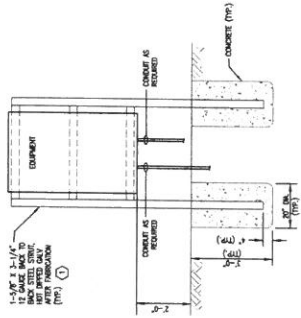
MARK	DESCRIPTION	MANUFACTURER	MODEL NUMBER	APPROVED SYMBOL	LUMPS	COMMENTS	MARK
S1	800 WATT LIGHT	UPHORA	UD-300-1000-2P-18-100-1-1	[Symbol]	[Symbol]	800 WATT LIGHT	S1
S2	800 WATT LIGHT WITH CORNER DISTRIBUTION	UPHORA	UD-300-1000-2P-18-100-1-1	[Symbol]	[Symbol]	800 WATT LIGHT WITH CORNER DISTRIBUTION	S2

LUMINAIRE SCHEDULE  
SCALE: NONE



SINGLE LINE DIAGRAM - EXISTING  
SCALE: NONE

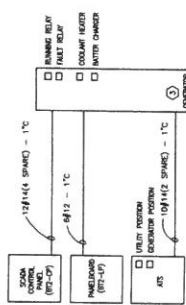
SINGLE LINE DIAGRAM - PROPOSED  
SCALE: NONE



EQUIPMENT MOUNTING RACK DETAIL  
SCALE: NONE

MARK	DESCRIPTION
A	3/4" x 1/2" x 1/2" x 1/2"
B	3/4" x 1/2" x 1/2" x 1/2"
C	3/4" x 1/2" x 1/2" x 1/2"
D	3/4" x 1/2" x 1/2" x 1/2"

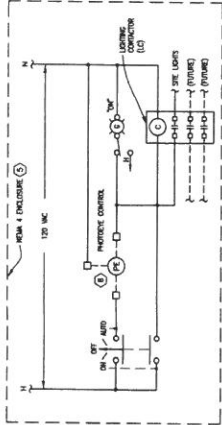
CONDUIT AND CABLE SCHEDULE  
SCALE: NONE



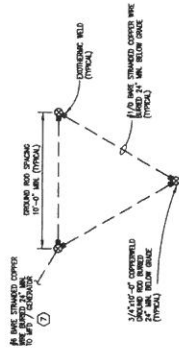
GENERATOR INTERCONNECTION DIAGRAM  
SCALE: NONE

EXPLANATORY NOTES:

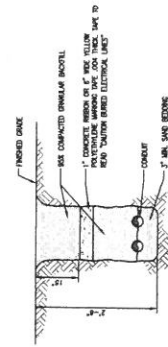
- SEE AS REQUIRED PROVIDE CROSS MEMBERS AND SUPPORT AS REQUIRED.
- MEANT INTENTY CORNER IN OPERATOR INDICATING OR IN JET CORNER WITH SUPPLY. PROVIDE CORNER BRACKET AS REQUIRED. PROVIDE CORNER BRACKET AS REQUIRED. PROVIDE CORNER BRACKET AS REQUIRED.
- CONDUIT COMMUNICATION CABLE REQUIREMENTS WITH CONDUIT MANUFACTURER'S REQUIREMENTS.
- CONDUIT SHALL PROVIDE 100% CORNER BRACKET FOR CORNER TO THE CONDUIT ALTERNATE AND CORNER BRACKET AND 100% BRACKET TO CORNER REMAINING CONDUIT CORNER CORNER BRACKET AND CORNER BRACKET AS REQUIRED.
- MEANT LIGHTING CONDUIT IN ROOM 4 (NO LOOSE, WAKE-RESCUE) INDICATE.
- CONDUIT SHALL BE CONSIDERED A STANDARD RIGID CONDUIT. SHALL HAVE A STANDARD CORNER BRACKET AS REQUIRED. PROVIDE CORNER BRACKET AS REQUIRED. PROVIDE CORNER BRACKET AS REQUIRED.
- MEANT INTENTY CORNER IN OPERATOR INDICATING OR IN JET CORNER WITH SUPPLY. PROVIDE CORNER BRACKET AS REQUIRED. PROVIDE CORNER BRACKET AS REQUIRED.



EXTERIOR LIGHTING CONTROL (LC) WIRING DIAGRAM  
SCALE: NONE



TRIPLEX GROUNDING ELECTRODE DETAIL  
SCALE: NONE

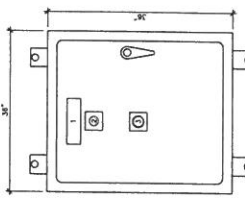


TRENCHING DETAIL  
SCALE: NONE

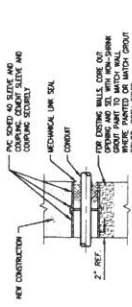
- EXPLANATION:**
1. REFER TO ANTENNA MOUNTING DETAIL FOR ANTENNA CABLE WIRE REQUIRED TO EACH REDUCED ANTENNA MOUNTING LOCATION.
  2. REDUCE SIZE SUPPRESSOR FROM BT-CP.
  3. SUBJECT TO FM RULES AND APPROVALS, ADJUST AS REQUIRED.
  4. PROVIDE ALUMINUM-BRAZED PROCESSOR CABLES/RODULES AND COMPONENTS AS REQUIRED.
- DIAGRAM IS NOT INTENDED TO INDICATE SPECIFIC EQUIPMENT TYPE OR QUANTITY.

**NAMEPLATE LEGEND**

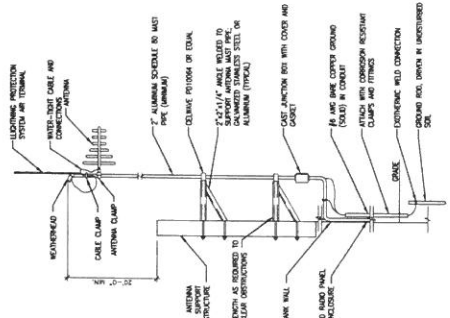
1	BARLOW TANK CONTROL PANEL (BT2-CP)
2	CONTROL POWER ON
3	(UN-ARMED SECURITY POWER-ON)



**BARLOW 2MG TANK CONTROL PANEL (BT2-CP) ELEVATION**  
SCALE: NONE



**EXTERIOR WALL CONDUIT SLEEVE DETAIL**  
SCALE: NONE

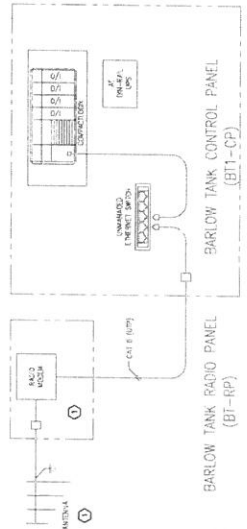


**TANK MOUNTED ANTENNA DETAIL**  
SCALE: NONE

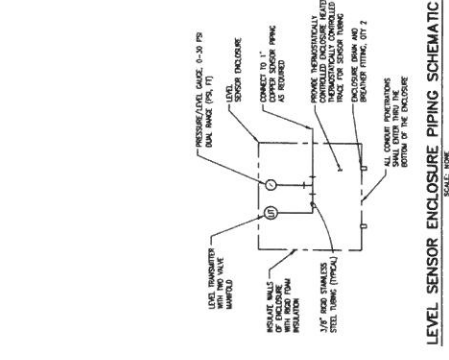
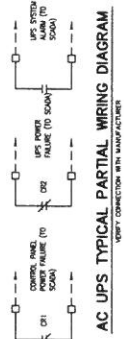
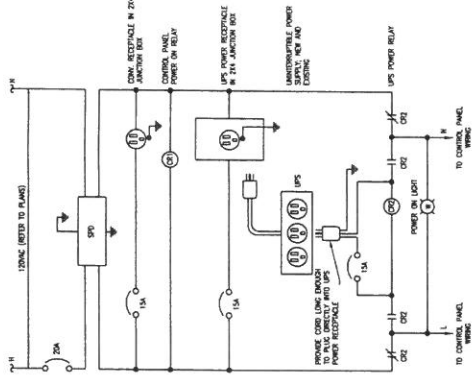
**RADIO ANTENNA SCHEDULE**

SITE	ADDRESS	ANTENNA TYPE	ANTENNA LOCATION	ANTENNA HEIGHT	POLE TYPE
BARLOW TANK	2000 BARLOW RD.	100	TOP OF TANK ACCESS	25 FT	18 FT TOWER STRUCTURE

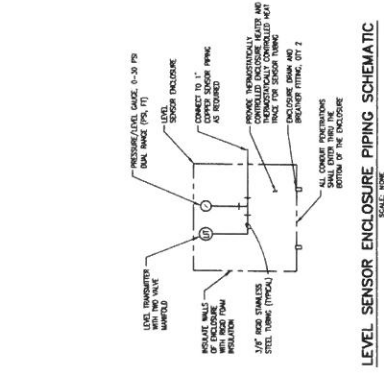
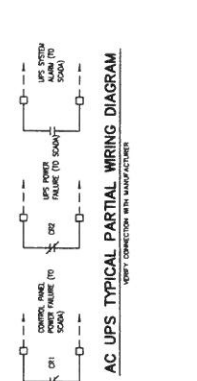
NOTE: ALL ANTENNAS TO BE MOUNTED FROM EXISTING TANK ACCESS. PROVIDE THE NECESSARY COMPONENTS AND HARDWARE AS REQUIRED. ANTENNAS TO BE MOUNTED FROM EXISTING TANK ACCESS. PROVIDE THE NECESSARY COMPONENTS AND HARDWARE AS REQUIRED. ANTENNAS TO BE MOUNTED FROM EXISTING TANK ACCESS. PROVIDE THE NECESSARY COMPONENTS AND HARDWARE AS REQUIRED.



**BARLOW 4MG TANK SCADA SYSTEM RISER DIAGRAM - EXISTING**  
SCALE: NONE



**LEVEL SENSOR ENCLOSURE PIPING SCHEMATIC**  
SCALE: NONE



**BARLOW 4MG TANK SCADA SYSTEM RISER DIAGRAM - PROPOSED**  
SCALE: NONE

PROJECT NO. 2160629  
SHEET NO. 14 OF 14

CITY OF BARLOW, OREGON  
WATER SYSTEM IMPROVEMENTS  
BARLOW 2 MILLION GALLON RESERVOIR

**Prein & Newhof**  
Engineers, Surveyors & Environmental Laboratory

**CENTURY A&E**  
Facilities Design

DATE: MAY 17, 2011  
BY: [Signature]

REVISIONS

NO.	REVISIONS	BY	DATE	RCV
1				

STEEL TANK OPTION

# D-Series Size 1 LED Area Luminaire

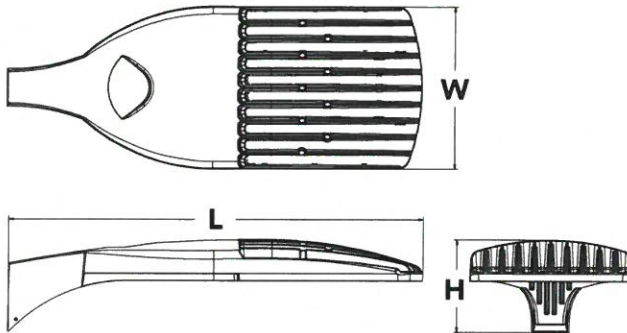


d<sup>series</sup>



## Specifications

**EPA:** 1.01 ft<sup>2</sup>  
(0.09 m<sup>2</sup>)  
**Length:** 33"  
(83.8 cm)  
**Width:** 13"  
(33.0 cm)  
**Height:** 7-1/2"  
(19.0 cm)  
**Weight (max):** 27 lbs  
(12.2 kg)



Catalog  
Number

Notes

Type

Hit the Tab key or mouse over the page to see all interactive elements.

## A+ Capable Luminaire

This item is an A+ capable luminaire, which has been designed and tested to provide consistent color appearance and system-level interoperability.

- All configurations of this luminaire meet the Acuity Brands' specification for chromatic consistency
- This luminaire is A+ Certified when ordered with DTL® controls marked by a shaded background. DTL DLL equipped luminaires meet the A+ specification for luminaire to photocontrol interoperability<sup>1</sup>
- This luminaire is part of an A+ Certified solution for ROAM®X or XPoint™ Wireless control networks, providing out-of-the-box control compatibility with simple commissioning, when ordered with drivers and control options marked by a shaded background<sup>1</sup>

To learn more about A+, visit [www.acuitybrands.com/aplus](http://www.acuitybrands.com/aplus).

1. See ordering tree for details.
2. A+ Certified Solutions for ROAM require the order of one ROAM node per luminaire. Sold Separately: [Link to Roam](#); [Link to DTL DLL](#)

A+ Capable options indicated by this color background.

## Ordering Information

EXAMPLE: DSX1 LED 60C 1000 40K T3M MVOLT SPA DDBXD

Series	LEDs	Drive current	Color temperature	Distribution	Voltage	Mounting
DSX1 LED	<b>Forward optics</b> 30C 30 LEDs (one engine) 40C 40 LEDs (two engines) 60C 60 LEDs (two engines) <b>Rotated optics</b> 60C 60 LEDs (two engines) <sup>1</sup>	530 530 mA 700 700 mA <b>1000 1000 mA</b> (1 A)	<b>30K</b> 3000 K 40K 4000 K 50K 5000 K AMBPC Amber phosphor converted <sup>2</sup>	T1S Type I short T2S Type II short T2M Type II medium T3S Type III short T3M Type III medium <b>T4M</b> Type IV medium TFTM Forward throw medium TSVS Type V very short	<b>MVOLT</b> <sup>4</sup> 120 <sup>5</sup> 208 <sup>5</sup> 240 <sup>5</sup> 277 <sup>5</sup> 347 <sup>5,6</sup> 480 <sup>5,6</sup>	<b>Shipped included</b> SPA Square pole mounting RPA Round pole mounting WBA Wall bracket SPUMBA Square pole universal mounting adaptor <sup>7</sup> RPUMBA Round pole universal mounting adaptor <sup>7</sup> <b>Ordered and shipped separately</b> KMA8 DDBXD U Mast arm mounting bracket adaptor (see accessories) <sup>8</sup>
				T5S Type V short T5M Type V medium T5W Type V wide BLC Backlight control <sup>2,3</sup> LCCO Left corner cutoff <sup>2,3</sup> <b>RCCO</b> Right corner cutoff <sup>2,3</sup>		

Control options	Other options	Finish <small>required</small>
<b>Shipped installed</b> PER NEMA twist-lock receptacle only (controls ordered separate) <sup>9</sup> PER5 Five-wire receptacle only (controls ordered separate) <sup>9,10</sup> PER7 Seven-wire receptacle only (controls ordered separate) <sup>9,10</sup> DMG 0-10V dimming extend out back of housing for external control (Leads exit fixture) <sup>11</sup> DS Dual switching <sup>12,13</sup> PIR Bi-level, motion/ambient sensor, 8-15' mounting height, ambient sensor enabled at 5fc <sup>14,15</sup> PIRH Bi-level, motion/ambient sensor, 15-30' mounting height, ambient sensor enabled at 5fc <sup>14,15</sup> PIR1FC3V Bi-level, motion/ambient sensor, 8-15' mounting height, ambient sensor enabled at 1fc <sup>14,15</sup> FC3V Bi-level, motion/ambient sensor, 15-30' mounting height, ambient sensor enabled at 1fc <sup>14,15</sup>	BL30 Bi-level switched dimming, 30% <sup>13,16</sup> BL50 Bi-level switched dimming, 50% <sup>13,16</sup> PNMTDD3 Part night, dim till dawn <sup>17</sup> PNMT5D3 Part night, dim 5 hrs <sup>17</sup> PNMT6D3 Part night, dim 6 hrs <sup>17</sup> PNMT7D3 Part night, dim 7 hrs <sup>17</sup> FAO Field adjustable output <sup>18</sup>	<b>Shipped installed</b> HS House-side shield <sup>19</sup> WTB Utility terminal block <sup>20</sup> SF Single fuse (120, 277, 347V) <sup>5</sup> DF Double fuse (208, 240, 480V) <sup>5</sup> L90 Left rotated optics <sup>1</sup> R90 Right rotated optics <sup>1</sup> BS Bird spikes
		<b>DDBXD</b> Dark bronze DBLXD Black DNAXD Natural aluminum DWHXD White DDBTXD Textured dark bronze DBL BXD Textured black DNATXD Textured natural aluminum DWHGXD Textured white



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DSX1-LED  
Rev. 08/23/17  
Page 1 of 7



# Ordering Information Cont.

## Accessories

Ordered and shipped separately.

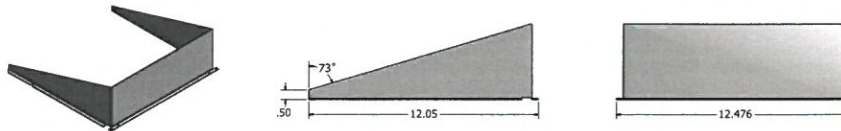
DLL127F 1.5 JU	Photocell - SSL twist-lock (120-277V) <sup>21</sup>
1.5 CUL JU	Photocell - SSL twist-lock (347V) <sup>21</sup>
5 CUL JU	Photocell - SSL twist-lock (480V) <sup>21</sup>
JK U	Shorting cap <sup>1</sup>
UJ2A12GS DDBXD U	External glare shield
DSX1HS 30C U	House-side shield for 30 LED unit <sup>19</sup>
DSX1HS 40C U	House-side shield for 40 LED unit <sup>19</sup>
DSX1HS 60C U	House-side shield for 60 LED unit <sup>19</sup>
PUMBA DDBXD U*	Square and round pole universal mounting bracket (specify finish) <sup>22</sup>
KMA8 DDBXD U	Mast arm mounting bracket adaptor (specify finish) <sup>7</sup>

For more control options, visit [DTL](#) and [ROAM](#) online.

## NOTES

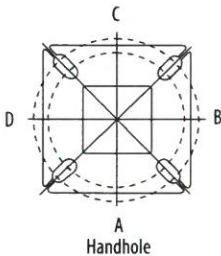
- Rotated optics available with 60C only.
- AMBPC is not available with BLC, LCCO or RCCO.
- Not available with HS.
- MVOLT driver operates on any line voltage from 120-277V (50/60 Hz).
- Single fuse (SF) requires 120V, 277V or 347V. Double fuse (DF) requires 208V, 240V or 480V.
- Not available in 30C 530mA or 60C 530mA with DS. Not available with BL30, BL50 or PNMT options.
- Existing drilled pole only. Available as a separate combination accessory; for retrofit use only: PUMBA (finish) U; 1.5 G vibration load rating per ANCI C136.31.
- Must order fixture with SPA option. Must be ordered as a separate accessory; see Accessories information. For use with 2-3/8" mast arm (not included).
- Photocell ordered and shipped as a separate line item from Acuity Brands Controls. See accessories. Not available with DS option. Shorting cap included.
- If ROAM® node required, it must be ordered and shipped as a separate line item from Acuity Brands Controls. Not available with DCR. Node with integral dimming. Shorting cap included.
- DMG option for 347V or 480V requires 1000mA.
- 40C or 60C required. Provides 50/50 fixture operation via (2) independent drivers. Not available with PER, PER5, PER7 WTB, PIR or PIRH.
- Requires (2) separately switched circuits.
- Reference Motion Sensor table on page 3.
- Reference PER table on page 3 to see functionality.
- Not available with 347V, 480V, PNMT, DS, PIR1FC3V or PIRH1FC3V. For PER5 or PER7, see PER Table on page 3.
- Not available with 347V, 480V, DS, BL30, BL50, PIR1FC3V or PIRH1FC3V. For PER5 or PER7, see PER Table on page 3. Separate Dusk to Dawn required.
- Not available with other controls options.
- Not available with BLC, LCCO and RCCO distribution. Also available as a separate accessory; see Accessories information.
- WTB not available with DS.
- Requires luminaire to be specified with PER option. See PER Table on page 3.
- For retrofit use only.

## External Glare Shield



## Drilling

### HANDHOLE ORIENTATION



### Tenon Mounting Slipfitter\*\*

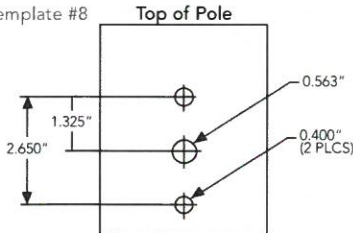
Tenon O.D.	Single Unit	2 at 180°	2 at 90°	3 at 120°	3 at 90°	4 at 90°
2-3/8"	AST20-190	AST20-280	AST20-290			
2-7/8"	AST25-190	AST25-280	AST25-290			
4"	AST35-190	AST35-280	AST35-290	AST35-320	AST35-390	AST35-490

### Pole drilling nomenclature: # of heads at degree from handhole (default side A)

DM19AS	DM28AS	DM29AS	DM32AS	DM39AS	DM49AS
1 @ 90°	2 @ 280°	2 @ 90°	3 @ 120°	3 @ 90°	4 @ 90°
Side B	Side B & D	Side B & C	Round pole only	Side B, C, & D	Sides A, B, C, D

Note: Review luminaire spec sheet for specific nomenclature

Template #8



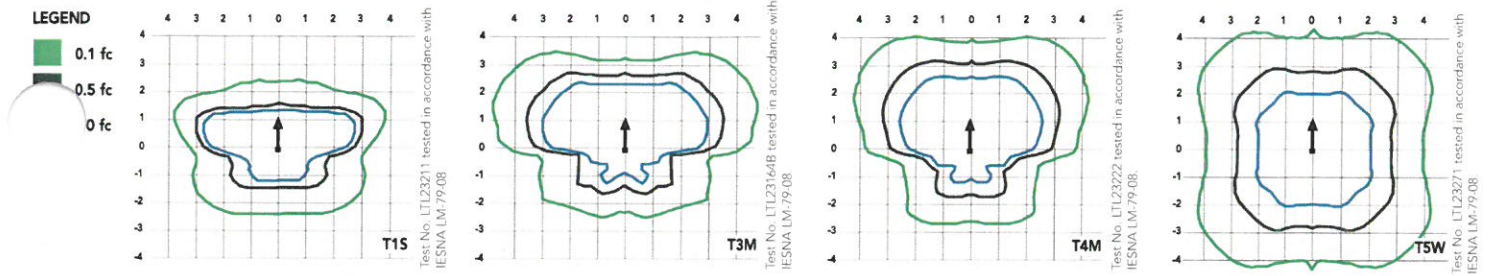
Pole top or tenon O.D.	4.5" @ 90°	4" @ 90°	3.5" @ 90°	3" @ 90°	4.5" @ 120°	4" @ 120°	3.5" @ 120°	3" @ 120°
DSX SPA	Y	Y	Y	N	-	-	-	-
DSX RPA	Y	Y	N	N	Y	Y	Y	Y
DSX SPUMBA	Y	N	N	N	-	-	-	-
DSX RPUMBA	N	N	N	N	Y	Y	Y	N

\*3 fixtures @ 120 require round pole top/tenon.

# Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit Lithonia Lighting's [D-Series Area Size 1 homepage](#).

Isofootcandle plots for the DSX1 LED 60C 1000 40K. Distances are in units of mounting height (20').



