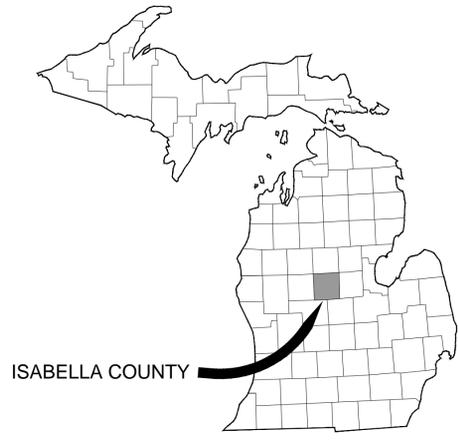


# CITY OF MT. PLEASANT

## Isabella County, Michigan

### PARKING LOT #2 IMPROVEMENTS

#### MSC 211018-DIG



VICINITY MAP

**UTILITY CONTACTS**

**TELEPHONE:**  
FRONTIER COMMUNICATIONS  
345 PINE AVENUE  
ALMA, MI 48801  
ATTENTION: MARK MARSHALL  
PHONE: 989-463-0392

**GAS:**  
DTE ENERGY/