## Performance Data

### Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient		Lumen Multiplier
0°C	32°F	1.02
10°C	50°F	1.01
20°C	68°F	1.00
<b>25°C</b>	<b>77°F</b>	<b>1.00</b>
30°C	86°F	1.00
40°C	104°F	0.99

### Electrical Load

Number of LEDs	Drive Current (mA)	System Watts	Current (A)					
			120	208	240	277	347	480
30	530	52	0.52	0.30	0.26	0.23	—	—
	700	68	0.68	0.39	0.34	0.30	0.24	0.17
	1000	105	1.03	0.59	0.51	0.45	0.36	0.26
40	530	68	0.67	0.39	0.34	0.29	0.23	0.17
	700	89	0.89	0.51	0.44	0.38	0.31	0.22
	1000	138	1.35	0.78	0.67	0.58	0.47	0.34
60	530	99	0.97	0.56	0.48	0.42	0.34	0.24
	700	131	1.29	0.74	0.65	0.56	0.45	0.32
	1000	209	1.98	1.14	0.99	0.86	0.69	0.50

### Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the platforms noted in a 25°C ambient, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and tested per IESNA TM-21-11).

Use the LMF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Operating Hours	0	25,000	50,000	100,000
Lumen Maintenance Factor	DSX1 LED 60C 1000			
	1.0	0.98	0.96	0.91
	DSX1 LED 60C 700			
	1.0	0.99	0.99	0.99

### Motion Sensor Default Settings

Option	Dimmed State	High Level (when triggered)	Photocell Operation	Dwell Time	Ramp-up Time	Ramp-down Time
PIR or PIRH	3V (37%) Output	10V (100%) Output	Enabled @ 5FC	5 min	3 sec	5 min
*PIR1FC3V or PIRH1FC3V	3V (37%) Output	10V (100%) Output	Enabled @ 1FC	5 min	3 sec	5 min

\*for use with Inline Dusk to Dawn or timer.

### PER Table

Control	PER (3 wire)	PERS (5 wire)		PER7 (7 wire)		
		Wire 4/Wire5	Wire 4/Wire5	Wire 6/Wire7	Wire 6/Wire7	
Photocontrol Only (On/Off)	✓	▲	Wired to dimming leads on driver	▲	Wired to dimming leads on driver	Wires Capped inside fixture
ROAM	✗	✓	Wired to dimming leads on driver	▲	Wired to dimming leads on driver	Wires Capped inside fixture
ROAM with Motion (ROAM on/off only)	✗	▲	Wires Capped inside fixture	▲	Wires Capped inside fixture	Wires Capped inside fixture
Future-proof*	✗	▲	Wired to dimming leads on driver	✓	Wired to dimming leads on driver	Wires Capped inside fixture
Future-proof* with Motion	✗	▲	Wires Capped inside fixture	✓	Wires Capped inside fixture	Wires Capped inside fixture



\*Future-proof means: Ability to change controls in the future.



## Performance Data Cont.

### Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Contact factory for performance data on any configurations not shown here.

Forward Optics																								
LEDs	Drive Current (mA)	System Watts	Dist. Type	30K (3000 K, 70 CRI)					40K (4000 K, 70 CRI)					50K (5000 K, 70 CRI)					AMBPC (Amber Phosphor Converted)					
				Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	
30C (30 LEDs)	530 mA	52 W	T1S	5,948	1	0	1	114	6,387	2	0	2	123	6,427	2	0	2	124	6,640	1	0	1	70	
			T2S	6,132	2	0	2	118	6,585	2	0	2	127	6,626	2	0	2	127	3,813	1	0	1	73	
			T2M	5,992	1	0	2	115	6,434	2	0	2	124	6,475	2	0	2	125	3,689	1	0	1	71	
			T3S	5,985	1	0	1	115	6,427	1	0	2	124	6,467	1	0	2	124	3,770	1	0	1	73	
			T3M	6,039	2	0	2	116	6,485	2	0	2	125	6,525	2	0	2	125	3,752	1	0	1	72	
			T4M	6,121	1	0	2	118	6,573	1	0	2	126	6,614	1	0	2	127	3,758	1	0	1	72	
			TFTM	6,030	1	0	2	116	6,475	1	0	2	125	6,515	1	0	2	125	3,701	1	0	1	71	
			TSVS	6,370	2	0	0	123	6,840	3	0	0	132	6,883	3	0	0	132	3,881	2	0	0	75	
			T5S	6,417	2	0	0	123	6,890	2	0	0	133	6,933	2	0	0	133	3,930	2	0	1	76	
			T5M	6,428	3	0	1	124	6,902	3	0	1	133	6,945	3	0	1	134	3,928	2	0	0	76	
			TSW	6,334	3	0	2	122	6,801	3	0	2	131	6,844	3	0	2	132	3,820	3	0	1	73	
			BLC	4,735	1	0	1	91	5,085	1	0	1	98	5,116	1	0	1	98						
			LCCO	4,600	1	0	2	88	4,940	1	0	2	95	4,971	1	0	2	96						
			RCCO	4,600	1	0	2	88	4,940	1	0	2	95	4,971	1	0	2	96						
			T1S	7,554	2	0	2	111	8,112	2	0	2	119	8,163	2	0	2	120	4,561	1	0	1	101	
			T2S	7,789	2	0	2	115	8,364	2	0	2	123	8,416	2	0	2	124	4,777	1	0	1	106	
			T2M	7,610	2	0	2	112	8,172	2	0	2	120	8,223	2	0	2	121	4,622	1	0	2	103	
			T3S	7,601	2	0	2	112	8,162	2	0	2	120	8,213	2	0	2	121	4,724	1	0	1	105	
			T3M	7,670	2	0	2	113	8,236	2	0	3	121	8,288	2	0	3	122	4,701	1	0	2	104	
			T4M	7,774	2	0	2	114	8,348	2	0	2	123	8,400	2	0	2	124	4,709	1	0	2	105	
	TFTM	7,658	1	0	2	113	8,223	2	0	2	121	8,275	2	0	2	122	4,638	1	0	2	103			
	TSVS	8,090	3	0	0	119	8,687	3	0	0	128	8,742	3	0	0	129	4,922	2	0	0	109			
	T5S	8,150	3	0	0	120	8,751	3	0	1	129	8,806	3	0	1	130	4,863	2	0	0	108			
	T5M	8,164	3	0	2	120	8,767	3	0	2	129	8,821	3	0	2	130	4,924	3	0	1	109			
	TSW	8,044	3	0	2	118	8,638	4	0	2	127	8,692	4	0	2	128	4,787	3	0	1	106			
	BLC	6,028	1	0	2	89	6,473	1	0	2	95	6,514	1	0	2	96								
	LCCO	5,856	1	0	2	86	6,289	1	0	2	92	6,328	1	0	2	93								
	RCCO	5,856	1	0	2	86	6,289	1	0	2	92	6,328	1	0	2	93								
	T1S	10,331	2	0	2	98	11,094	2	0	2	106	11,163	2	0	2	106								
	T2S	10,652	2	0	2	101	11,438	2	0	2	109	11,510	2	0	2	110								
	T2M	10,408	2	0	2	99	11,176	2	0	2	106	11,246	2	0	2	107								
	T3S	10,395	2	0	2	99	11,163	2	0	2	106	11,233	2	0	2	107								
	T3M	10,490	2	0	3	100	11,264	2	0	3	107	11,335	2	0	3	108								
	T4M	10,632	2	0	3	101	11,417	2	0	3	109	11,488	2	0	3	109								
	TFTM	10,473	2	0	2	100	11,247	2	0	2	107	11,317	2	0	2	108								
	TSVS	11,064	3	0	1	105	11,881	3	0	1	113	11,955	3	0	1	114								
	T5S	11,145	3	0	1	106	11,968	3	0	1	114	12,043	3	0	1	115								
	T5M	11,165	4	0	2	106	11,989	4	0	2	114	12,064	4	0	2	115								
	TSW	11,001	4	0	2	105	11,813	4	0	2	113	11,887	4	0	2	113								
	BLC	7,960	1	0	2	76	8,548	1	0	2	81	8,601	1	0	2	82								
	LCCO	7,734	1	0	2	74	8,305	1	0	2	79	8,357	1	0	2	80								
	RCCO	7,734	1	0	2	74	8,305	1	0	2	79	8,357	1	0	2	80								

# Performance Data Cont.

## Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Contact factory for performance data on any configurations not shown here.

LEDs		Drive Current (mA)	System Watts	Dist. Type	30K (3000 K, 70 CRI)					40K (4000 K, 70 CRI)					50K (5000 K, 70 CRI)					AMBPC (Amber Phosphor Converted)				
					Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
					40C (40 LEDs)	530 mA	68 W	T1S	7,861	2	0	2	116	8,441	2	0	2	124	8,494	2	0	2	125	4,794
T2S	8,105	2	0	2				119	8,704	2	0	2	128	8,758	2	0	2	129	5,021	1	0	1	74	
T2M	7,920	2	0	2				116	8,504	2	0	2	125	8,557	2	0	2	126	4,858	1	0	2	71	
T3S	7,910	2	0	2				116	8,494	2	0	2	125	8,547	2	0	2	126	4,966	1	0	1	73	
T3M	7,982	2	0	2				117	8,571	2	0	3	126	8,625	2	0	3	127	4,941	1	0	2	73	
T4M	8,090	2	0	2				119	8,687	2	0	2	128	8,741	2	0	2	129	4,950	1	0	2	73	
TFTM	7,969	2	0	2				117	8,558	2	0	2	126	8,611	2	0	2	127	4,875	1	0	2	72	
TSVS	8,419	3	0	0				124	9,040	3	0	0	133	9,097	3	0	0	134	5,174	2	0	0	76	
T5S	8,481	3	0	0				125	9,107	3	0	1	134	9,164	3	0	1	135	5,111	2	0	0	76	
T5M	8,496	3	0	2				125	9,123	3	0	2	134	9,180	3	0	2	135	5,175	3	0	1	76	
TSW	8,371	4	0	2				123	8,989	4	0	2	132	9,045	4	0	2	133	5,031	3	0	1	74	
BLC	6,255	1	0	2				92	6,717	1	0	2	99	6,759	1	0	2	99						
LCCO	6,077	1	0	2				89	6,526	1	0	2	96	6,566	1	0	2	97						
RCCO	6,077	1	0	2				89	6,526	1	0	2	96	6,566	1	0	2	97						
T1S	9,984	2	0	2				112	10,721	2	0	2	120	10,788	2	0	2	121	6,014	1	0	1	68	
T2S	10,294	2	0	2				116	11,054	2	0	2	124	11,123	2	0	2	125	6,299	2	0	2	71	
T2M	10,059	2	0	2				113	10,801	2	0	2	121	10,869	2	0	2	122	6,094	2	0	2	68	
T3S	10,046	2	0	2				113	10,788	2	0	2	121	10,855	2	0	2	122	6,229	1	0	2	70	
T3M	10,137	2	0	3		114	10,886	2	0	3	122	10,954	2	0	3	123	6,198	2	0	2	70			
T4M	10,275	2	0	3		115	11,033	2	0	3	124	11,102	2	0	3	125	6,209	1	0	2	70			
TFTM	10,122	2	0	2		114	11,587	4	0	2	130	10,937	2	0	2	123	6,115	1	0	2	69			
TSVS	10,693	3	0	1		120	11,566	3	0	1	130	11,554	3	0	1	130	6,490	2	0	0	73			
T5S	10,771	3	0	1		121	11,482	3	0	1	129	11,639	3	0	1	131	6,411	2	0	0	72			
T5M	10,790	4	0	2		121	11,417	4	0	2	128	11,659	4	0	2	131	6,492	3	0	1	73			
TSW	10,632	4	0	2		119	10,869	2	0	2	122	11,488	4	0	2	129	6,311	3	0	2	71			
BLC	7,963	1	0	2		89	8,551	1	0	2	96	8,605	1	0	2	97								
LCCO	7,736	1	0	2		87	8,308	1	0	2	93	8,359	1	0	2	94								
RCCO	7,736	1	0	2		87	8,308	1	0	2	93	8,359	1	0	2	94								
T1S	13,655	3	0	3		99	14,663	3	0	3	106	14,754	3	0	3	107								
T2S	14,079	3	0	3		102	15,118	3	0	3	110	15,212	3	0	3	110								
T2M	13,756	3	0	3		100	14,772	3	0	3	107	14,864	3	0	3	108								
T3S	13,739	2	0	2		100	14,754	3	0	3	107	14,846	3	0	3	108								
T3M	13,864	3	0	3		100	14,888	3	0	3	108	14,981	3	0	3	109								
T4M	14,052	3	0	3		102	15,090	3	0	3	109	15,184	3	0	3	110								
TFTM	13,842	2	0	3		100	14,864	2	0	3	108	14,957	2	0	3	108								
TSVS	14,623	4	0	1		106	15,703	4	0	1	114	15,801	4	0	1	115								
T5S	14,731	4	0	1	107	15,818	4	0	1	115	15,917	4	0	1	115									
T5M	14,757	4	0	2	107	15,846	4	0	2	115	15,945	4	0	2	116									
TSW	14,540	4	0	2	105	15,614	4	0	2	113	15,711	4	0	2	114									
BLC	10,516	1	0	2	76	11,292	1	0	2	82	11,363	1	0	2	82									
LCCO	10,216	2	0	3	74	10,971	2	0	3	80	11,039	2	0	3	80									
RCCO	10,216	2	0	3	74	10,971	2	0	3	80	11,039	2	0	3	80									




# Performance Data Cont.

## Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Contact factory for performance data on any configurations not shown here.

Forward Optics																									
LEDs	Drive Current (mA)	System Watts	Dist. Type	30K (3000 K, 70 CRI)					40K (4000 K, 70 CRI)					50K (5000 K, 70 CRI)					AMBPC (Amber Phosphor Converted)						
				Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW		
60C (60 LEDs)	530 mA	99 W	T1S	11,569	2	0	2	117	12,423	2	0	2	125	12,501	2	0	2	126	7,167	2	0	2	72		
			T2S	11,928	3	0	3	120	12,809	3	0	3	129	12,889	3	0	3	130	7,507	2	0	2	76		
			T2M	11,655	2	0	3	118	12,516	3	0	3	126	12,594	3	0	3	127	7,263	2	0	2	73		
			T3S	11,641	2	0	2	118	12,500	2	0	2	126	12,579	2	0	2	127	7,424	2	0	2	75		
			T3M	11,747	3	0	3	119	12,614	3	0	3	127	12,693	3	0	3	128	7,387	2	0	2	75		
			T4M	11,906	2	0	3	120	12,785	2	0	3	129	12,865	2	0	3	130	7,400	2	0	2	75		
			TFTM	11,728	2	0	2	118	12,594	2	0	2	127	12,673	2	0	3	128	7,288	1	0	2	74		
			TSVS	12,390	3	0	1	125	13,305	3	0	1	134	13,388	3	0	1	135	7,734	3	0	1	78		
			TSS	12,481	3	0	1	126	13,402	3	0	1	135	13,486	3	0	1	136	7,641	3	0	0	77		
			TSM	12,503	4	0	2	126	13,426	4	0	2	136	13,510	4	0	2	136	7,737	3	0	2	78		
			TSW	12,320	4	0	2	124	13,229	4	0	2	134	13,312	4	0	2	134	7,522	3	0	2	76		
			BLC	9,212	1	0	2	93	9,892	1	0	2	100	9,954	1	0	2	101							
			LCCO	8,950	1	0	2	90	9,611	2	0	2	97	9,671	2	0	2	98							
			RCCO	8,950	1	0	2	90	9,611	2	0	2	97	9,671	2	0	2	98							
			T1S	14,694	3	0	3	210	15,779	3	0	3	225	15,877	3	0	3	227	8,952	2	0	2	68		
			T2S	15,150	3	0	3	216	16,269	3	0	3	232	16,370	3	0	3	234	9,377	2	0	2	72		
			T2M	14,803	3	0	3	211	15,896	3	0	3	227	15,995	3	0	3	229	9,072	2	0	2	69		
			T3S	14,785	3	0	3	211	15,877	3	0	3	227	15,976	3	0	3	228	9,273	2	0	2	71		
	T3M	14,919	3	0	3	213	16,021	3	0	3	229	16,121	3	0	3	230	9,227	2	0	2	70				
	T4M	15,122	3	0	3	216	16,238	3	0	3	232	16,340	3	0	3	233	9,243	2	0	2	71				
	TFTM	14,896	2	0	3	213	15,996	3	0	3	229	16,096	3	0	3	230	9,103	2	0	2	69				
	TSVS	15,736	4	0	1	225	16,898	4	0	1	241	17,004	4	0	1	243	9,661	3	0	1	74				
	TSS	15,852	4	0	1	226	17,022	4	0	1	243	17,129	4	0	1	245	9,544	3	0	1	73				
	TSM	15,880	4	0	2	227	17,052	4	0	2	244	17,159	4	0	2	245	9,665	3	0	2	74				
	TSW	15,647	4	0	2	224	16,802	5	0	3	240	16,907	5	0	3	242	9,395	4	0	2	72				
	BLC	11,728	1	0	2	168	12,594	1	0	2	180	12,672	1	0	2	181									
	LCCO	11,394	2	0	3	163	12,235	2	0	3	175	12,312	2	0	3	176									
	RCCO	11,394	2	0	3	163	12,235	2	0	3	175	12,311	2	0	3	176									
	T1S	20,095	3	0	3	96	21,579	3	0	3	103	21,714	3	0	3	104									
	T2S	20,720	3	0	3	99	22,249	3	0	3	106	22,388	3	0	3	107									
	T2M	20,245	3	0	3	97	21,740	3	0	3	104	21,876	3	0	3	105									
	T3S	20,220	3	0	3	97	21,713	3	0	3	104	21,849	3	0	3	105									
	T3M	20,404	3	0	4	98	21,910	3	0	4	105	22,047	3	0	4	105									
	T4M	20,681	3	0	4	99	22,207	3	0	4	106	22,346	3	0	4	107									
	TFTM	20,372	3	0	4	97	21,876	3	0	4	105	22,013	3	0	4	105									
	TSVS	21,521	4	0	1	103	23,110	5	0	1	111	23,254	5	0	1	111									
	TSS	21,679	4	0	1	104	23,280	4	0	1	111	23,425	4	0	2	112									
	TSM	21,717	5	0	3	104	23,321	5	0	3	112	23,466	5	0	3	112									
	TSW	21,399	5	0	3	102	22,979	5	0	3	110	23,122	5	0	3	111									
	BLC	15,487	2	0	2	74	16,630	2	0	2	80	16,734	2	0	3	80									
	LCCO	15,046	2	0	3	72	16,157	2	0	3	77	16,258	2	0	3	78									
	RCCO	15,046	2	0	3	72	16,157	2	0	3	77	16,258	2	0	3	78									



		<b>Charter Township of Garfield</b>	
		Planning Department Report No. 2017-101	
Prepared:	October 5, 2017	Pages:	1 of 3
Meeting:	October 11, 2017 - Planning Commission	Attachments:	<input checked="" type="checkbox"/>
Subject:	Fox Run Multi-Family PURD		
Applicant:	William Clouse - Eastwood Custom Homes		

**INTRODUCTION**

The PURD application was introduced at the 9-21-17 Planning Commission meeting. Due to the various concerns and waivers presented at the meeting, commissioners agreed to perform a site visit to discuss the waivers and site dynamics. Due to Staffs absence at this meeting we will update the areas of concern as we understand them.

**PROPERTY DESCRIPTION**

The property is currently zoned R-3 Multi-Family Residential and allows apartments by way of a Special Use Permit (SUP) or Planned Unit Residential Development (PURD). The property is approximately 8 acres in size, of which 3.75 acres is open space, leaving 4.25 acres of developable land. When the new Zoning Ordinance was adopted, new design standards for Planned Unit Residential Developments (PURD's) were implemented to encourage quality of life and neighborhood interaction. The design, as proposed, contemplates transferring the density from the low wet areas (3.75 acres) and clustering it upfront to provide a density of approximately 10 units per acre.

**STAFF COMMENT**

This report has been formatted in a way to address the specific concerns planning commissioner's had with the project to date.

**1. Gravel Access Drive / Parking Area**

Commissioners questioned if the gravel access drive could be constructed without grading easements.

- a. Staff understands the gravel drive was moved away from the property line and the parking area has been reshaped and resized. Does the Planning Commission feel this issue has been resolved?

**2. Sidewalks**

The applicant had originally requested a waiver from installing a sidewalk along Garfield Road. The commission was not very supportive of the request or the alternative design proposed at the introductory meeting.

- a. It is Staff's understanding that a sidewalk with curb/gutter will be installed to rectify the sidewalk issue. If this is the case, does the planning commission feel the issue is resolved?

## Garfield Township Planning Department

### 3. Natural Trail

Commissioners questioned the lack of improvements planned as a part of the nature trail, which is proposed as an amenity.

- a. The applicant is working to shore up this concern and will report to the planning commission at the October meeting.

### 4. Density

Commissioners questioned the transfer of density from the wetland area to the buildable area. In short, the applicant would be permitted approximately 46± (5.75 units *per buildable* acreage) on the property. The applicant is requesting 84 units (10.5 units over the *total* acreage). The PURD was drafted as a design based approval, in other words, the better the project design and quality of life amenities, the more density and/or waivers you may receive. In this particular case, based on the buildable acreage, 46± units is the starting point.

There are three high density projects adjacent to or within approximately 700 feet from this property, Manitou Woods (99 units @ 9 /ac), Garfield Condominiums 75+ units @ 7 /ac), Sugar Plum Apartments (172 units @ 8 / ac.) An office / industrial park is also located within this distance.

It is understood that the planning commission has requested a playground to be located in a more viewable area, which may require the elimination of units due to the compactness of the project. For instance, the elimination of a 6 unit structure located on the south side of the project would provide an ample area for a playground and would only lower the density to approximately 9.75 units / ac. This seems like a logical compromise provided the planning commission is satisfied with the location and design of the playground, and feel the applicant has accomplished the intent of the PURD.

### **Vehicular Circulation**

The project is proposed to be accessed by a single point of ingress/egress from Garfield Road. This subject was briefly discussed however the Commission was awaiting further information by the GTCRC on this issue.

### **Traffic Impact Reports**

Section 618 of the zoning ordinance provides the PC with the authority to require a traffic study for a project of this caliber. Staff would recommend that the applicant work with the GTCRC to determine if improvements or a study are necessary and provide us with a letter to that extent.

This subject was briefly discussed however the Commission was awaiting further information by the GTCRC on this issue.

### **Open Space**

The applicant is proposing to preserve approximately 3.77 acres of wetlands and low lands located to the east of the site. The low area of the site will incorporate a natural park area, walking trail and access to the conservation easement previously mentioned in this report.

The site plan illustrates an easement on the southern portion of the property. This easement provides access to property owned by the Grand Traverse Regional Land Conservancy. The applicant intends to



## Garfield Township Planning Department

construct a gravel drive from Garfield Road to the parcel in which he donated to the GTRLC several years ago. The addition of this property provides a vital connection and addition to the adjacent protected land that now stretches from Garfield Road to Townline Road.

### **Parking**

The applicant is proposing 84 two (2) bedroom units. Our ordinance requires between 1.5 and 2.0 parking spaces per unit as well as bicycle parking at a rate of 2 bicycle spaces per 25 vehicular spaces. To clarify, 2 spaces / unit would require 168 parking spaces for this project while 1.5 spaces would be 136 parking spaces. The applicant has provided 161 vehicular spaces and 14 bicycle spaces, which is within the acceptable range of parking. Numbering of spaces to ensure each unit has a designated space should be required to avoid guest parking and lessee conflict.

### **Snow Storage**

Snow storage may cause additional issues for parking as the applicant is requesting to utilize some of the parking spaces for snow storage, effectively lowering the winter parking availability by an additional 6 spaces to 156 total winter parking spaces. Again, this is still within the acceptable range for multi-family developments however further discussion may be warranted.

### **Stormwater - Low Impact Design**

The applicant has created a low impact design for capturing the parking lot runoff. Two landscaped swales will capture parking lot stormwater and direct it into a catch basin and underground retention area, which will then direct water into the stormwater basin before entering the wetland area. The swale areas measure approximately 8'x120'. This type of swale can be viewed within the YMCA parking lot located off of Silver Lake Road.

### **ACTION REQUESTED:**

The first purpose of the meeting will be to invite public comment on the application. Following that, if the Planning Commission is prepared to act on the application, it would be appropriate to direct Staff to prepare findings in support of an anticipated decision OR continue deliberation with the applicant to resolve any concerns.

8 Units Per Acre

7 Units Per Acre

9 Units Per Acre

Subject Property

HARBOR HILL DR

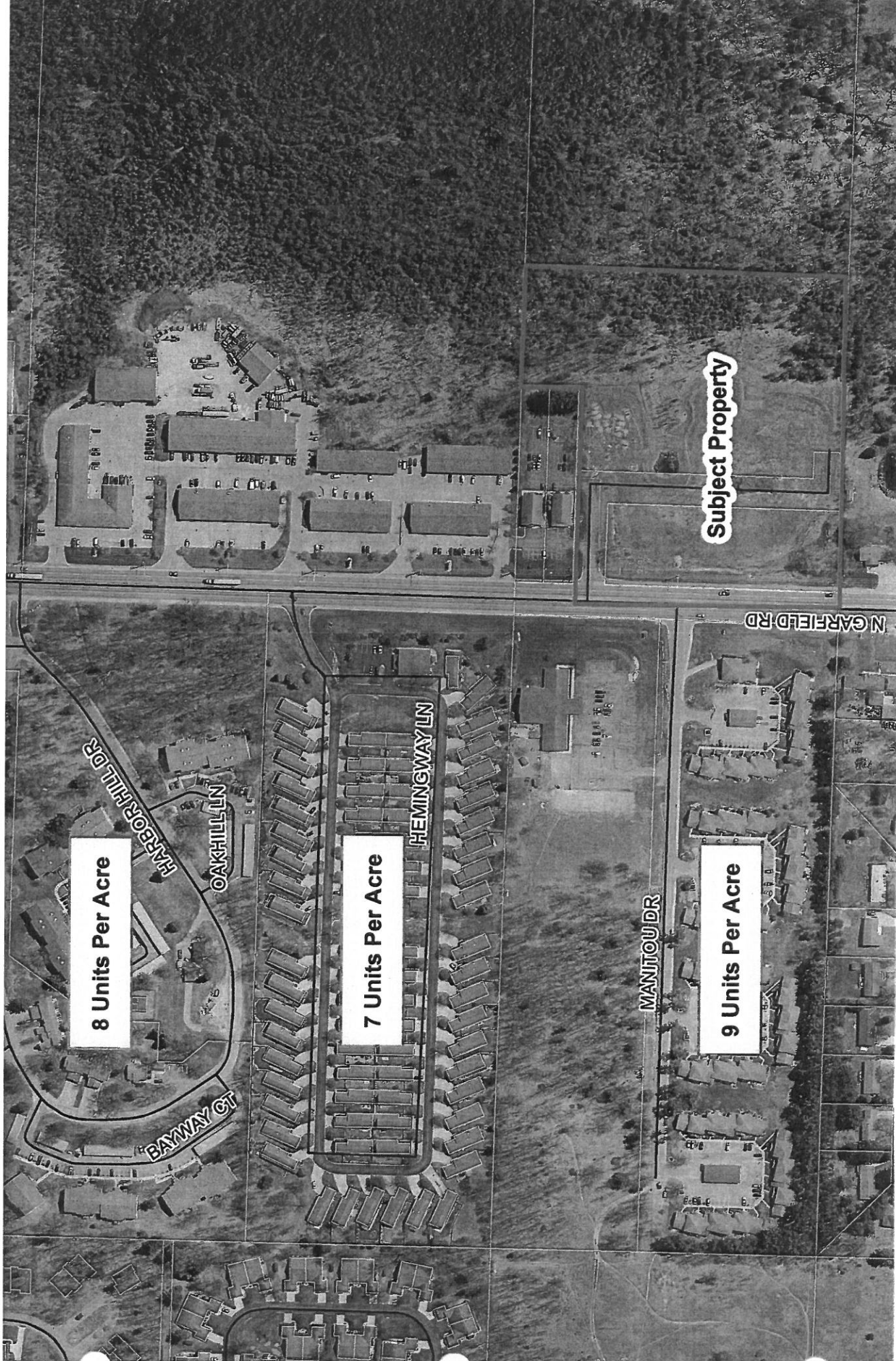
OAK HILL LN

BAYWAY CT

HEMINGWAY LN

MANITOU DR

N GARFIELD RD





# Charter Township of Garfield

Planning Department Report No. 2017-102

Prepared:	October 3, 2017	Pages:	Page 1 of 3
Meeting:	October 11, 2017 Planning Commission	Attachments:	<input checked="" type="checkbox"/>
Subject:	Proposed 3-Unit Retail on N. US-31 South		
File No.	SPR 2017-03	Parcel No.	05-016-016-30
Applicant:	Alpha-31, LLC		
Owner(s):	Alpha-31, LLC		

## OVERVIEW:

The subject parcel is approximately 2.8 acres in area and located at 3664 North US-31 South. The site topography is essentially flat with a very gradual slope to the East. Kids Creek runs along both the West and East ends of the site. Also, there is a wetland area along the East property line. The parcel's only road frontage is approximately 166 feet on North US-31 South.

The site was formerly occupied by the Alpha Center (health services) and is being used by Northpointe (auto sales) currently. The applicant proposes to demolish the three existing buildings on the parcel and construct a multi-tenant retail/food business complex. The proposed complex would be a single building consisting of three units constructed in a single phase. The uses of adjacent parcels include auto sales to the South, a cemetery to the East, and modular home sales to the North.



**STAFF COMMENT:**

The subject parcel is located within the C-H Highway Commercial zoning district. The C-H district lists "Retail Establishments not including Second Hand Stores" as a use permitted by right within that district. However, according to Section 321.D(1) of the Zoning Ordinance, "[a]pplications for development within the C-H district shall be reviewed by the Planning Commission for compliance with Article 4, Section 424 – Site Plans and Article 5 – Development Standards." In other words, although the use proposed is permitted by right within the underlying zoning district, the Planning Commission must review and approve the site plan according to the approval criteria listed in Section 424.F(1)(a)-(j) of the Zoning Ordinance. The Planning Commission is the final approval authority in this case and a public hearing is *not* required. This application is *not* required to be considered at the Township Board level.

Staff has reviewed the site plan for compliance with the Zoning Ordinance and the following are offered as points of discussion:

*Non-motorized Circulation:*

Note that on the site plan along the entrance off of US-31, the applicant is proposing to stripe the North edge of the 30-foot wide driveway to serve as a non-motorized connection between the sidewalks surrounding the perimeter of the proposed building and the existing path running along US-31. It does not appear to be separate of the driveway or curbed, thus bringing about the potential for automobile and bicycle or automobile and pedestrian conflicts. It seems that if a cyclist or pedestrian and a vehicle were exiting the site at the same time, the cyclist or pedestrian would possibly cross paths or converge. This is something which Commissioners might want to consider from a safety standpoint in particular. Section 424.F(1)(g) states that "the safety and convenience of pedestrian and vehicular traffic shall be assured." In this light, as currently proposed, Staff does not regard this non-motorized circulation system as meeting the intent of the Zoning Ordinance.

*Lighting:*

Under Section 517.C(2)(b) of the Zoning Ordinance, where a nonresidential zoning district adjoins another nonresidential zoning district along the property line, 1.0 foot candles is the maximum illumination level allowed. However, as the applicant's photometric plan indicates, there are areas along the South property line where illumination levels exceed 1.0 and reach 1.8. In addition, the maximum illumination allowed directly under the light fixtures themselves is 20.0 foot candles, and it appears that a couple of areas near proposed fixtures exceed this standard at 22.4 and 28.8. Thus, as currently proposed, the lighting plan is not in compliance with the Zoning Ordinance.

*Bicycle Parking:*

The submitted plan indicates one proposed bike rack on the property with an unknown number of spaces. However, the Zoning Ordinance requires two bike parking spaces per 25 vehicle parking spaces in parking areas with greater than 25 spaces. Thus the applicant will have to provide greater specificity in order for compliance with the Zoning Ordinance to be determined.

*Stormwater:*

A stormwater control plan was submitted by the applicant. Staff will coordinate with the applicant and Township Engineer to review these plans for compliance prior to the issuance of any permits. Stormwater is proposed to be managed within the site via two retention basins; one on the East side of the proposed building and another on the West side.

**ACTION REQUESTED:**

That the Planning Commission direct Staff to continue working with the applicants to address the issues discussed above.



**Date:** 09.15.2017

**From:** John Iacoangeli, AICP, CNU-A, LEED AP  
**To:** **Petra Kuehnis, RLA**  
MANSFIELD LAND USE CONSULTANTS  
830 Cottageview Drive, Suite 201  
Traverse City, MI 49684

**Eric Perdonik**  
GARFIELD TOWNSHIP  
3848 Veterans Drive  
Traverse City, MI 49684

**Project:** Buffalo Ridge Planned Unit Development

Subject Property: 3585 Marketplace Circle  
Permanent Parcel Number: 05-016-032-20  
Request: PUD Amendment – Hobby Lobby – 4.5 acres  
Owner: Buffalo Ridge Center South LLC  
Agent: Mansfield Land Use Consultants

Other Parcels: 05-16-032-30 TC Center Partner LLC (Theater)  
05-016-032-05 Buffalo Ridge Center South LLC (Lucky's)

**Request:** Public Hearing and Planning Commission Review

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This memorandum supplements other correspondence dated 5-23-2017 (Completeness), 6-01-2017 (Introduction and Review), 8-17-2017 (Public Hearing and Planning Commission Review).

On September 11, 2017 Petra Kuehnis, RLA, submitted, via e-mail, the project submittal for an amendment to the Buffalo Ridge Planned Unit Development to construct a Hobby Lobby on the site of a former outlet mall building pad and parking lot. These drawings included further revisions.

### **Background**

Garfield Township approved the Buffalo Ridge Center Planned Unit Development on US-31 in 2014 (PUD #2014-02). The project was a redevelopment of the former and dilapidated Horizon Outlet Mall. As approved, the project involved removal of the northern half of the outlet mall and construction of a 14-screen movie theater and associated parking area.

In June 2016, the owner/applicant submitted a proposal for the conversion of a building on the southern portion of the property for renovation and reuse as a Lucky's Market. This application was subsequently approved and the building has been renovated and the market is operational.

The subject application involves the demolition of a building on the western portion of the property to accommodate the construction of a 55,000-square foot Hobby Lobby store. In addition, site demolition will take place involving parking lots currently serving

**Submitted Drawings**

The table below outlines by reference the drawings submitted through the application process.

Drawings Sheet	Title	Date (Revised Date)
C1.0	Cover Sheet	04-04-2017
C1.1	Note Sheet	04-04-2017
C1.2	Civil Details – Site	04-04-2017
C1.3	Civil Details – Water & Sewer	04-04-2017
C1.4	Civil Details – Water & Sewer	04-04-2017
C1.5	Civil Details – Storm	04-04-2017
C2.0	Overall Existing Conditions	04-04-2017
C2.1	Existing Conditions	04-04-2017
C2.2	Proposed Demolition Plan	04-04-2017
C2.3	Overall Proposed Development Plan	04-04-2017
C3.0	Soil Erosion & Sedimentation Control Plan	04-04-2017
C4.0	Site & Dimension Plan	04-04-2017
C4.1	Construction Area Site Plan & Cross Section	07-27-2017
C5.0	Grading & Storm Plan	04-04-2017
C6.0	Utility Plan	04-04-2017
L1.0	Landscape Plan	04-04-2017
EL3	Proposed Site Lighting	08-09-2017
No Number	Garfield Township Parking Requirements	No Date
A3.0	Hobby Lobby Elevations	05-31-2017
No Number	Pedestrian Circulation Plan	04-04-2017
No Number	Truck Route Plan	04-04-2017
No Number	Pedestrian Circulation Plan (Signage)	04-04-2017
No Number	Future Build-Out Concept	09-11-2017
No Number	Color Rendering	09-11-2017

*Note: Sheets*

*Sheets C2.3, C3.0, C5.0, C6.0, L1.0, Pedestrian Circulation Plan, Truck Route Plan and Pedestrian Circulation Plan (Signage) do not reflect modifications made to the internal intersection or the parking lot between Hobby Lobby and Lucky's.*



Agency Reviews		
Agency	Status	Permit No. (Date)
MDOT	E-mail from Jeremy Wiest, P.E.	05-11-2017
Grand Traverse Metro Fire Department	Initial review completed  Pending – Revised Intersection	04-25-2017
Soil Erosion – Sedimentation Control	Letter from Harold Robins	05-12-2017
Storm Water Review	Pending	

**REVIEW PROCESS**

This application is considered a Major Amendment to the overall Planned Unit Development and subject to the requirements of §423, G. (6).<sup>1</sup> The following table incorporates the Approval Criteria referenced in §426; E, (1), (2) and (3).<sup>2</sup>

**Scope of Authority – Use**

**Approval Criteria:** *The proposed uses, within the context of the overall development plan, are harmonious and compatible with the planned uses of the site and the surrounding area, as provided for within the master plan;*

**Finding: Met.** This property and adjacent properties along US-31 are classified as commercial on the Future Land Use map. The property west of the subject site is classified as High Density Residential. The repurposing of the former outlet shopping center to a commercial PUD is consistent with the FLUM.

**Approval Criteria:** *The proposed density is in accordance with the policies and objectives set out in the master plan; and*

**Finding: Met.** This property and adjacent properties along US-31 are classified as commercial on the Future Land Use map. The property west of the subject site is classified as High Density Residential. The repurposing of the former outlet shopping center to a commercial PUD is consistent with the FLUM.

**Approval Criteria:** *In areas where the surrounding lands have been substantially developed in accordance with a particular land use character, pattern and density, the planned unit development shall be consistent and compatible with that existing land use character, pattern and density.*

**Finding: Met.** The former use of the property was an outlet shopping center. The current and proposed amendments to the PUD call for the continuation of the property as retail and entertainment.

<sup>1</sup> Article 4, Page 4-15, Garfield Township Zoning Ordinance, Section 423.G(6).

<sup>2</sup> Article 4, Page 4-42, Garfield Township Zoning Ordinance; Section 426;E.

Scope of Authority – Dimensional Standards

**Approval Criteria:** *The uses will be compatible with the natural environment, and with adjacent and surrounding land uses and properties, and will not have an adverse economic, social or environmental impact on adjacent and surrounding land uses and properties;*

**Finding: Met (This Phase Only)** Future phase will require a MDOT-approved traffic study to determine the capacity and level of service of the signalized intersection at US-31. The proposed rear elevation lighting for the Hobby Lobby are wallpaks. The photometric plan indicates that lighting levels at the property line adjacent to the residential neighborhood are less than 0.2-foot candles which is consistent with Table 5-8 "Illumination Standards at Property Line."

**Approval Criteria:** *The uses will be compatible with the capacity of existing public services and facilities, or of planned and feasible future public services and facilities, and such use is consistent with the public health, safety and welfare of the Township residents;*

**Finding: Met (This Phase Only).** Based on a review of the Hobby Lobby plan by MDOT future phase(s) will require a MDOT-approved traffic study to determine the capacity and level of service of the signalized intersection.

**Approval Criteria:** *The uses and development are warranted by the design of additional amenities made possible with, and incorporated by, the development proposal;*

**Finding: Not Met.** Unlike a PUD proposed for a "greenfield" site this PUD involves the repurposing and redevelopment of a former outlet mall. Therefore, this criterion needs to be evaluated within this context.

The PUD is being developed incrementally as tenants are procured without any unifying design elements typically found in a well-planned PUD. The issue regarding the lack of a cohesive site design is not new. This concern was issued in a June 2, 2016 letter addressed from the Garfield Township Planning Department to the Applicant's Agent and again reiterated in a staff review to the Planning Commission, dated June 22, 2016. Because the buildings reflect a "franchise" design and not an architectural design determined by the Applicant the only remaining element that can unify the site is the pedestrian network. In this regard, the Planning Commission needs to determine the appropriate balance between vehicular parking and pedestrian circulation.<sup>3</sup>

The Applicant has incorporated into the revised design additional walkways, widen the sidewalk in front of the Hobby Lobby building, and a demarcated walkway between the Hobby Lobby and Luckys's Market. However, there is nothing innovative in the plan for the PUD.

<sup>3</sup> Planning Department Report: 2016-43, dated June 22, 2016.

On numerous occasions, including the August 23, 2017 Planning Commission meeting, the use of a wide pedestrian sidewalks with pedestrian lights along the façade of existing and proposed buildings was recommended to unify the entire PUD. The current revision to the build-out plan incorporates none of these amenities. To confirm that the Applicant's Agent did not include these elements, a follow-up e-mail was sent asking for confirmation with the Applicant responding there are no pedestrian lights and no additional walkway to the theater.<sup>4</sup>

**Approval Criteria:** *Insofar as practicable, the landscape shall be preserved in its natural state by minimizing tree and soil disturbance and removal;*

**Finding: Met.** The redevelopment of the property has increased the number of trees and landscaping on site. The final number will be determined through the site plan review.

**Approval Criteria:** *Existing important natural, historical and architectural features within the development shall be preserved;*

**Finding: Met.** Conservation easement were provided through initial PUD submission.

**Approval Criteria:** *Proposed buildings shall be sited harmoniously to the terrain and to other buildings in the vicinity that have a visual relationship to the proposed buildings;*

**Finding: Met.** As mentioned previously, repurposed commercial properties are different than greenfield projects because some of the building locations, parking and other site appurtenances are already in place. Regarding this project the parking lots and main drives are already in place. As a result, the former buildings are demolished to serve as locations for new buildings.

**Approval Criteria:** *With respect to vehicular and pedestrian circulation and parking, special attention shall be given to the location and number of access points to public streets, minimizing potential motorized/non-motorized conflict points, width of interior drives and access points, general interior circulation, separation of pedestrian and vehicular traffic, and the arrangement of parking areas that are safe and convenient and, insofar as is practicable, do not detract from the design of proposed structures and neighboring properties;*

**Finding: Not Met.** As noted by the Applicant at the June 22, 2017 meeting this development has been market-driven based on interest from perspective tenants not based on an overall PUD plan. As a result, there is no unifying elements typically associated with a well-designed PUD.

A recommendation that has been offered on several occasions to the Applicant to utilize a designed streetscape (wide sidewalk, pedestrian scale lighting, and

<sup>4</sup> E-mail received September 14, 2017 from Petra Kuehnis, Mansfield Land Use Consultants

landscaping) to bring some unity and integration to the sight. Although somewhat incorporated into the Hobby Lobby site plan this concept has not been embraced for the entire site.

At the August 23, 2017 Planning Commission meeting a suggested route for an expanded sidewalk to connect the Hobby Lobby with the theater was offered by the Planning Commission with the understanding that this modification would likely require the waiver of parking spaces to improve pedestrian safety and connectivity through the PUD. As noted in the current submission this recommendation was not included.

**Approval Criteria:** *Landscaping is provided to ensure that proposed uses will be adequately buffered from one another and from surrounding public and private property and, where applicable, to create a pleasant pedestrian scale outdoor environment;*

**Finding: Met.** There is an approximate 80-foot buffer between the west property line of the development and Creekside Condos. Both properties are lined with landscaping.

**Approval Criteria:** *The development consolidates and maximizes useable open space;*

**Finding: Met.** The majority of open space is located along the south property line and the southeast portion of the site. A non-motorized pathway is located along the east property line and meanders through the open space terminating at Market Place Circle Drive.

**Approval Criteria:** *The benefits of the development are not achievable under any single zoning classification; and*

**Finding: Met.** The Planned Unit Development was needed to allow for the theater portion of the project

**Approval Criteria:** *The development is compatible with the intent and purpose of the adopted master plan.*

**Finding: Met.** This property and adjacent properties along US-31 are classified as commercial on the Future Land Use map. The property west of the subject site is classified as High Density Residential. The repurposing of the former outlet shopping center to a commercial PUD is consistent with the FLUM.

### Comments

This review is focused on the request for a Major Amendment to the Buffalo Ridge Planned Unit Development and not the site plan for the proposed use. As noted above, under the Submitted Drawings a number of the plans need to be updated to reflect the revisions in the parking lot layout, intersection modification and expansion of walkways along the frontage of the Hobby Lobby.

1. Pedestrian Connectivity - Throughout the review process, and discussions with the Applicant and the Applicant's consultants, the suggestion to utilize a uniform, pedestrian streetscape element to tie the overall development was offered, as well as increasing the building mass. Since the proposed Hobby Lobby ties the Cherry Blossom Theater with the Lucky's Market the incorporation of a defined pedestrian connection is paramount to the PUD.

Various sections of the Zoning Ordinance reinforce the importance of internal pedestrian connections:

- a) Section 522 – Pedestrian Circulation and Non-Motorized Transportation Plan,
- b) Section 426 B (1) – Planned Unit Development, and
- c) Section 426 E (4) (g) – Planned Unit Development

Further, the objectives considered in a review of a PUD "encourage innovation in land use and variety in design, layout, and type of structures constructed" should be considered. <sup>5</sup>

On July 27, 2017, a marked-up plan was sent back to the Applicant's consultant with a suggested pedestrian circulation system that would connect the Cherry Blossom Theater with the proposed Hobby Lobby, the proposed 45,000 square foot building, Lucky's Market, and a proposed 3,200 square foot building east of Lucky's. In addition to the pedestrian circulation network a suggestion to increase building mass to create a more uniform appearance to the development was suggested. Unfortunately, the additional building mass suggestion was incorporated into the plan but the unifying pedestrian circulation network using a traditional streetscape was not. The Applicant noted at a review meeting held August 14, 2017 that the streetscape was a nice feature but the TC Partner LLC would not agree to lose the 14 parking spaces in the theater parking lot although the Applicant is a member of both LLC's as confirmed by equalization records.

At the August 23, 2017 Planning Commission meeting, the Planning Commission offered a route to connect the Hobby Lobby with the Theater knowing that such a modification would require the waiver of 14 parking spaces.

2. Parking – The parking for the entire PUD per the ordinance ranges from 1,092(minimum) to 2,013 (maximum). The shared parking computation per the ordinance requires 1,041 parking spaces. The proposed PUD plan with the Cherry Blossom Theater, Outback Steakhouse, Lucky's, Hobby Lobby, a new 45,000 square foot retail building and a small 3,200 retail building would require 1,041 parking spaces with 1,065 provided.

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<sup>5</sup> Article 4, Page 4-43, Garfield Township Zoning Ordinance; Section 426;E. (3) (b)

Installation of a new pedestrian circulation network using an aisle of parking to the theater, and an aisle of parking connecting Lucky's with Outback would decrease of the total parking count by 25 spaces for a net parking space count of 1,040; a waiver of 1 parking space.

3. Signage – The Applicant has withdrawn consideration to a waive the size of the internal directional signs. Three existing signs to remain.
4. Snow Storage - §551 E (6) requires snow storage areas. The plans do not include these designated areas.
5. Bicycle Parking - §522 C. requires two bike parking space per 25 vehicular parking spaces this would require a minimum of 86 bike parking spaces per the ordinance. The Applicant is providing 44 which requires a waiver of 42 bike parking spaces.
6. Noise: - Adjacent property owners attending the August 23, 2017 Public Hearing noted noise as a concern, especially during periods of construction. A recommendation would be to limit periods of construction activity from 8AM to 6PM, Monday through Friday, and 9AM until 6PM Saturday.

### Recommendation

Based on the foregoing review and finding of fact I would suggest the following motion:

Recommend approval to the Garfield Township Board of Trustees for the major amendment to PUD #2014-02 to construct a proposed 55,000 square feet Hobby Lobby store subject to the following conditions:

1. Installation of a pedestrian walkway and table top pedestrian crossing at location **A** based on the illustration entitled "Parking Lot Streetscape Treatment" and cross-section resulting in a reduction of 13 parking spaces. The pedestrian walkway to include pedestrian scale lights that match the model of the parking scale light poles.
2. Installation of a pedestrian walkway and table top pedestrian crossing at location **B** based on the illustration entitled "Parking Lot Streetscape Treatment" and cross-section. Resulting in a reduction of 11 parking spaces. The pedestrian walkway to include pedestrian scale lights that match the model of the parking scale light poles.
3. Installation of pedestrian walkway with streetscape elements at location **C** based on the illustration entitled "Building Façade Streetscape Treatment." The pedestrian walkway to include pedestrian scale lights that match the model of the parking scale light poles.

4. The reduction of 24 parking spaces reduces the available on-site parking to 1,041 parking spaces which requires no waiver.
5. Waiver of 42 bike parking spaces.
6. Installation of pedestrian walkway with streetscape elements at location **D** based on the illustration entitled "Building Façade Streetscape Treatment" would be completed at the time the proposed southwest building is developed.
7. Installation of pedestrian walkway with streetscape elements at location **E** based on the illustration entitled "Parking Lot Streetscape Treatment" would be completed at the time the proposed vacant out lot building is developed.
8. Submit a plan which clearly delineates the snow storage areas for the PUD.
9. Limit periods of demolition and construction from 8AM to 6PM, Monday through Friday, and 9AM until 6PM Saturday.
10. Parking spaces behind the Hobby Lobby shall be signed "Employee Parking Only."
11. Rear façade lighting on the Hobby Lobby building space be shielded and directed down.
12. Prior to the issuance of a Land Use Permit for Hobby Lobby the Applicant shall submit for review (planning and engineering) a complete set of the site plan and construction drawings.
13. Prior to the issuance of an occupancy permit for Hobby Lobby conditions #1, #2 and #3 must be constructed and operable, and available for pedestrian access.

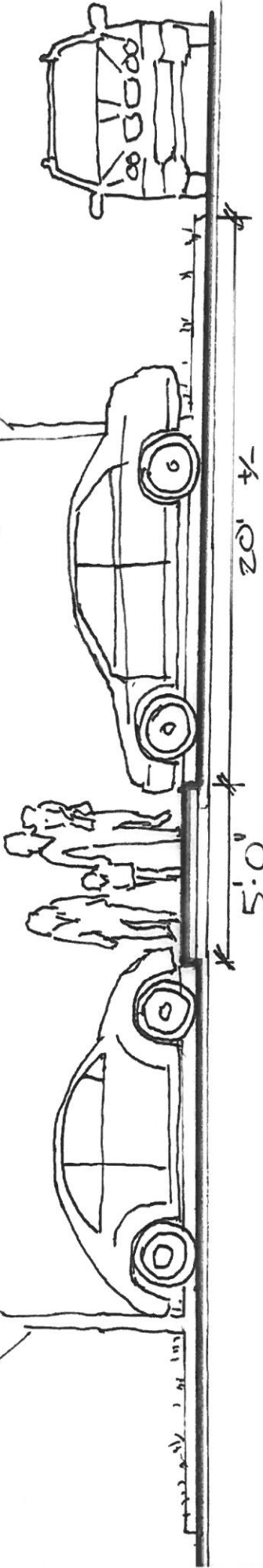
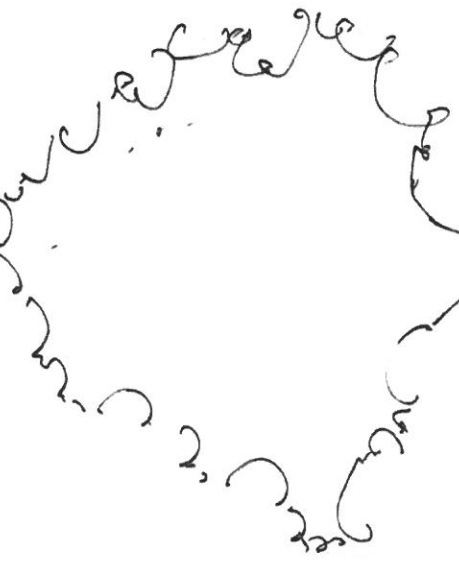
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END ISLAND TREE

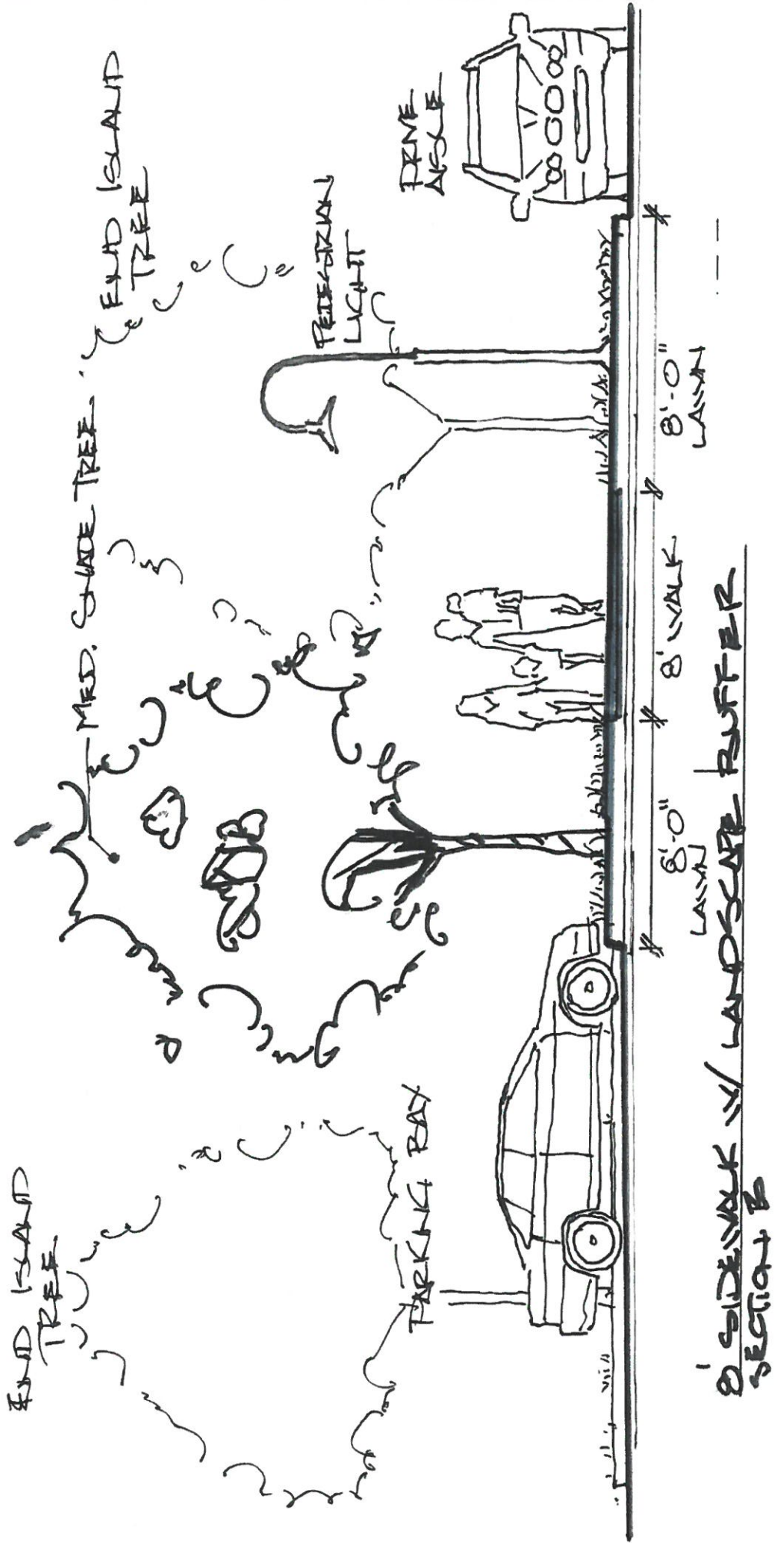
UP ISLAND TREE



5' WIDE SIDEWALK SECTION 'A'

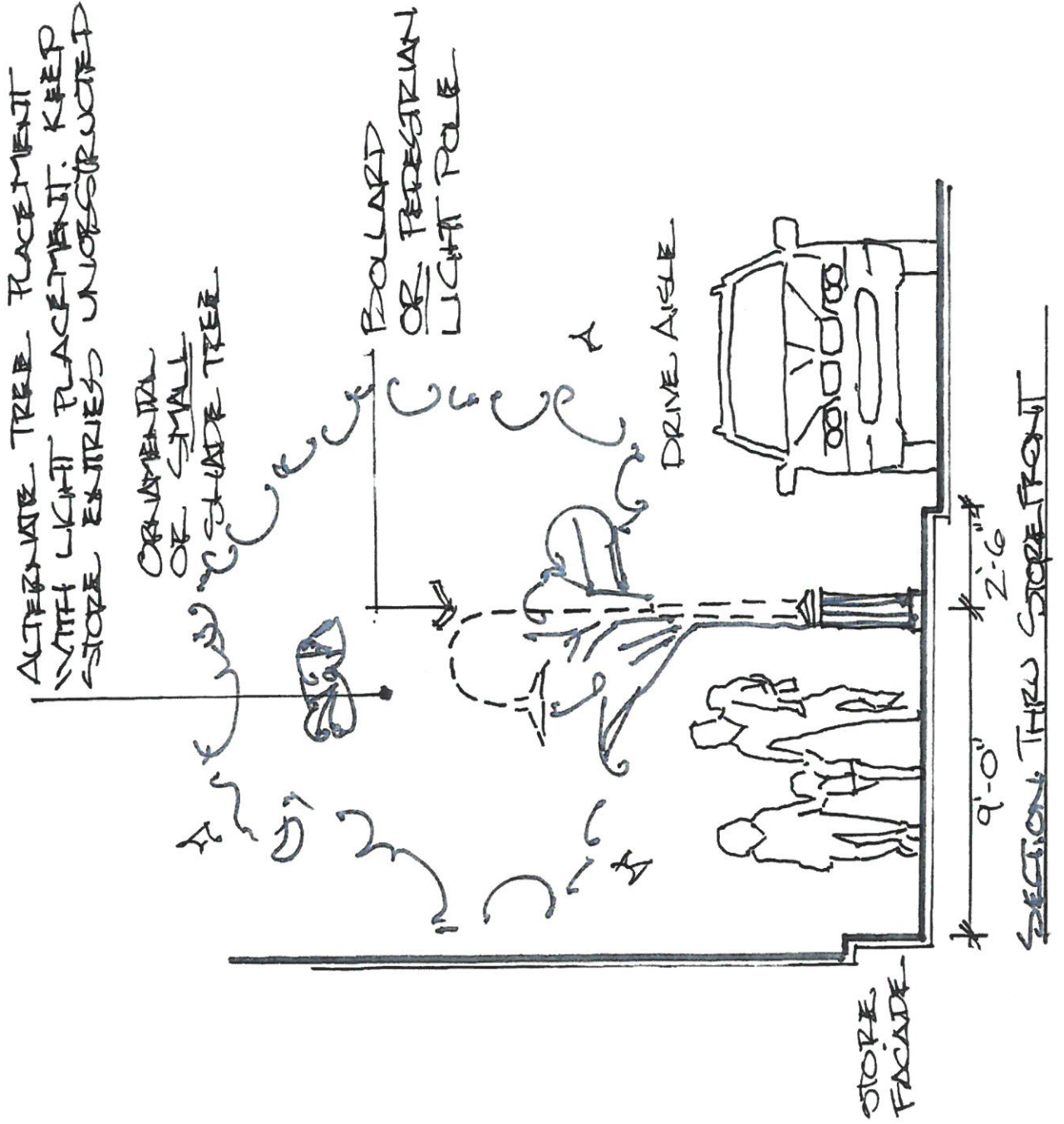
Current Parking Lot Sidewalk Treatment

Parking Lot Streetscape Treatment



PARKING LOT STREETScape TREATMENT  
SECTION B

Building Facade Streetscape Treatment



**Date:** 09.22.2017

**From:** John Iacoangeli, AICP, CNU-A, LEED AP  
**To:** Courtney Cook, AAIA  
Junto Design Studio  
1605 North Franklin Street  
Tampa, FL 33602

**Erik Perdonik**  
GARFIELD TOWNSHIP  
3848 Veterans Drive  
Traverse City, MI 49684

**Project:** Buffalo Ridge Planned Unit Development

Subject Property: 3501 Marketplace Circle  
Parcel No. 05-016-032-20  
Request: Site Plan Approval  
Owner: Outback Steakhouse of Florida, LLC  
Agent: Junto Design Studio

**Request:** Minor Amendment – Buffalo Ridge PUD

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The Applicant is requesting a modification to their property that includes the replacement and extension of the front faced roof to shelter an outdoor dining area to accommodate 6 table with a total of 24 seats.

#### Submitted Drawings

The Applicant submitted a complete set of construction documents that includes 31 sheets of construction details sufficient for building and construction review.

#### Comments

Currently the Outback Steakhouse has 131 parking spaces as noted on a site plan submitted by Mansfield Land Use Consultants, entitled, Overall Proposed Development Plan, dated July 27, 2017 (C2.3). This plan delineates the easement boundary for the Outback Steakhouse parking lot.

The zoning ordinance parking requirements enumerate a minimum parking requirement of 49 parking spaces with a maximum amount of 99 parking spaces. As a result, there is either a surplus of 82 or 32 parking spaces. The additional outdoor dining area results in an additional 6 (minimum) or 11 (maximum) which is within the parameters of the zoning ordinance requirements.

Since the Outback Steakhouse is part of the Buffalo Ridge PUD the same recommended parking lot streetscape treatment is recommended which results in a decrease of 11 parking spaces. The table summarizes the parking.

Outback Steakhouse Parking		Minimum 1 Space / 150 sqft	Maximum 1 space / 75 sqft
Existing Building	6,682 SqFt	49	99
Outdoor Seating	815 SqFt	6	11
Total Needed		55	110
Current Parking On-Site		131	131
Surplus		76	21
Reduction for Walkway Treatment		(11)	(11)
Net Surplus		65	10

**Review Process**

This application is considered a Minor Amendment to the overall Planned Unit Development and subject to the requirements of §423, G. (5).<sup>1</sup> The following table incorporates the Approval Criteria referenced in §423; G, (4), (b).<sup>2</sup>

**Approval Criteria:** *No previous amendments have been granted that, together with the proposed amendment, would exceed the standards of this section;*

**Finding: Met.** The existing site layout and the proposed addition to accommodate outdoor dining would not exceed the standards associated with type of use.

**Approval Criteria:** *There will be no detrimental impact on any adjacent property caused by significant change in the appearance or use of the property or any other contributing factor;*

**Finding: Met.** The extension of the roof and modification to the front façade will not result in a significant change to the appearance of the property. The outdoor seating located under the porch roof adjacent to the building.

**Approval Criteria:** *Nothing precludes or otherwise limits such expansion or enlargement*

**Finding: Met.** The proposed modification to the roofline does not increase the height of the building nor does is the footprint of the building enlarged.

**Approval Criteria:** *The proposal conforms to this ordinance and is in keeping with the spirit and intent of the master plan;*

**Finding: Met.** The property and building remain as the same use.

**Approval Criteria:** *The amendment proposes no increase in density.*

**Finding: Met.** There is no increase in density.

<sup>1</sup> Article 4, Page 4-25 Garfield Township Zoning Ordinance, Section 423.G(5).

<sup>2</sup> Article 4, Page 4-25 Garfield Township Zoning Ordinance, Section 423.G(4)(b)..

### Recommendation

Based on the foregoing review I would suggest the following motion:

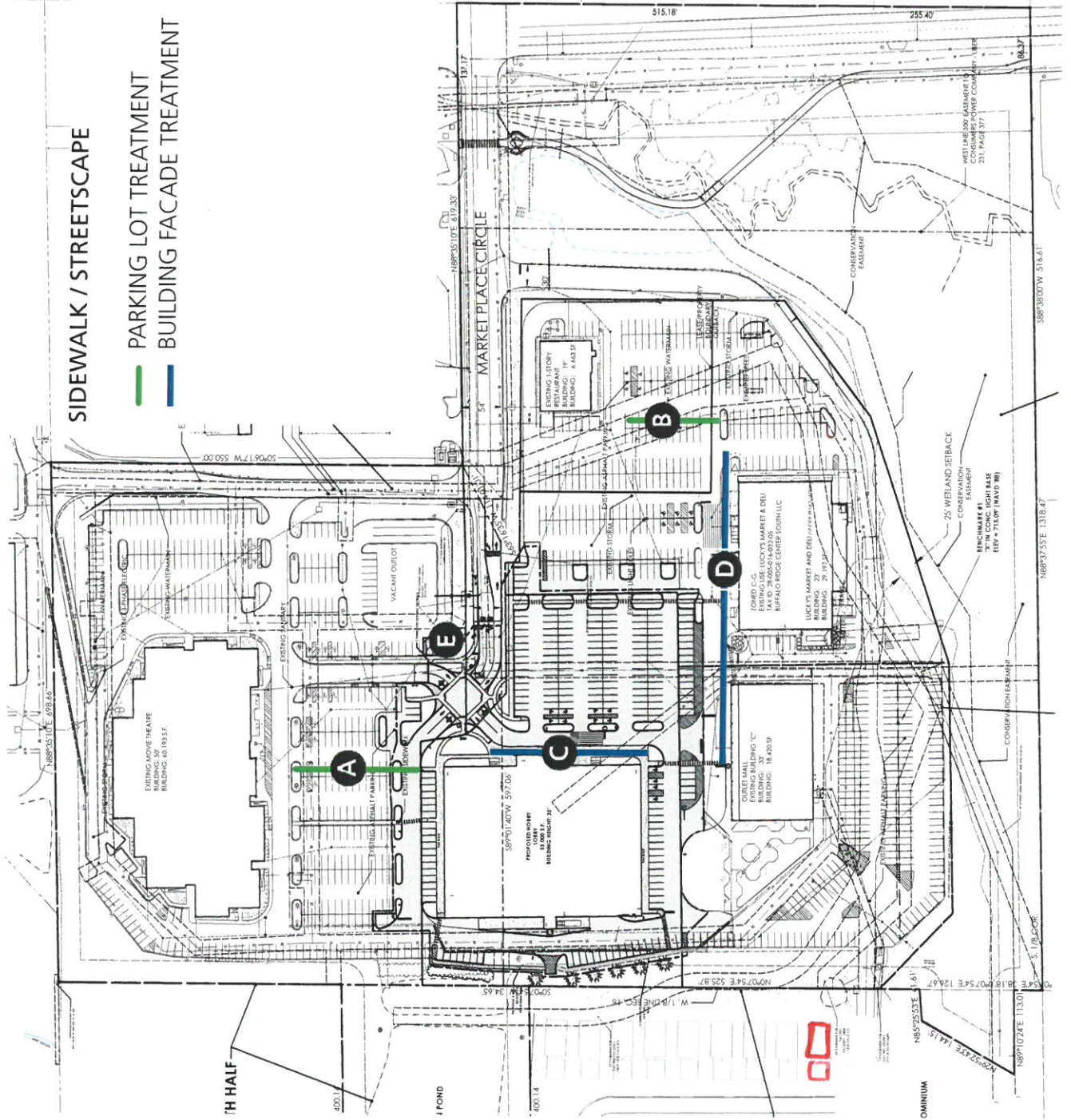
Recommend approval of the minor amendment to PUD #2014-02 to provide outdoor seating for six tables and twenty-four (24) seats for Outback Steakhouse subject to the following conditions:

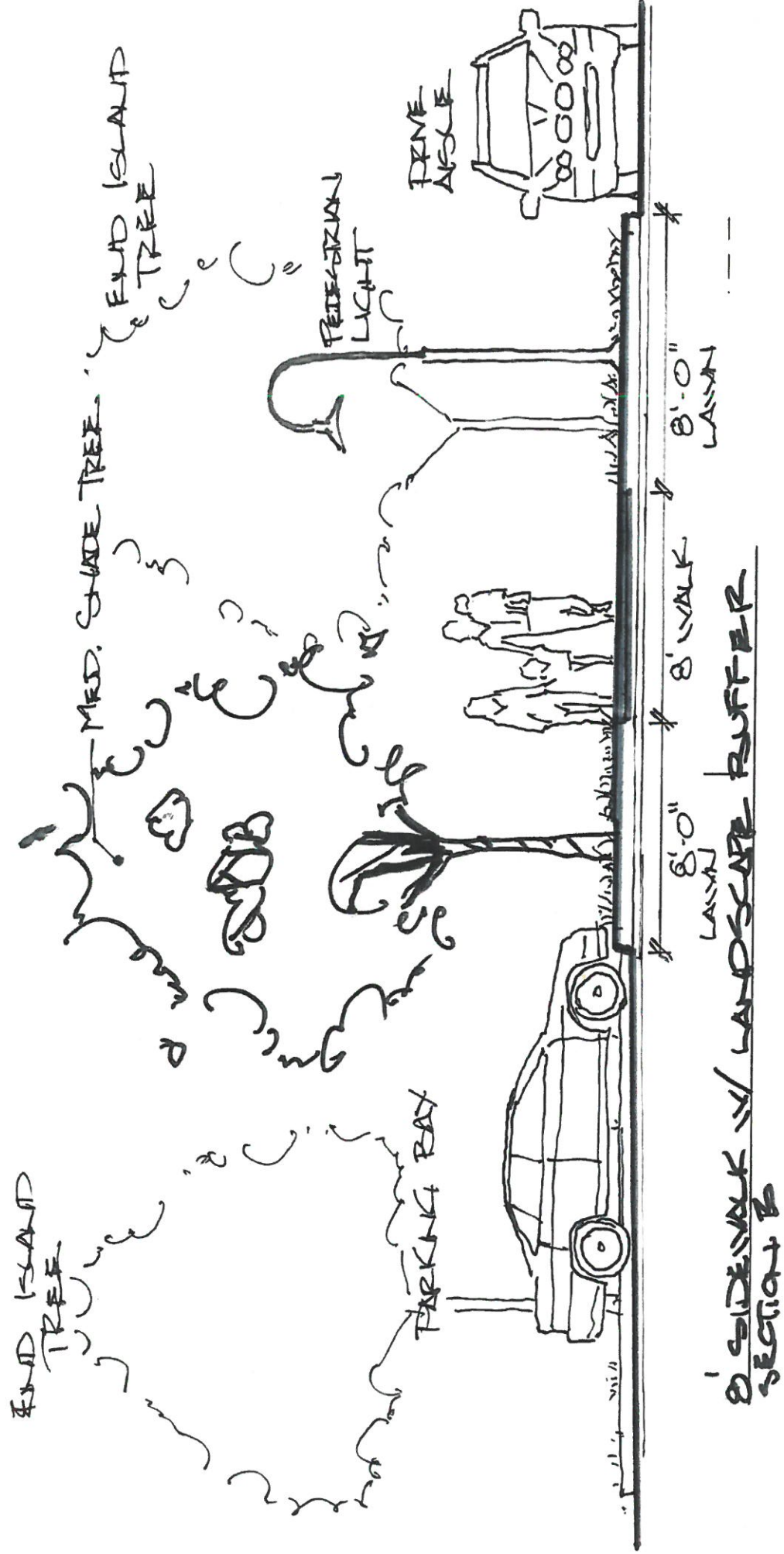
1. Installation of a pedestrian walkway and table top pedestrian crossing at location **B** based on the illustration entitled "Parking Lot Streetscape Treatment" and cross-section. Resulting in a reduction of 11 parking spaces. The pedestrian walkway to include pedestrian scale lights that match the model of the parking scale light poles.
2. Provide bicycle rack for 10 bikes using the same model bike rack selected for the overall Buffalo Ridge PUD development.

#####

# SIDEWALK / STREETScape

- PARKING LOT TREATMENT
- BUILDING FACADE TREATMENT





8'-0" SIDEWALK w/ LANDSCAPE BUFFER  
 SECTION B



Planning Commissioners  
Charter Township of Garfield  
3848 Veterans Drive  
Traverse City, Mi. 49684

October 3, 2107

**Re: Buffalo Ridge PUD Application for a Major Amendment**

To Whom It May Concern,

In April of this year the Applicant started conversations with the Township regarding a major amendment to the Buffalo Center Planned Unit development. Singularly this amendment proposed to replace another blighted, outdated and obsolete retail building with a new single-use retail facility that does not currently exist in the region.

The Township employed a third party Planner to review this application. The Planner met with the Applicant several times. Inclusive of making some very constructive criticisms of the plan, through which the proposal has evolved, the Planner reasoned that it would be looked upon favorably by the Township that the proposal should involve less parking and more lease space "mass".

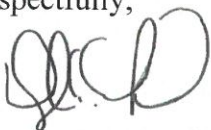
With the application revised to include the Planners suggestions and through the PUD criteria and comments from the Commissioners, several additional amenities were recommended as a path to approval. In incorporating these additional amenities (primarily more pedestrian connections, trees, decorative lighting, paving treatments, etc.) into the plan, and evaluating the subsequent budget, the Applicant has found that the additional building square footage in comparison with cost of the additional amenities simply isn't financially feasible.

Therefore, while we thank the Township for this opportunity, the "trade", a reduction in parking and additional building for the cost of more amenities is now no longer being proposed.

The Applicant has taken the project back to its original submittal. Beyond the intersection improvement, the plans are virtually the same as they were in April. The Applicant is **not** seeking any concessions. It is the Applicant's intent to meet every requirement of the Granting Order and the Zoning Ordinance. It is our belief that these plans, again essentially as they existed some 6 months ago, meet this criteria for approval. In such no additional amenities are required by the Zoning Ordinance.

We ask you to review the enclosed plans, calculations and narrative findings pursuant to your Zoning Ordinance and ask you to formulate a decision at next week's meeting, based upon the now more objective proposal that is again in your hands. I look forward to working with you on another great addition to Buffalo Ridge Center. Should you have any questions or concerns regarding this topic please do not hesitate to contact me at our offices.

Respectfully,



Douglas L. Mansfield, President

Documents submitted in advance of October 11, 2017 Planning Commission Meeting		
Sheet	Title	Date (revised date)
1 Page	Introductory Letter	10-03-2017
2 Pages	Grand Traverse Metro Fire Department	09-27-2017
3 Pages	Section 423 Special Use Permit	10-03-2017
C1.0	Cover Sheet	09-26-2017
C2.2	Demolition Plan	09-26-2017
C2.3	Overall Proposed Development Plan	09-26-2017
C3.0	Soil Erosion & Sedimentation Control Plan	09-26-2017
C4.0	Site and Dimension Plan	09-26-2017
C4.1	Construction Area Site Plan & Cross Sections	09-26-2017
C5.0	Grading and Storm Plan	09-26-2017
C6.0	Utility Plan	09-26-2017
L1.0	Landscape Plan	09-26-2017
1 Page	Pedestrian Circulation Plan	09-26-2017
1 Page	Sign Plan	09-26-2017
2 Pages	Future Build-Out Concept (Color & B/W)	09-26-2017
1 Page	Construction Area Site Plan & Cross Sections (Color)	09-26-2017
1 Page	Truck Route Plan	09-26-2017



# GRAND TRAVERSE METRO FIRE DEPARTMENT

## FIRE PREVENTION BUREAU

897 Parsons Road ~ Traverse City, MI 49686  
Phone: (231) 922-2077 Fax: (231) 922-4918 ~ Website: [www.gtfire.org](http://www.gtfire.org) Email: [Info@gtfire.org](mailto:Info@gtfire.org)

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### SITE PLAN REVIEW RECORD

ID # M6215-5768-P-1157

DATE: 9/27/17

PROJECT NAME: Hobby Lobby Site Plan #3

PROJECT ADDRESS: 3675 Market Place Circle

TOWNSHIP: Garfield

APPLICANT NAME: Petra Kuehnis

APPLICANT COMPANY: Mansfield Land Use Consultants

APPLICANT ADDRESS: 830 Cottageview Dr, Ste 201

APPLICANT CITY: Traverse City STATE: MI ZIP: 49684

APPLICANT PHONE #

FAX #

REVIEW FEE: **\$75.00**

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Reviewed By: Brian Belcher Assistant Chief/ Fire Marshal

This review is based solely on the materials submitted for review and does not encompass any outstanding information. Compliance with all applicable code provisions is required and is the responsibility of the permit holder. Items not listed on the review do not negate any requirements of the code nor the compliance with same. Inspection requests must be made a minimum of 48 hours prior to needed inspection. This plan review is based on the 2012 International Fire Code, as adopted.



# GRAND TRAVERSE METRO FIRE DEPARTMENT

## FIRE PREVENTION BUREAU

897 Parsons Road ~ Traverse City, MI 49686  
Phone: (231) 947-3000 Fax: (231) 922-4918 ~ Website: [www.gtmetrofire.org](http://www.gtmetrofire.org) Email: [Info@gtfire.org](mailto:Info@gtfire.org)

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## SITE PLAN REVIEW

### SITE PLAN # 3

ID # M6215-5768-P-1157

DATE: 8/24/17

#### **1. 505.1 Address identification.**

New and existing buildings shall have approved address numbers, building numbers or approved building identification placed in a position that is plainly legible and visible from the street or road fronting the property. These numbers shall contrast with their background. Where required by the fire code official, address numbers shall be provided in additional approved locations to facilitate emergency response. Address numbers shall be Arabic numbers or alphabetical letters. Numbers shall be a minimum of 4 inches (101.6 mm) high with a minimum stroke width of 0.5 inch (12.7 mm). Where access is by means of a private road and the building cannot be viewed from the public way, a monument, pole or other sign or means shall be used to identify the structure. Address numbers shall be maintained.

**-Provide address according to the above criteria on the street side of the building.**

#### **2. 503.3 Marking.**

Where required by the fire code official, approved signs or other approved notices or markings that include the words NO PARKING—FIRE LANE shall be provided for fire apparatus access roads to identify such roads or prohibit the obstruction thereof. The means by which fire lanes are designated shall be maintained in a clean and legible condition at all times and be replaced or repaired when necessary to provide adequate visibility.

**-Provide NO PARKING-FIRE LANE signs no more than 100 feet apart around the entire building. Signs shall be visible from both directions of travel. Locations to be determined prior to final inspection.**

#### **3. 105.2 Buildings other than one- and two-family dwellings.**

The minimum fire-flow and flow duration for buildings other than one- and two-family dwellings shall be as specified in Table B105.1.

Exception: A reduction in required fire-flow of up to 75 percent, as approved, is allowed when the building is provided with an approved automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2. The resulting fire-flow shall not be less than 1,500 gallons per minute (5678 L/min) for the prescribed duration as specified in Table B105.1.

**-The fire flow for this building is 1500gpm, plans do not indicate flow data for hydrant #273 or the hydrant that is being located to the Southeast corner of the building on the new island. Submit flow data for both hydrants to this office.**

**Ok to proceed with township approval process.**

## SECTION 423 SPECIAL USE PERMITS

### E. Approval Criteria

A special use is permitted only if the applicant demonstrates that:

- (1) The proposed use will be consistent with the purpose and intent of the master plan and this ordinance, including all regulations of the applicable zoning district;

*The proposed retail uses are appropriate to the redevelopment of the Buffalo Ridge Shopping Center, is consistent with the master plan and is a use permitted by right within the underlying C-G zoning district of the PUD.*

- (2) The proposed use will be designed, constructed, operated and maintained so as to be compatible, harmonious and appropriate with the existing or planned character and uses of the neighborhood, adjacent properties and the natural environment;

*The intent of PUD SUP #2014-02 is to facilitate the rehabilitation of the existing shopping center. Please remember the obsolete, half empty and distressed state of the former Horizon Outlet Center prior to this revitalization effort. The current proposal to add a national retailer to Buffalo Ridge Center is consistent with the existing surrounding uses, and provides regional retail opportunity on a unified site with high density housing directly adjacent the property per the intent of the Township's Comprehensive Master Plan.*

*Existing retailers surrounding Buffalo Ridge Center include:*

- 58,000 square foot Micheals/Bed Bath & Beyond
- 75,000 square foot Gander Mnt/ABC Warehouse/West Marine/Honor Bank/etc.
- 84,000 square foot Kohl's
- 180,000 square foot Lowes

*These neighboring large regional retailers, as well as five national chain restaurants (Qudoba/Outback/Olive Garden/Pizza Hut/Red Lobster) are all within 1,000 feet of the proposed Buffalo Ridge Center, therefore establishing the area as a hub of regional commerce perfectly suited to the addition of a well-known national retail establishment.*

*The building square footage and related infrastructure proposed as part of this addition to Buffalo Ridge Center is very similar to the previous building square footage of the shopping center prior to rehabilitation. The ratio of building to parking area of the proposed site plan is below the industry standards but comparable to the surrounding retail developments, and within the range of parking standard per the Garfield Township Ordinance.*

- (3) The proposed use will not be detrimental, hazardous or disturbing to existing or future adjacent uses or to the public welfare by reason of excessive traffic, noise, dust, gas, smoke, vibration, odor, glare, visual clutter, electrical or electromagnetic interference;

*The proposed commercial/retail use does not generate noise, dust, gas, smoke, vibration, odor, glare, visual clutter, electric or electromagnetic interference. Vehicle and pedestrian circulation within the site has been improved to accommodate better flow and minimized points of conflict.*

- (4) Potential adverse effects arising from the proposed use on the neighborhood and adjacent properties will be minimized through the provision of adequate parking, the placement of buildings, structures and entrances, as well as the provision and location of screening, fencing, landscaping, buffers or setbacks;

*The retail shopping center use was established on this site in 1991 and predates all but one retail use and all residential uses. The proposed retail use structures replace the existing retail use structures. There is no adverse effect.*

*Parking provided exceeds the requirements of the Garfield Township ordinance.*

*Landscaping provided exceeds the requirements of the Garfield Township ordinance by almost double.*

*Three neighboring properties use routes through the Buffalo Ridge Center site to access the signalized intersection at US-31 at Market Place Circle Drive. That access will remain unaffected by the proposed layout of the future build-out plan amendment to the shopping center.*

- (5) The proposed use will retain as many natural features of the property as practicable, particularly where the natural features assist in preserving the general character of the neighborhood;

*The proposed work is part of the rehabilitation of the existing shopping center.*

*Over 40% of the overall 30-acre Buffalo Ridge Center site is open space, including 5 acres of wetland and a branch of Kidd's Creek. These areas will continue to be preserved including a conservation easement and pedestrian trail along parts of Kidd's Creek.*

- (6) Adequate public and private infrastructure and services such as streets, water and sewage facilities, drainage structures, police and fire protection, and schools, already exist or will be provided without excessive additional requirements at public cost;

*The existing access to the site is a signalized intersection onto US-31, a state highway. You can't get much better than that. Three neighboring properties have access through the Buffalo Ridge Center site as well, and that access remains unaffected by the proposed layout of the future build-out plan amendment to the shopping center.*

*The site is serviced by municipal sewer and water. The proposed structures replace the existing buildings on the site and will use those existing sewer and water connections with minor adjustments as needed.*

*Circulation around the new structures is designed to meet international Fire Code Standards for firefighting access, and fire hydrants are located on the site.*

*Existing site drainage and stormwater facilities were rehabilitated as part of the original PUD work in 2014.*

- (7) The establishment, maintenance, or operation of the proposed use shall not be detrimental to or endanger the public health, safety, morals, comfort, or general welfare;

*The existing shopping center is well maintained including an on-site maintenance garage and long time staff. Future improvements to the development will continue to enjoy the existing high standard of operations and maintenance.*

- (8) The public interest and welfare supporting the proposed use shall be sufficient to outweigh individual interests that are adversely affected by the establishment of the proposed use; *The retail center use was established on this site in 1991, and predates surrounding retail and residential uses. The proposed use is not changing. The proposal to rehabilitate the existing retail center meets the objectives of Section 426E(3) in that it is a re-use and improvement of an existing site and buildings.*

- (9) Adequate measures shall be taken to provide ingress and egress so designed as to minimize traffic hazards and to minimize traffic congestion on the public roads; *The Buffalo Ridge Center project is directly accessible to US-31 in two locations, one primary access via the signalized intersection at Market Place Circle, and a secondary access at the Kohl's driveway access. There is a third access at Outback Drive, through the Creekside neighborhood which is intended for emergency access only.*

*In such, the project provides access management of the many varied uses on-site and adjacent to the site to be able to access the State highway at a safe signalized intersection.*

- (10) Adequate measures shall be taken to provide vehicular and pedestrian traffic within the site, and in relation to streets and sidewalks servicing the site in a safe and convenient manner; and

*Updated vehicular circulation within the site was developed in collaboration with Traffic Engineers from AECOM's Grand Rapids office and offers a safe and familiar four way stop intersection at the top of the hill within the site. Sidewalks within the site offer safe and convenient circulation between uses, and exceed the minimum published standards within the ordinance. The plan was reviewed and ok-ed to proceed with the township approval process by local public safety officers at Grand Traverse Metro Fire Department.*

*Vehicular access to the site is serviced by an existing signalized intersection along US-31. Michigan Department of Transportation has reviewed and approved the proposal with no modifications required at the existing intersection onto the public roadway. Buffalo Ridge Center recently constructed a public pathway along the US-31 right-of-way.*

- (11) The proposed use shall not impede the orderly development and improvement of surrounding property for uses permitted within the zoning district.

*The shopping center use at Buffalo Ridge Center predates all but one surrounding development.*

*All properties adjacent the Buffalo Ridge Center are currently developed as either commercial/retail, high density residential or are undevelopable wetlands.*

*In addition to the signalized intersection on to State Highway US-31, the Buffalo Ridge Center development provides interconnectivity to surrounding uses at five additional*

*locations around the project perimeter which will be maintained through all future site improvement work.*

*The rehabilitation work at Buffalo Ridge Center will not impede improvements of surrounding properties.*

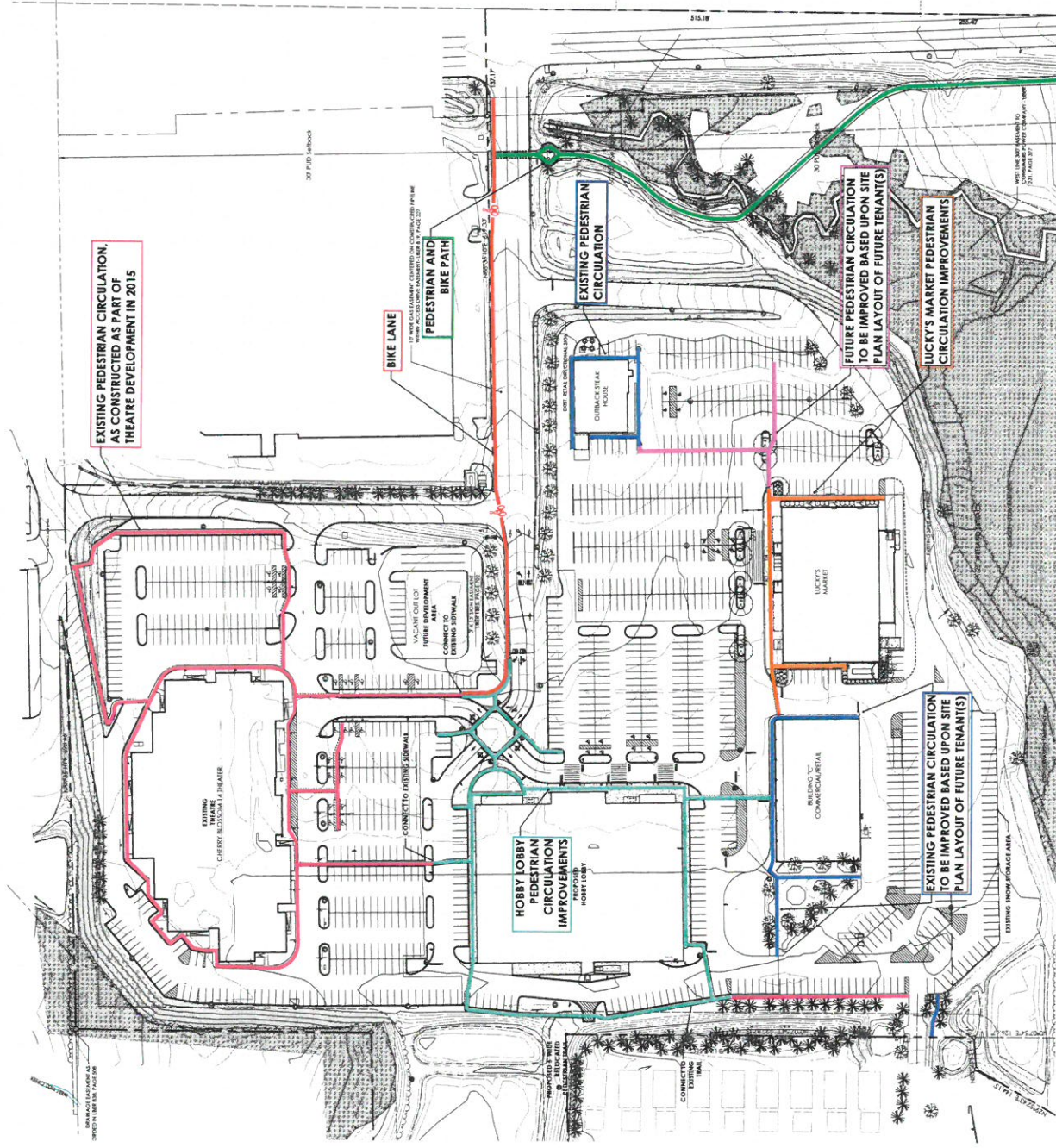


**Mansfield**  
 Land Use Consultants  
 1000 Chagrin Falls, Suite 201  
 P.O. Box 6015  
 Tallmadge, OH 44128  
 Phone: 314.466.9110  
 Fax: 314.466.9110  
 www.mansfield.com  
 info@mansfield.com

NO.	DATE	DESCRIPTION
001	01/10/2013	Original design / Planning Meeting
002	02/14/2013	Public Hearing and 1st Reading
003	03/20/2013	Public Hearing and 2nd Reading
004	04/17/2013	Public Hearing and 3rd Reading
005	05/14/2013	Final Design / Construction
006	06/11/2013	Final Design / Construction
007	07/08/2013	Final Design / Construction
008	08/05/2013	Final Design / Construction
009	09/02/2013	Final Design / Construction
010	10/01/2013	Final Design / Construction
011	11/01/2013	Final Design / Construction
012	12/01/2013	Final Design / Construction
013	01/01/2014	Final Design / Construction
014	02/01/2014	Final Design / Construction
015	03/01/2014	Final Design / Construction

Buffalo Ridge Center South, LLC  
**Proposed Hobby Lobby**  
**PEDestrian Circulation Plan**  
 Section 16, Town 27 North, Range 11 West  
 Garfield Twp., Grand Traverse County, Michigan

PRELIMINARY  
 16057



EXISTING PEDESTRIAN CIRCULATION,  
 AS CONSTRUCTED AS PART OF  
 THEATRE DEVELOPMENT IN 2015

EXISTING PEDESTRIAN  
 CIRCULATION

FUTURE PEDESTRIAN CIRCULATION  
 TO BE IMPROVED BASED UPON SITE  
 PLAN LAYOUT OF FUTURE TENANT(S)

LUCKY'S MARKET PEDESTRIAN  
 CIRCULATION IMPROVEMENTS

BIKE LANE  
 PEDESTRIAN AND  
 BIKE PATH

HOBBY LOBBY  
 PEDESTRIAN  
 CIRCULATION  
 IMPROVEMENTS

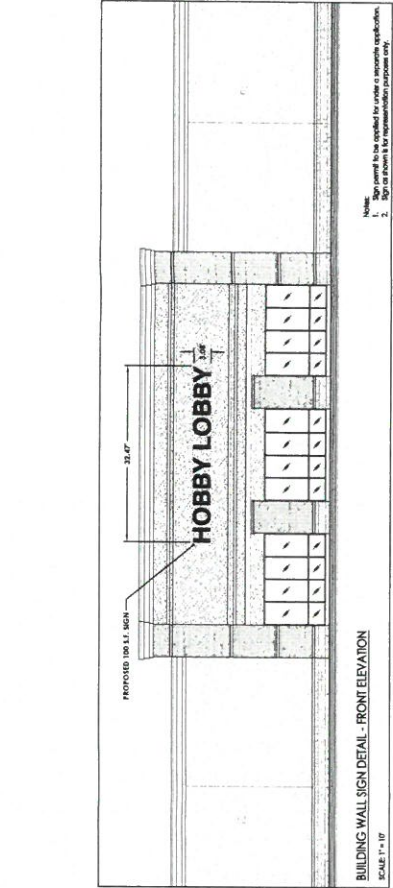
EXISTING PEDESTRIAN CIRCULATION  
 TO BE IMPROVED BASED UPON SITE  
 PLAN LAYOUT OF FUTURE TENANT(S)

NO.	DATE	DESCRIPTION
01	05/17/17	Initial design - planning sketches
02	05/17/17	Final design - final site plan
03	05/17/17	Final design - final site plan
04	05/17/17	Final design - final site plan
05	05/17/17	Final design - final site plan
06	05/17/17	Final design - final site plan
07	05/17/17	Final design - final site plan
08	05/17/17	Final design - final site plan
09	05/17/17	Final design - final site plan
10	05/17/17	Final design - final site plan
11	05/17/17	Final design - final site plan
12	05/17/17	Final design - final site plan
13	05/17/17	Final design - final site plan
14	05/17/17	Final design - final site plan
15	05/17/17	Final design - final site plan
16	05/17/17	Final design - final site plan
17	05/17/17	Final design - final site plan
18	05/17/17	Final design - final site plan
19	05/17/17	Final design - final site plan
20	05/17/17	Final design - final site plan

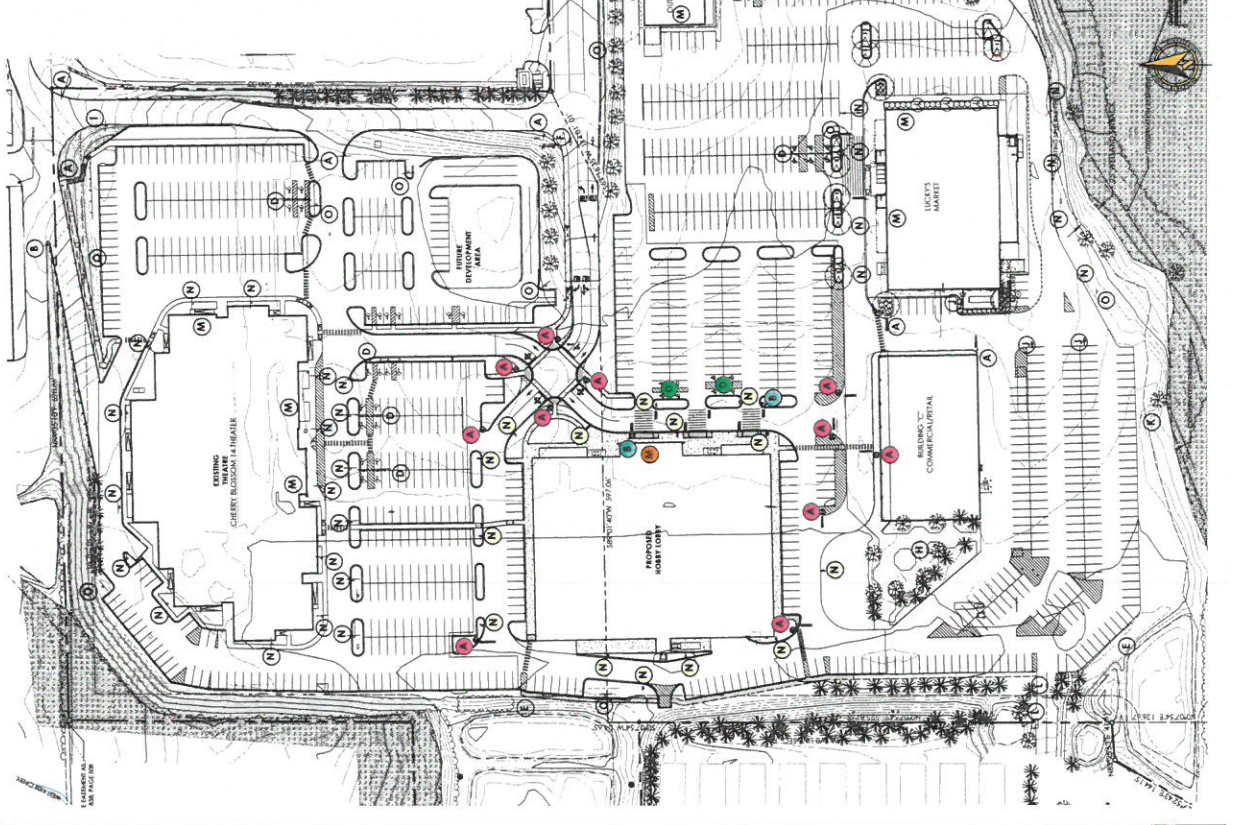
Section 16, Town 27 North, Range 11 West  
 Corfield Twp., Grand Traverse County, Michigan

**Proposed Hobby Lobby**  
**Sign Plan**

PRELIMINARY  
 16057



- EXIST. & PROP.**
- A STOP SIGN
  - B YIELD SIGN
  - C DIRECTIONAL SIGN
  - D HANDICAP SIGN
  - E NO FISHING OR SWIMMING SIGN
  - F FREE STANDING STORE SIGN
  - G DEVELOPMENT SIGN
  - H RESTROOMS/OFFICE
  - I BLIND CORNER AHEAD
  - J NO PARKING SIGNS
  - K SEWER MANHOLE KEEP CLEAR
  - L PRIVATE DEVELOPMENT SIGNS
  - M WALL MOUNTED STORE SIGN (to be permitted by town)
  - N NO PARKING FIRE LANE SIGN
  - O FIRE HYDRANT SIGN



Note:  
 1. Signs shall be the specific size, color, and materials as shown.  
 2. Signs are shown in a representative location only.

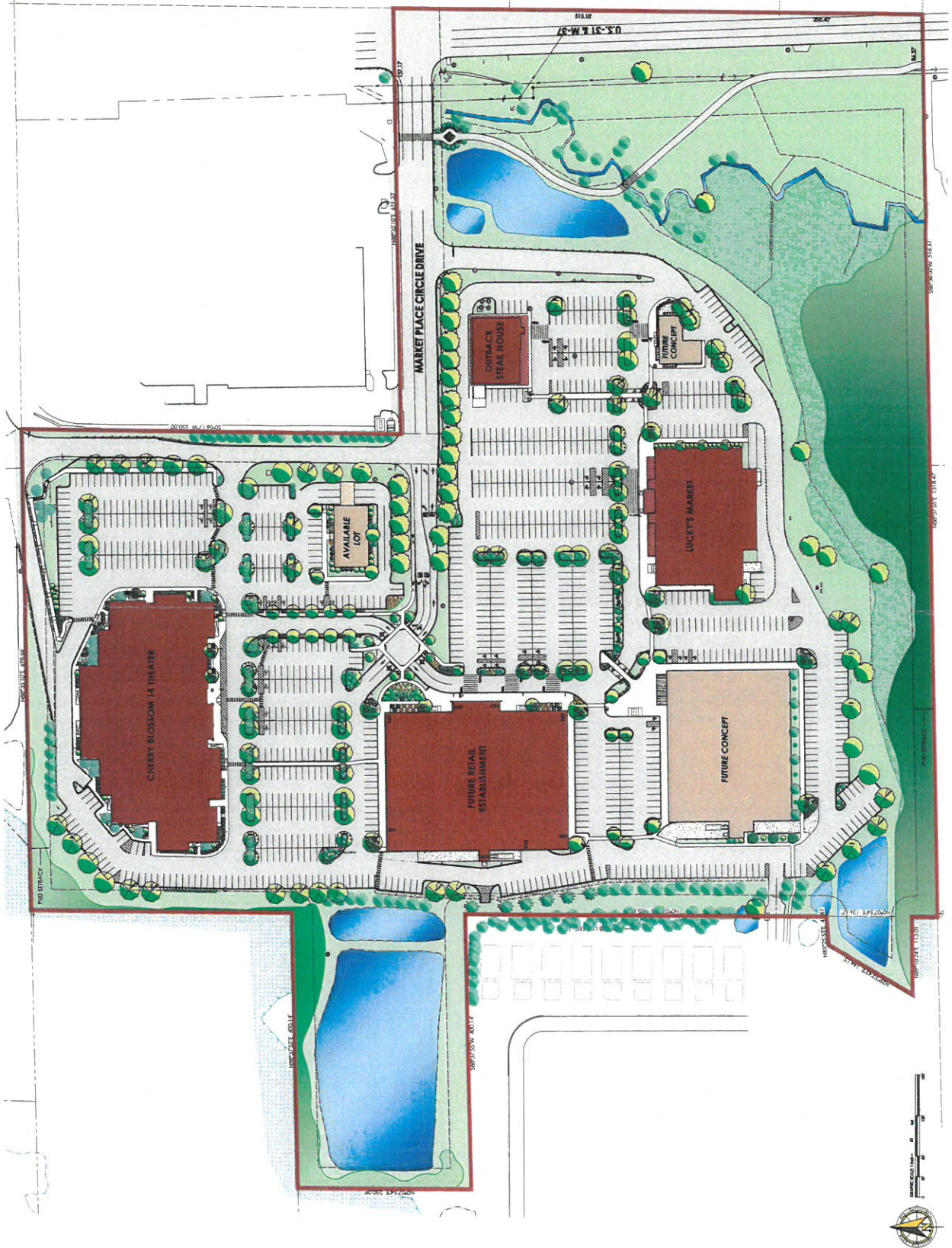
BUILDING WALL SIGN DETAIL - FRONT ELEVATION  
 SCALE 1/4" = 1'

**Mansfield**  
 Land Use Consultants  
 830 Congress Dr., Ste. 201  
 P.O. Box 4015  
 Troy, MI 48063  
 Phone: 248-946-9110  
 www.mansfield.com  
 info@mansfield.com

NO.	DATE	DESCRIPTION
01	04-24-17	Client Request - Township Approval
02	04-27-17	Final Revision and add schedule
03	04-27-17	Final Revision and add schedule
04	04-27-17	Final Revision and add schedule
05	04-27-17	Final Revision and add schedule
06	04-27-17	Final Revision and add schedule
07	04-27-17	Final Revision and add schedule

**Proposed Hobby Lobby**  
**FUTURE BUILD-OUT CONCEPT**  
 Buffalo Ridge Center South, LLC  
 Section 16, Town 27 North, Range 11 West  
 Garfield Twp., Grand Traverse County, Michigan

PRELIMINARY  
 SHEET NO. 16057  
 PROJECT NO. 16057



16057

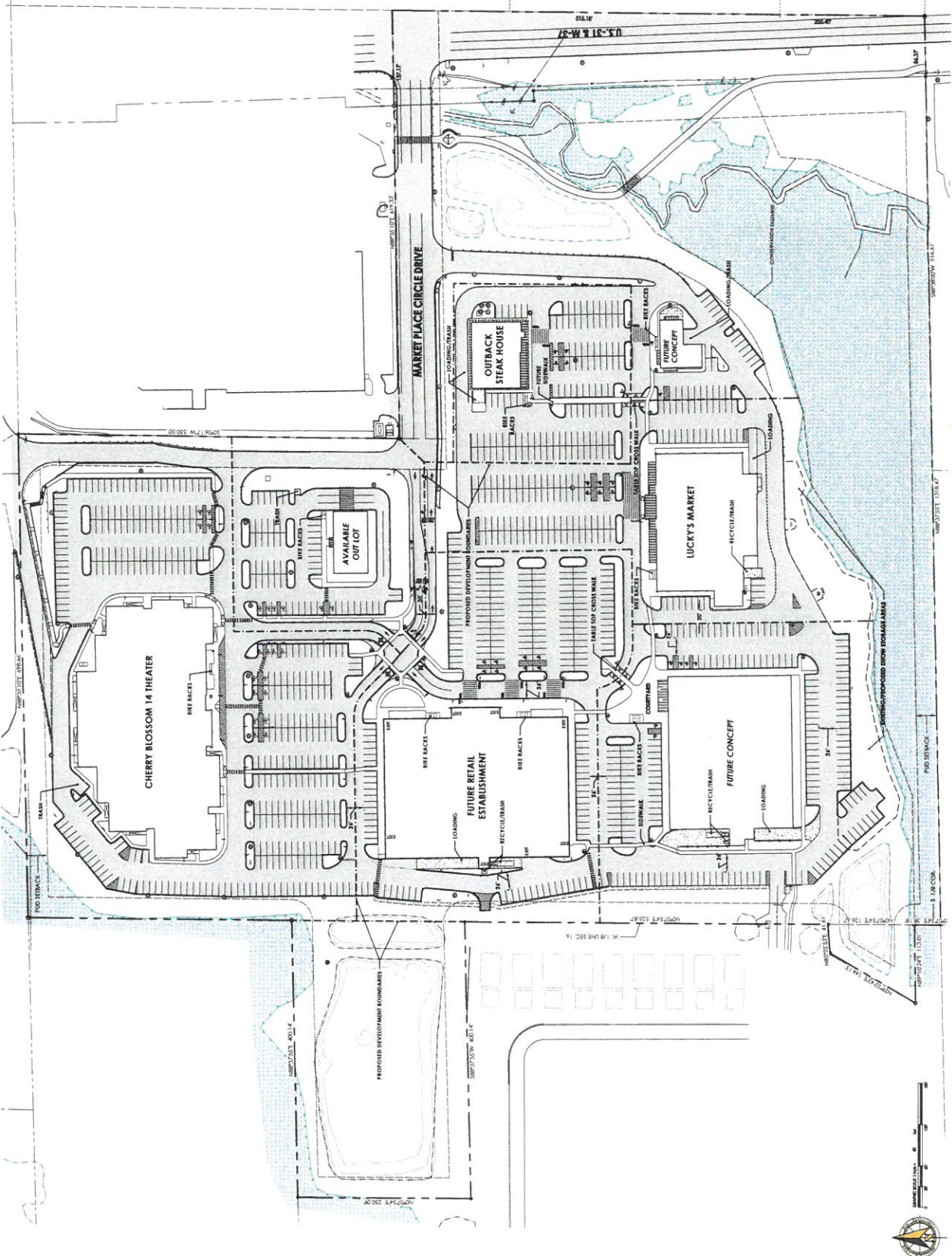
PRELIMINARY

Burling Ridge Center South, LLC  
Proposed Hobby Lobby  
FUTURE BUILD-OUT CONCEPT  
Section 16, Town 27 North, Range 11 West  
Garfield Twp., Grand Traverse County Michigan

NO.	DATE	DESCRIPTION
01	06/14/17	Original design, Township/County
02	06/21/17	Final revision and add details
03	07/11/17	Final revision and add details
04	07/17/17	Final revision and add details
05	07/27/17	Final revision and add details
06	08/01/17	Final revision and add details
07	08/21/17	Final revision and add details
08	08/21/17	Final revision and add details
09	08/21/17	Final revision and add details
10	08/21/17	Final revision and add details
11	08/21/17	Final revision and add details
12	08/21/17	Final revision and add details
13	08/21/17	Final revision and add details
14	08/21/17	Final revision and add details
15	08/21/17	Final revision and add details
16	08/21/17	Final revision and add details
17	08/21/17	Final revision and add details
18	08/21/17	Final revision and add details
19	08/21/17	Final revision and add details
20	08/21/17	Final revision and add details

**Mansfield**  
Land Use Consultants

830 Congress St., Ste. 203  
Traverse City, MI 49783  
Phone: 231-946-9110  
www.mansfield.com  
info@mansfield.com



PROJECT NO.	16057
DRAWN BY	CS
CHECKED BY	CS
DATE	10/20/14
SCALE	AS SHOWN

PRELIMINARY

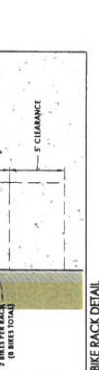
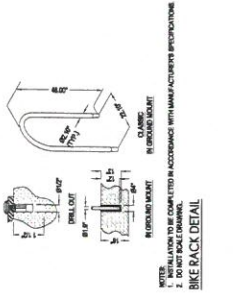
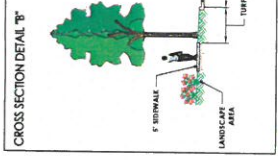
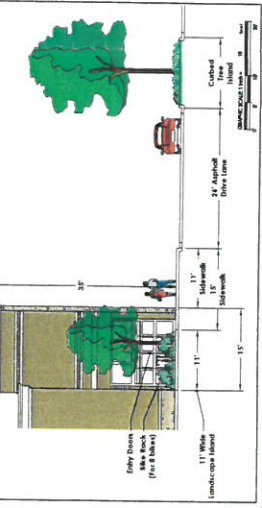
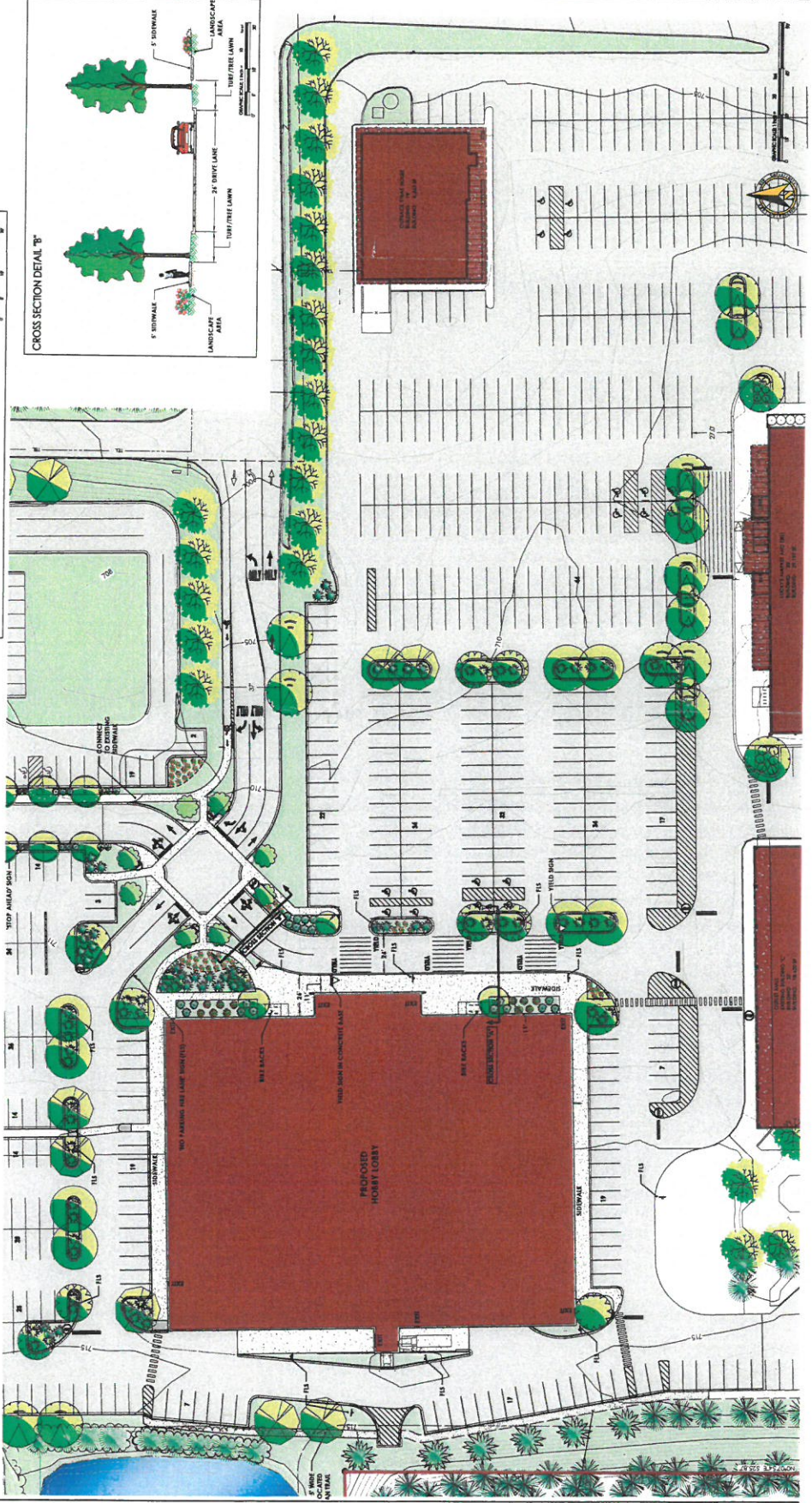
Bufito Ridge Center South, LLC  
 Proposed Hobby Lobby  
 CONSTRUCTION AREA SITE PLAN & CROSS SECTION

Section 16, Town 27 North, Range 11 West  
 Garfield Twp., Grand Traverse County, Michigan

NO.	DATE	DESCRIPTION
01	10/20/14	Original design - preliminary sketch
02	10/20/14	Revised plan showing parking and site details
03	10/20/14	Final construction area and site details
04	10/20/14	Final site plan and site details
05	10/20/14	Final site plan and site details
06	10/20/14	Final site plan and site details
07	10/20/14	Final site plan and site details
08	10/20/14	Final site plan and site details
09	10/20/14	Final site plan and site details
10	10/20/14	Final site plan and site details
11	10/20/14	Final site plan and site details
12	10/20/14	Final site plan and site details
13	10/20/14	Final site plan and site details
14	10/20/14	Final site plan and site details
15	10/20/14	Final site plan and site details

**Mansfield**  
 Land Use Consultants

100 College Ave., Ste. 201  
 Traverse City, MI 49685  
 Phone: 231-946-9100  
 Fax: 231-946-9105  
 info@mansfield.com



NOTE: ALL DIMENSIONS ARE TO BE MAINTAINED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.

1. BIKE RACK DIMENSIONS
2. BIKE RACK DIMENSIONS

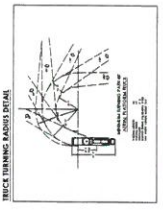
130 Conant St., Ste. 201  
 P.O. Box 4915  
 Troy, MI 48063  
 Telephone 313-946-5510  
 www.manusfield.com  
 info@manusfield.com

**Land Use Consultants**  
**Manusfield**

10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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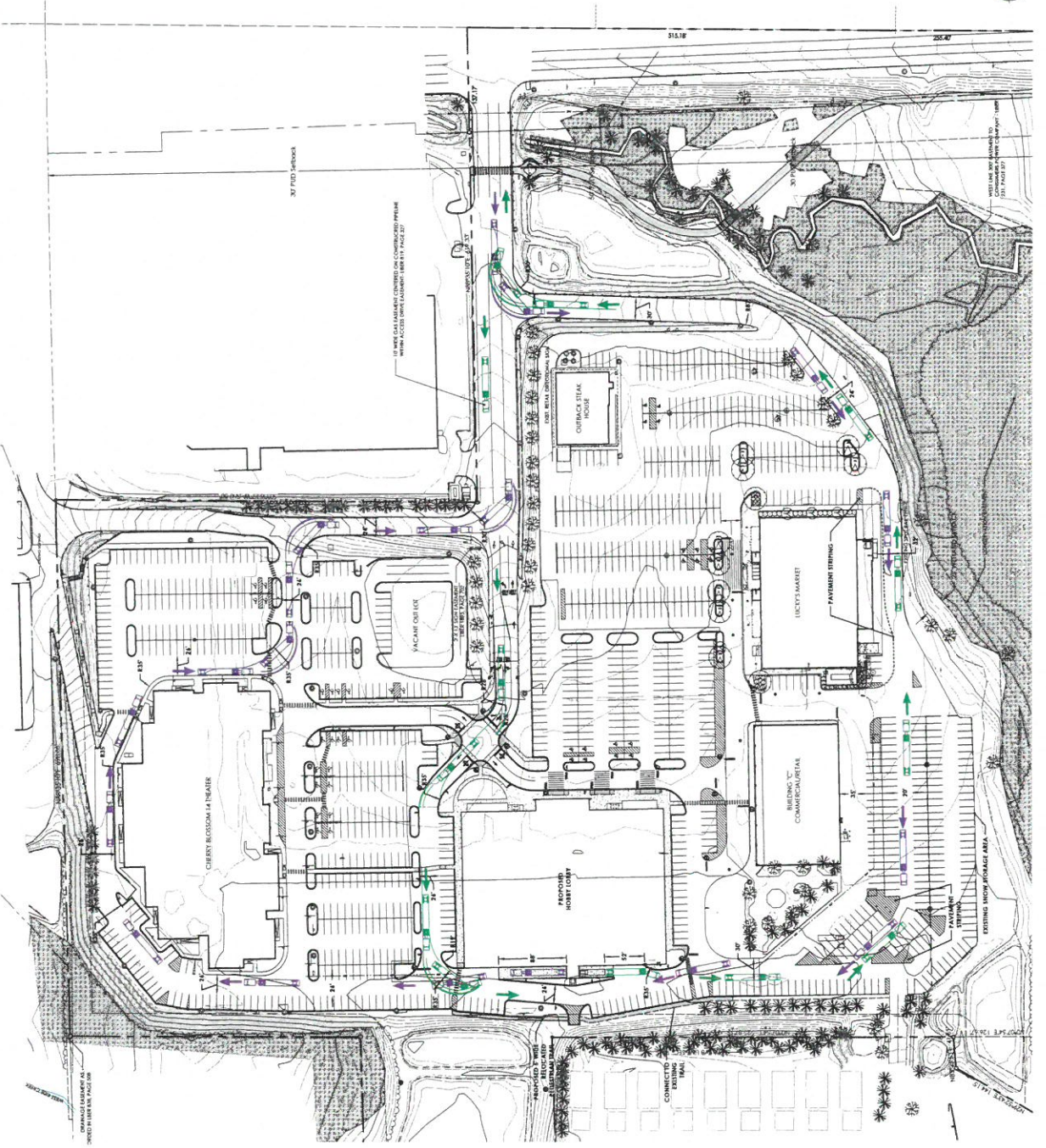
**Buffalo Ridge Center South, LLC**  
**Proposed Hobby Lobby**  
**TRUCK ROUTE PLAN**  
 Section 16, Town 27 North, Range 11 West  
 Garfield Twp., Grand Traverse County, Michigan

PRELIMINARY  
 SHEET NO. 16057  
 DATE 03/28/11



**TRUCK ROUTE LEGEND**  
 PROPOSED DELIVERY TRUCK ROUTE  
 PROPOSED RECYCLING TRUCK ROUTE

**NOTES**  
 TRUCK SITE USED ONLY FOR THE PURPOSE OF  
 ILLUSTRATING A DELIVERY AND RECYCLING TRUCK ROUTE  
 AND DOES NOT REPRESENT THE ACTUAL USE OF TRUCKS  
 THAT MAY BE USED.



MANUSFIELD CONSULTANTS, INC. 130 CONANT ST., STE. 201 TROY, MI 48063  
 TEL: 313-946-5510 FAX: 313-946-5511  
 WWW.MANUSFIELD.COM



**GENERAL CONSTRUCTION NOTES:**

1. ALL DEMOLITION WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE DEMOLITION PLAN AND THE DEMOLITION CONTRACT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL CONCRETE, REBAR, UTILITY, ETC. WITHIN THE PROJECT LIMITS AND THE TRANSPORTATION OF THE REMOVED MATERIALS SHALL BE DONE IN ACCORDANCE WITH THE DRAWINGS, SPECIFICATIONS AND ALL APPLICABLE REGULATIONS. ALL REMOVALS SHALL BE COMPLETED TO THE LINES AS SPECIFIED. ALL REMOVALS SHALL BE COMPLETED TO THE LINES AS SPECIFIED. ALL REMOVALS SHALL BE COMPLETED TO THE LINES AS SPECIFIED. ALL REMOVALS SHALL BE COMPLETED TO THE LINES AS SPECIFIED.
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REMOVE EXISTING ASPHALT DRIVEWAY AND CURB AT THE PROJECT LIMITS (TYPE)

RELOCATE THE EXISTING LIGHT POLE AS DIRECTED (TYPE)

REMOVE EXISTING ASPHALT DRIVEWAY AND CURB AT THE PROJECT LIMITS (TYPE)

RELOCATE THE EXISTING LIGHT POLE AS DIRECTED (TYPE)

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RELOCATE THE EXISTING LIGHT POLE AS DIRECTED (TYPE)

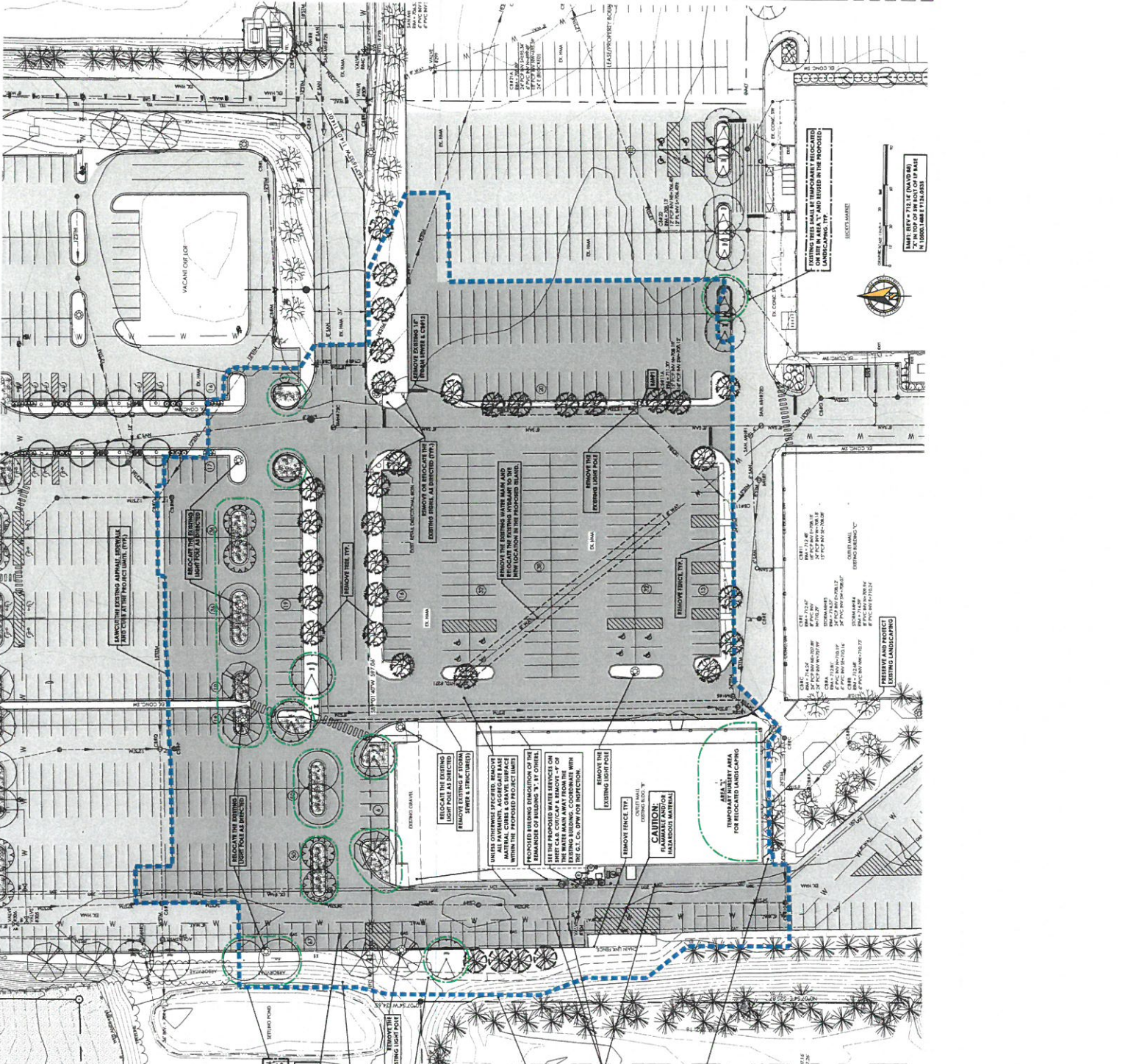
REMOVE EXISTING ASPHALT DRIVEWAY AND CURB AT THE PROJECT LIMITS (TYPE)

**Mansfield**  
Land Use Consultants  
1500 Congress Dr., Suite 201  
Troy, MI 48063  
Phone: 313.946.9310  
www.mansfield.com  
info@mansfield.com

1	10/17/17	10/17/17	10/17/17	10/17/17	10/17/17	10/17/17	10/17/17	10/17/17	10/17/17
2	10/17/17	10/17/17	10/17/17	10/17/17	10/17/17	10/17/17	10/17/17	10/17/17	10/17/17
3	10/17/17	10/17/17	10/17/17	10/17/17	10/17/17	10/17/17	10/17/17	10/17/17	10/17/17
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7	10/17/17	10/17/17	10/17/17	10/17/17	10/17/17	10/17/17	10/17/17	10/17/17	10/17/17
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10	10/17/17	10/17/17	10/17/17	10/17/17	10/17/17	10/17/17	10/17/17	10/17/17	10/17/17

**Proposed Hobby Lobby**  
Demolition Plan  
Buffalo Ridge Center South, LLC  
Section 16, Town 27 North, Range 11 West  
Gorham Twp., Grand Traverse County, Michigan

PRELIMINARY	DATE: 10/17/17	SCALE: AS SHOWN
PROJECT NO:	16057	
C2.2		



**NOTE:**  
PRESERVE AND PROTECT EXISTING LANDSCAPING  
PRESERVE AND PROTECT EXISTING TREES WITHIN THE PROJECT LIMITS. AS NECESSARY, COORDINATE WITH THE APPROPRIATE UTILITY SERVICE PROVIDERS.

**CAUTION:**  
HAZARDOUS MATERIALS  
REMOVE EXISTING ASPHALT DRIVEWAY AND CURB AT THE PROJECT LIMITS (TYPE)

**PROJECT LIMITS**

**REMOVE EXISTING ASPHALT DRIVEWAY AND CURB AT THE PROJECT LIMITS (TYPE)**

**RELOCATE THE EXISTING LIGHT POLE AS DIRECTED (TYPE)**

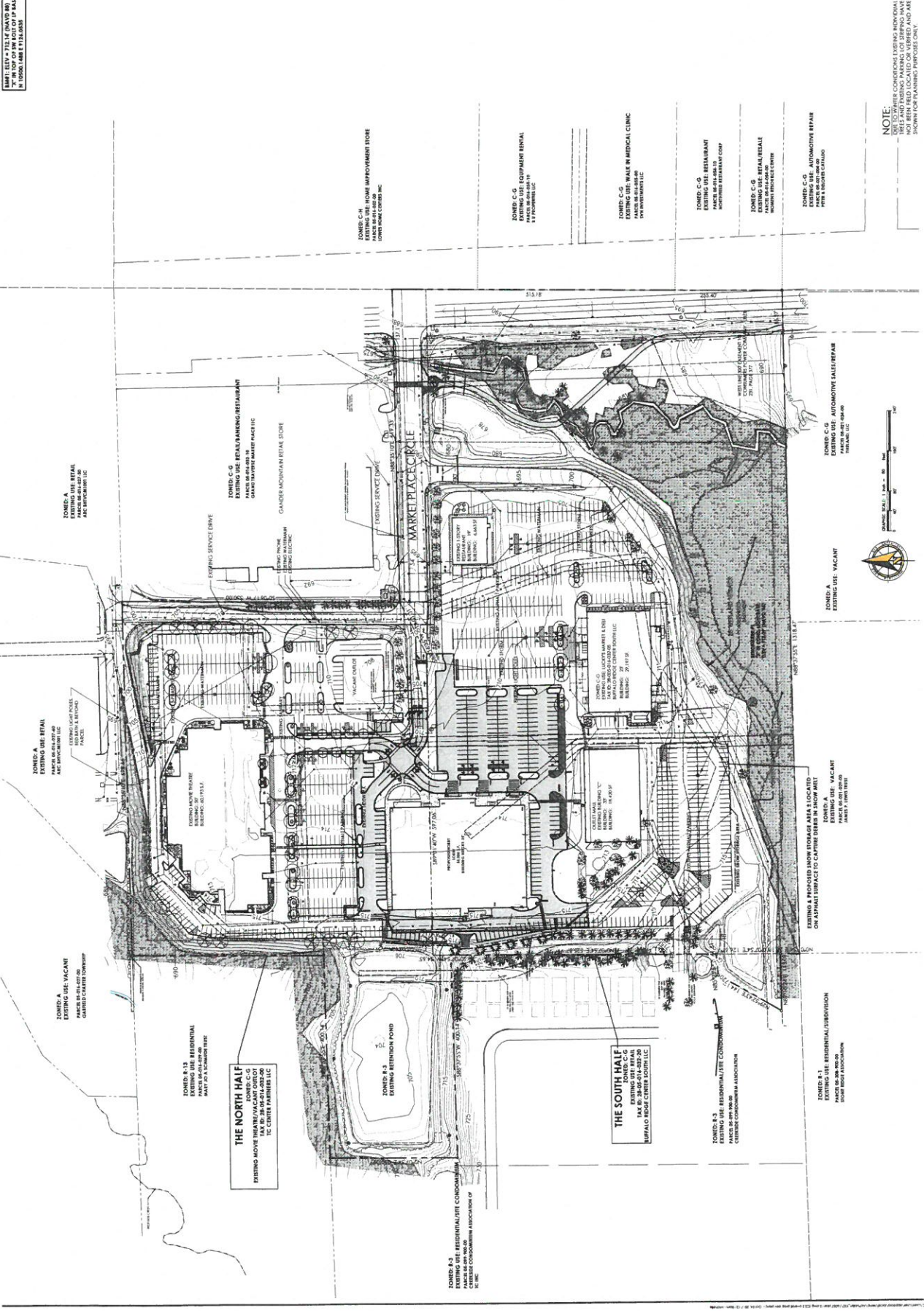
**REMOVE EXISTING ASPHALT DRIVEWAY AND CURB AT THE PROJECT LIMITS (TYPE)**

**RELOCATE THE EXISTING LIGHT POLE AS DIRECTED (TYPE)**



NO.	DATE	DESCRIPTION
01	08-21-13	Final Design
02	09-02-13	Final Design
03	09-02-13	Final Design
04	09-02-13	Final Design
05	09-02-13	Final Design
06	09-02-13	Final Design
07	09-02-13	Final Design
08	09-02-13	Final Design
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24	09-02-13	Final Design
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28	09-02-13	Final Design
29	09-02-13	Final Design
30	09-02-13	Final Design

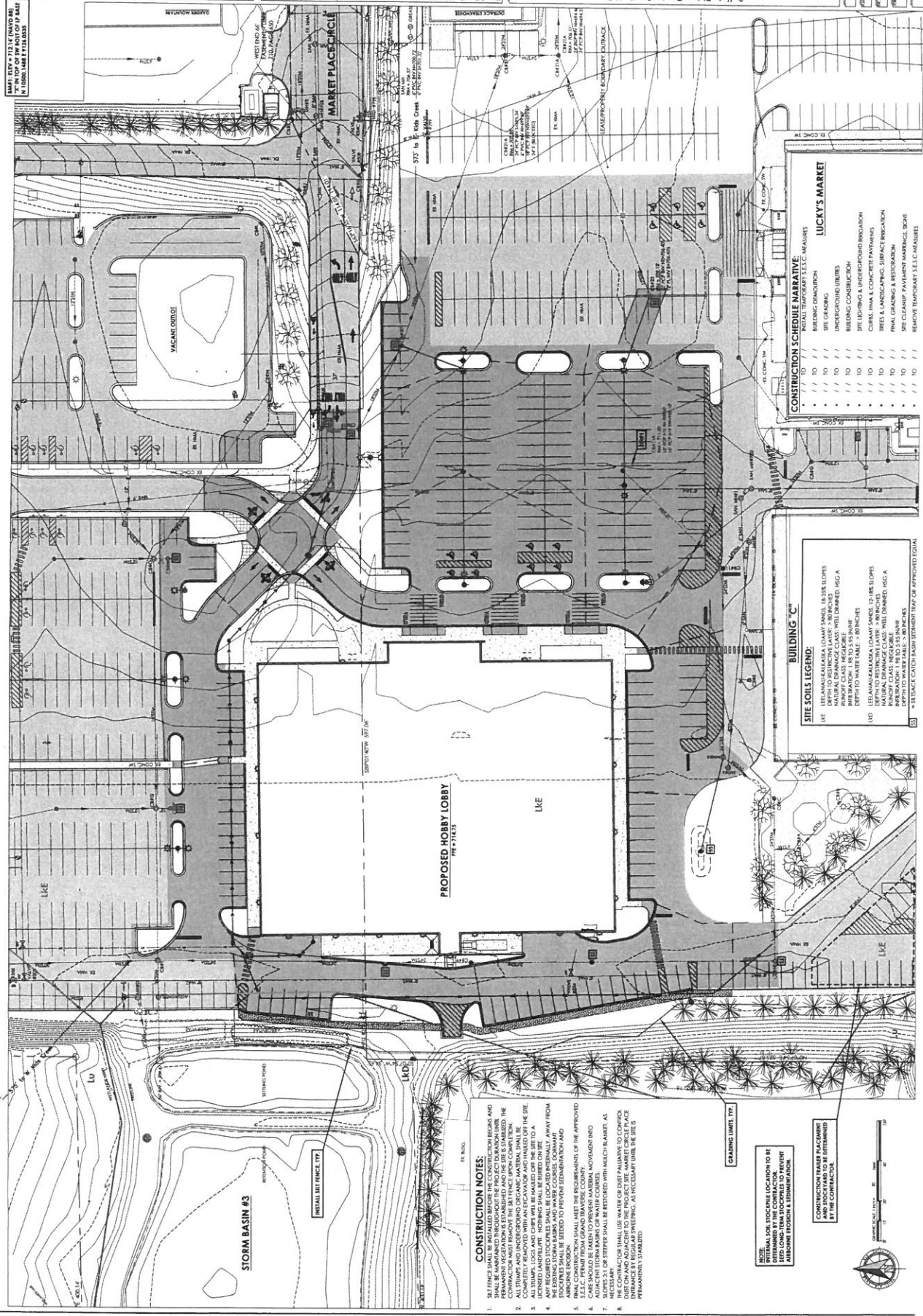
**Overall Proposed Development Plan**  
 Proposed Hobby Lobby  
 Buffalo Ridge Center South, LLC  
 Section 16, Town 27 North, Range 11 West  
 Garfield Twp., Grand Traverse County, Michigan



**NOTE:**  
 ALL EXISTING AND PROPOSED BUILDINGS, DRIVEWAYS, DRIVEWAYS, AND PARKING LOTS SHOWN HAVE NOT BEEN FIELD VERIFIED AND ARE SUBJECT TO FIELD VERIFICATION.



ZONE	EXISTING USE	PROPOSED USE
ZONE A	EXISTING USE: VACANT	EXISTING USE: VACANT
ZONE B-1	EXISTING USE: RESIDENTIAL	EXISTING USE: RESIDENTIAL
ZONE B-2	EXISTING USE: RESIDENTIAL	EXISTING USE: RESIDENTIAL
ZONE B-3	EXISTING USE: RESIDENTIAL	EXISTING USE: RESIDENTIAL
ZONE C-1	EXISTING USE: VACANT	EXISTING USE: VACANT
ZONE C-2	EXISTING USE: VACANT	EXISTING USE: VACANT
ZONE C-3	EXISTING USE: VACANT	EXISTING USE: VACANT
ZONE C-4	EXISTING USE: VACANT	EXISTING USE: VACANT
ZONE C-5	EXISTING USE: VACANT	EXISTING USE: VACANT
ZONE C-6	EXISTING USE: VACANT	EXISTING USE: VACANT
ZONE C-7	EXISTING USE: VACANT	EXISTING USE: VACANT
ZONE C-8	EXISTING USE: VACANT	EXISTING USE: VACANT
ZONE C-9	EXISTING USE: VACANT	EXISTING USE: VACANT
ZONE C-10	EXISTING USE: VACANT	EXISTING USE: VACANT
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ZONE C-13	EXISTING USE: VACANT	EXISTING USE: VACANT
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ZONE C-16	EXISTING USE: VACANT	EXISTING USE: VACANT
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ZONE C-30	EXISTING USE: VACANT	EXISTING USE: VACANT



**CONSTRUCTION NOTES:**

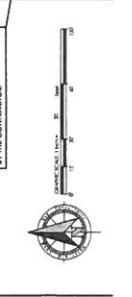
1. SILT FENCE SHALL BE INSTALLED BEFORE THE CONSTRUCTION BEGINS AND PERMANENT VEGETATION IS ESTABLISHED AND THE SITE IS STABILIZED. THE CONTRACTOR MUST REMOVE THE SILT FENCE UPON COMPLETION.
2. ALL EXPOSED EROSION CONTROL MEASURES SHALL BE MAINTAINED AND COMPLETED WITH AN EROSION CONTROL AND PAIRED OFF THE SITE. UNDESIRABLE WEEDS SHALL BE REMOVED.
3. ANY REQUIRED STOCKPILES SHALL BE LOCATED INTERNALLY AWAY FROM EROSION CONTROL MEASURES AND TO PROVIDE PROTECTION FROM ADJACENT STORM BASINS OR WATER COURSES.
4. STOCKPILES SHALL MEET THE REQUIREMENTS OF THE APPROVED EROSION CONTROL PLAN.
5. SLOPES SHALL BE RESEEDED WITH MECH BLANKET, AS PERMANENTLY STABILIZED.
6. SLOPES SHALL BE RESEEDED WITH MECH BLANKET, AS PERMANENTLY STABILIZED.
7. THE CONTRACTOR SHALL USE WATER OR DIRT FALLING TO CONTROL EROSION AND PREVENT DAMAGE TO ADJACENT PROPERTIES. ALL EROSION DAMAGE SHALL BE REPAIR BY REGULAR WEEDING, AS NECESSARY UNTIL THE SITE IS PERMANENTLY STABILIZED.

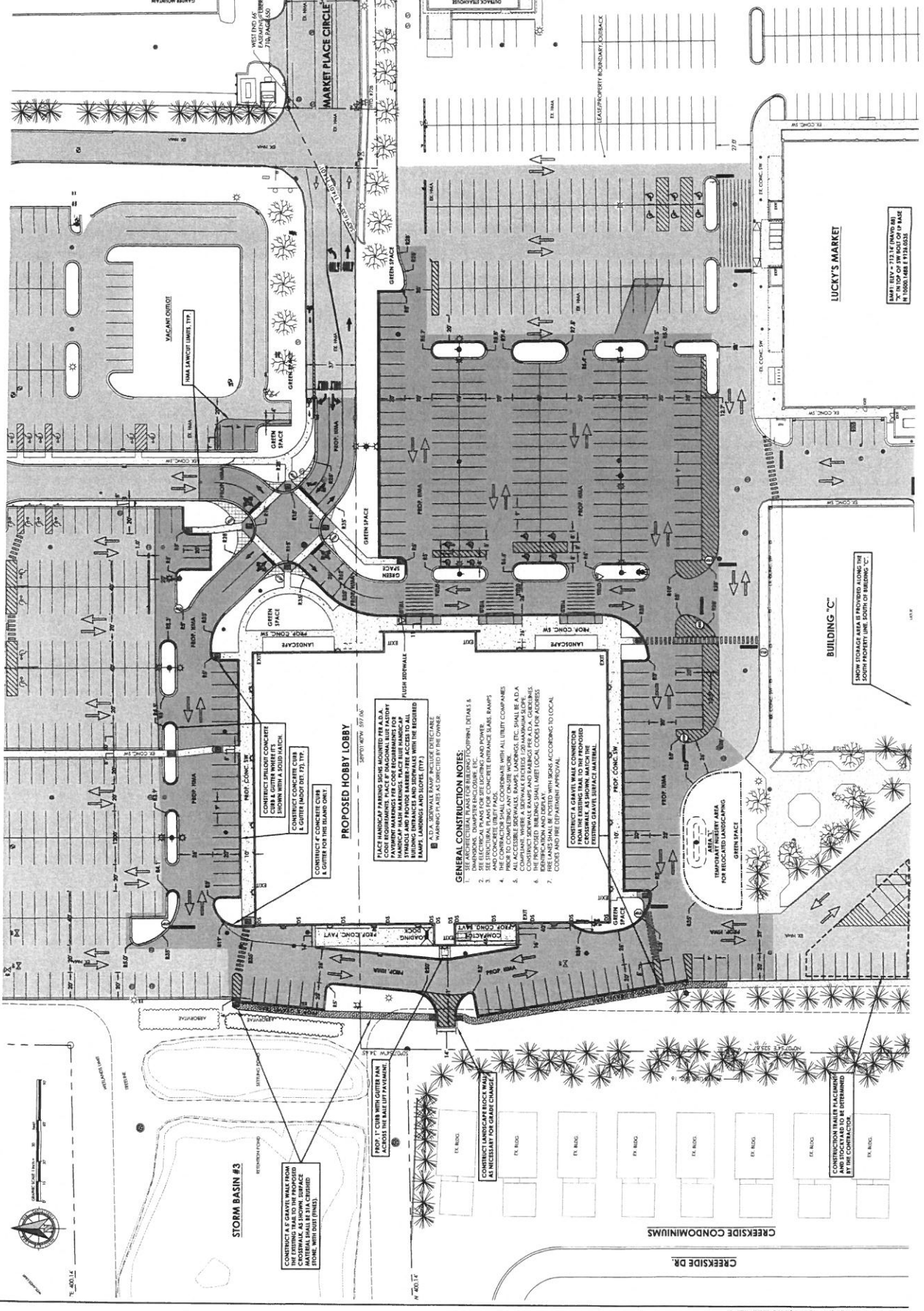
**SITE SOILS LEGEND:**

1E1	USE ANALYSIS FROM EXISTING RECORDS TO DETERMINE SOILS AND LOCATIONS.
1E2	DEPTH TO RESTRICTIVE LAYER - 30 INCHES
1E3	PERCENT CLAY - 35 TO 45 PERCENT
1E4	PERCENT SAND - 35 TO 45 PERCENT
1E5	PERCENT SILT - 15 TO 25 PERCENT
1E6	DEPTH TO RESTRICTIVE LAYER - 30 INCHES
1E7	PERCENT CLAY - 35 TO 45 PERCENT
1E8	PERCENT SAND - 35 TO 45 PERCENT
1E9	PERCENT SILT - 15 TO 25 PERCENT
1E10	DEPTH TO RESTRICTIVE LAYER - 30 INCHES
1E11	PERCENT CLAY - 35 TO 45 PERCENT
1E12	PERCENT SAND - 35 TO 45 PERCENT
1E13	PERCENT SILT - 15 TO 25 PERCENT

**CONSTRUCTION SCHEDULE NARRATIVE:**

INITIAL TEMPORARY S.E.C. MEASURES	///	///	///
BUILDING DEMOLITION	///	///	///
SITE GRADING	///	///	///
UNDERGROUND UTILITIES	///	///	///
BUILDING CONSTRUCTION	///	///	///
FINAL GRADING & UNDERGROUND BENCHMARKS	///	///	///
CEILING, IMA & CONCRETE PAYMENTS	///	///	///
PLUMBING & UNDERGROUND BENCHMARKS	///	///	///
WALLS & UNDERGROUND BENCHMARKS	///	///	///
ROOFING & UNDERGROUND BENCHMARKS	///	///	///
FINAL GRADING & UNDERGROUND BENCHMARKS	///	///	///
REMOVE TEMPORARY S.E.C. MEASURES	///	///	///





**STORM BASIN #3**  
CONSTRUCT A 6' GRAVEL WALK FROM EXISTING CONC. WALK TO STORM BASIN. MATERIAL SHALL BE A CRUSHED STONE WITH SIZE (1/2)\"/>

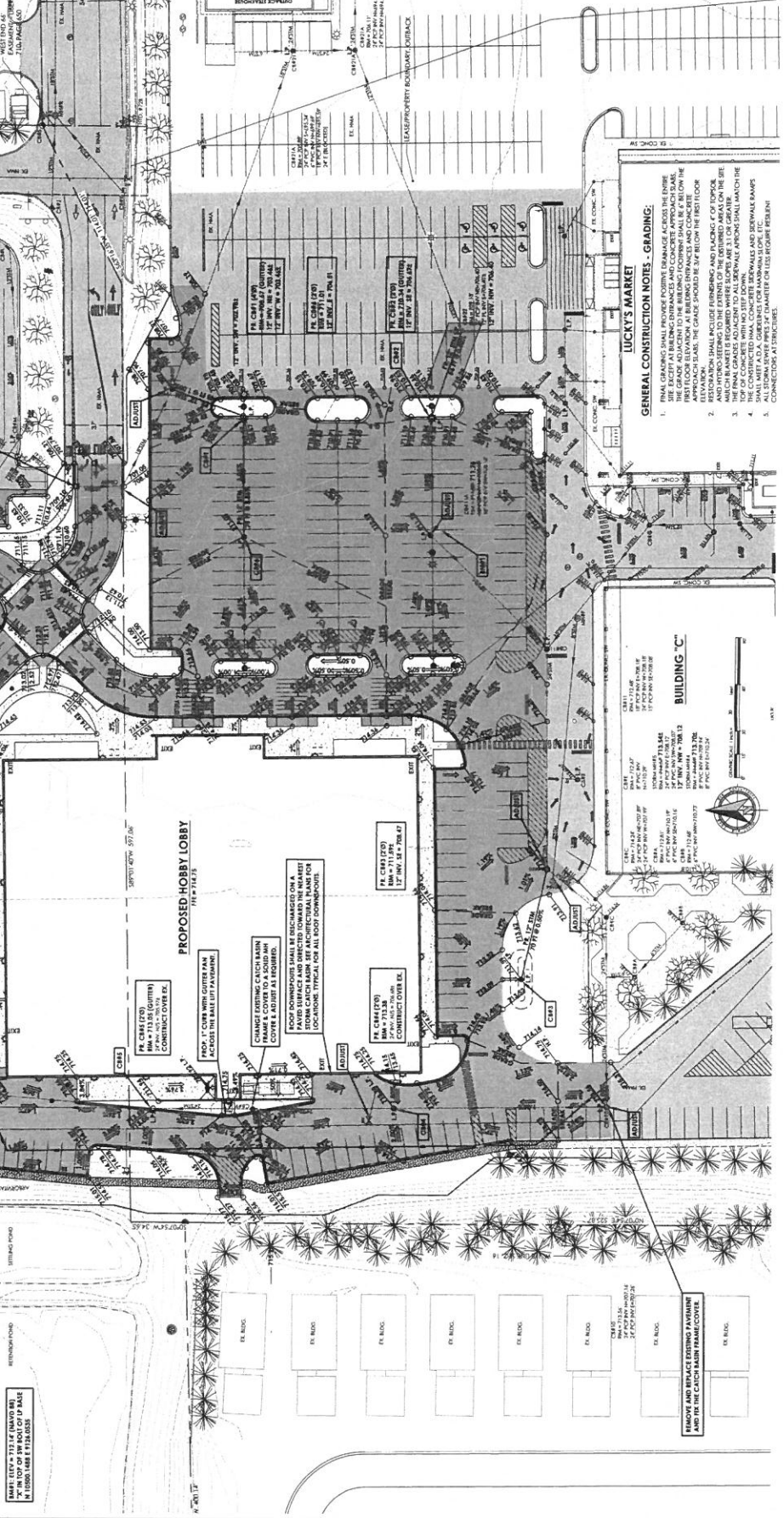
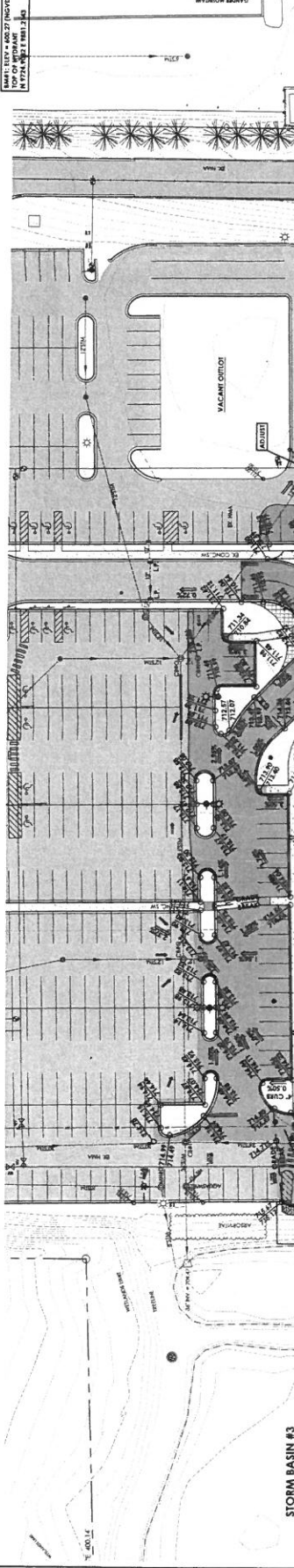
**PROPOSED HOBBY LOBBY**  
CONCRETE PAVEMENT FOR CONC. DRIVEWAY AND CONC. DRIVEWAY. CONCRETE SHALL BE 4\"/>

**GENERAL CONSTRUCTION NOTES:**  
1. DIMENSIONS, DIMENSION LINES, CENTER LINES, AND POINTS SHALL BE SHOWN AS SHOWN.  
2. SEE STRUCTURAL PLANS FOR CONCRETE WALLS, RAMP, AND CONCRETE CURB PAVES.  
3. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH ALL CITY ORDINANCES.  
4. PRIOR TO COMMENCING ANY DRIVEWAY WORK, THE CONTRACTOR SHALL OBTAIN APPROVAL FROM THE CITY OF GRAND TRAVERS COUNTY, MICHIGAN.  
5. CONSTRUCTION SHALL BE IN ACCORDANCE WITH ALL CITY ORDINANCES AND LOCAL CODES FOR ADDRESS, SIGNAGE, AND OTHER LOCAL CODES FOR ADDRESS, SIGNAGE AND THE DEPARTMENT APPROVAL.  
6. CONSTRUCTION SHALL BE IN ACCORDANCE WITH ALL CITY ORDINANCES AND LOCAL CODES FOR ADDRESS, SIGNAGE AND THE DEPARTMENT APPROVAL.

**LUCKY'S MARKET**  
BUILDING 'C'  
SHOW STORAGE AREA IS PROVIDED ALONG THE SOUTH PROPERTY LINE. SOUTH OF BUILDING 'C'.

**CREEKSIDE CONDOMINIUMS**  
CONSTRUCTION SHALL BE IN ACCORDANCE WITH ALL CITY ORDINANCES AND LOCAL CODES FOR ADDRESS, SIGNAGE AND THE DEPARTMENT APPROVAL.

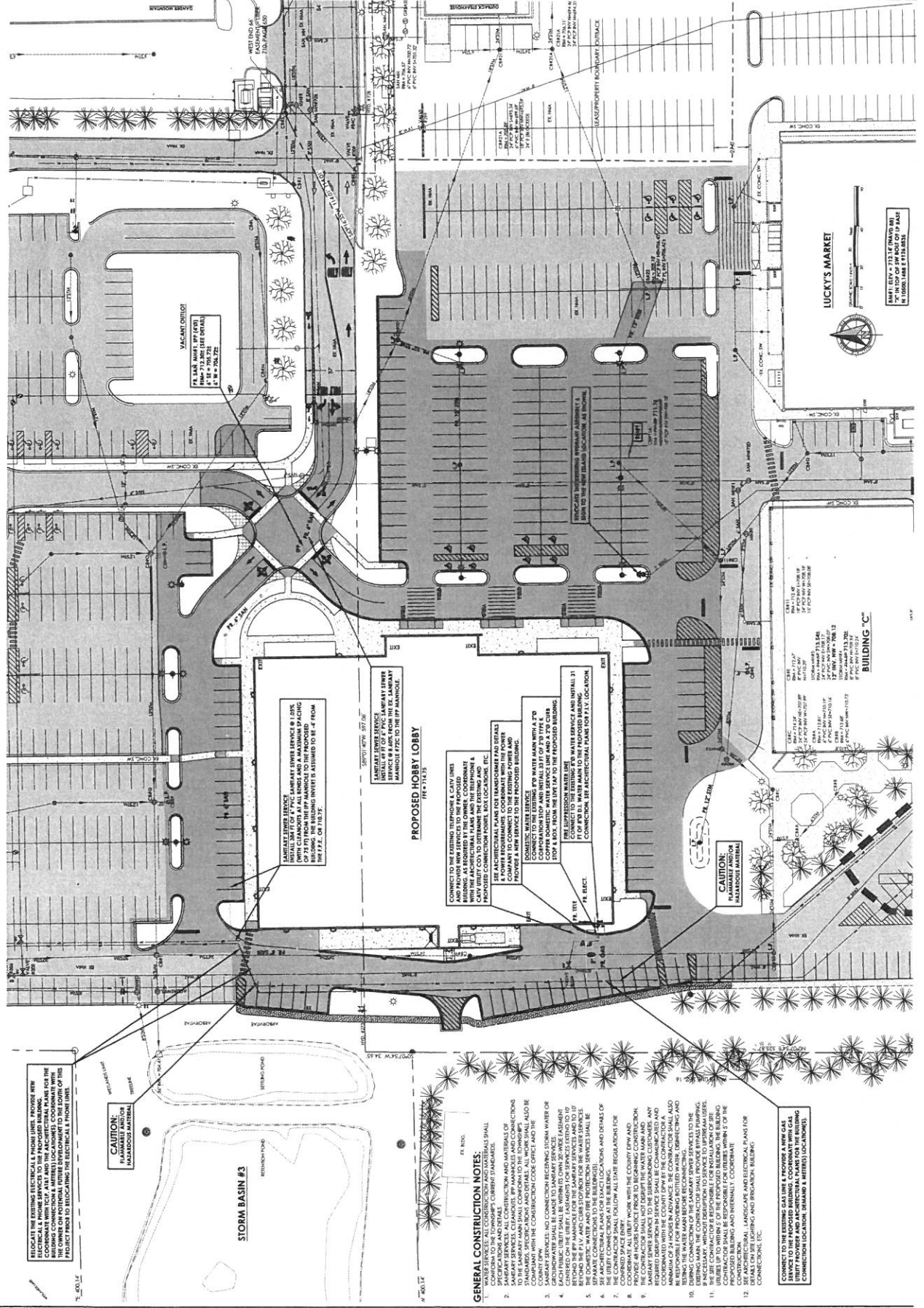




NO.	DESCRIPTION	DATE
1	ISSUED FOR PERMITTING	11/11/14
2	REVISED PER COMMENTS FROM THE CITY ENGINEER	11/11/14
3	REVISED PER COMMENTS FROM THE CITY ENGINEER	11/11/14
4	REVISED PER COMMENTS FROM THE CITY ENGINEER	11/11/14
5	REVISED PER COMMENTS FROM THE CITY ENGINEER	11/11/14
6	REVISED PER COMMENTS FROM THE CITY ENGINEER	11/11/14
7	REVISED PER COMMENTS FROM THE CITY ENGINEER	11/11/14
8	REVISED PER COMMENTS FROM THE CITY ENGINEER	11/11/14
9	REVISED PER COMMENTS FROM THE CITY ENGINEER	11/11/14
10	REVISED PER COMMENTS FROM THE CITY ENGINEER	11/11/14

Buffalo Ridge Center South, LLC  
 Proposed Hobby Lobby  
 UTILITY PLAN  
 Section 16, Town 27 North, Range 11 West  
 Grand Twp., Grand Traverse County, Michigan

<b>C6.0</b>
16057
PRELIMINARY



**RELOCATE THE EXISTING ELECTRICAL & PHONE LINES, PROVIDE NEW CONDUITS, AND PROVIDE NEW CONDUITS FOR THE PROPOSED BUILDING CONNECTIONS & MATHS LOCATIONS. COORDINATE WITH THE ELECTRICAL & PHONE LINES CONTRACTOR TO RELOCATE THE ELECTRICAL & PHONE LINES PRIOR TO BEGINNING CONSTRUCTION.**

**CAUTION:**  
 HAMMERS AND/OR  
 HEAVY DUTY  
 MACHINERY

**STORM BASIN #3**  
 RETENTION POND

**PROPOSED HOBBY LOBBY**  
 110' x 150'

**GENERAL CONSTRUCTION NOTES:**

1. WATER SERVICES: ALL CONSTRUCTION AND MATERIALS SHALL BE INSTALLED TO THE CITY MAIN. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY CONNECTIONS AND MATERIALS TO THE CITY MAIN. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS FROM THE CITY ENGINEER.
2. SEWER SERVICES: ALL CONSTRUCTION AND MATERIALS SHALL BE INSTALLED TO THE CITY MAIN. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY CONNECTIONS AND MATERIALS TO THE CITY MAIN. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS FROM THE CITY ENGINEER.
3. GAS SERVICES: ALL CONSTRUCTION AND MATERIALS SHALL BE INSTALLED TO THE CITY MAIN. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY CONNECTIONS AND MATERIALS TO THE CITY MAIN. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS FROM THE CITY ENGINEER.
4. ELECTRICAL SERVICES: ALL CONSTRUCTION AND MATERIALS SHALL BE INSTALLED TO THE CITY MAIN. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY CONNECTIONS AND MATERIALS TO THE CITY MAIN. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS FROM THE CITY ENGINEER.
5. TELEPHONE SERVICES: ALL CONSTRUCTION AND MATERIALS SHALL BE INSTALLED TO THE CITY MAIN. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY CONNECTIONS AND MATERIALS TO THE CITY MAIN. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS FROM THE CITY ENGINEER.
6. THE CONTRACTOR SHALL FOLLOW ALL STATE REGULATIONS FOR THE INSTALLATION OF UTILITY LINES.
7. THE CONTRACTOR SHALL FOLLOW ALL CITY REGULATIONS FOR THE INSTALLATION OF UTILITY LINES.
8. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY CONNECTIONS AND MATERIALS TO THE CITY MAIN.
9. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY CONNECTIONS AND MATERIALS TO THE CITY MAIN.
10. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY CONNECTIONS AND MATERIALS TO THE CITY MAIN.
11. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY CONNECTIONS AND MATERIALS TO THE CITY MAIN.
12. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY CONNECTIONS AND MATERIALS TO THE CITY MAIN.

**CONNECTION TO THE EXISTING GAS LINE & PROVIDE A NEW GAS SERVICE TO THE PROPOSED BUILDING. COORDINATE WITH THE GAS CONTRACTOR AND ARCHITECTURAL CONTRACTOR TO OBTAIN ALL NECESSARY PERMITS AND APPROVALS PRIOR TO BEGINNING CONSTRUCTION.**

**CONNECTION TO THE EXISTING WATER LINE & PROVIDE A NEW WATER SERVICE TO THE PROPOSED BUILDING. COORDINATE WITH THE WATER CONTRACTOR AND ARCHITECTURAL CONTRACTOR TO OBTAIN ALL NECESSARY PERMITS AND APPROVALS PRIOR TO BEGINNING CONSTRUCTION.**

**CONNECTION TO THE EXISTING SEWER LINE & PROVIDE A NEW SEWER SERVICE TO THE PROPOSED BUILDING. COORDINATE WITH THE SEWER CONTRACTOR AND ARCHITECTURAL CONTRACTOR TO OBTAIN ALL NECESSARY PERMITS AND APPROVALS PRIOR TO BEGINNING CONSTRUCTION.**

**CONNECTION TO THE EXISTING ELECTRICAL LINE & PROVIDE A NEW ELECTRICAL SERVICE TO THE PROPOSED BUILDING. COORDINATE WITH THE ELECTRICAL CONTRACTOR AND ARCHITECTURAL CONTRACTOR TO OBTAIN ALL NECESSARY PERMITS AND APPROVALS PRIOR TO BEGINNING CONSTRUCTION.**

**CONNECTION TO THE EXISTING TELEPHONE LINE & PROVIDE A NEW TELEPHONE SERVICE TO THE PROPOSED BUILDING. COORDINATE WITH THE TELEPHONE CONTRACTOR AND ARCHITECTURAL CONTRACTOR TO OBTAIN ALL NECESSARY PERMITS AND APPROVALS PRIOR TO BEGINNING CONSTRUCTION.**

**CONNECTION TO THE EXISTING HAMMER AND/OR HEAVY DUTY MACHINERY LINE & PROVIDE A NEW HAMMER AND/OR HEAVY DUTY MACHINERY SERVICE TO THE PROPOSED BUILDING. COORDINATE WITH THE HAMMER AND/OR HEAVY DUTY MACHINERY CONTRACTOR AND ARCHITECTURAL CONTRACTOR TO OBTAIN ALL NECESSARY PERMITS AND APPROVALS PRIOR TO BEGINNING CONSTRUCTION.**

**CONNECTION TO THE EXISTING VACANT LOT LINE & PROVIDE A NEW VACANT LOT SERVICE TO THE PROPOSED BUILDING. COORDINATE WITH THE VACANT LOT CONTRACTOR AND ARCHITECTURAL CONTRACTOR TO OBTAIN ALL NECESSARY PERMITS AND APPROVALS PRIOR TO BEGINNING CONSTRUCTION.**

**CONNECTION TO THE EXISTING STORM BASIN #3 LINE & PROVIDE A NEW STORM BASIN #3 SERVICE TO THE PROPOSED BUILDING. COORDINATE WITH THE STORM BASIN #3 CONTRACTOR AND ARCHITECTURAL CONTRACTOR TO OBTAIN ALL NECESSARY PERMITS AND APPROVALS PRIOR TO BEGINNING CONSTRUCTION.**

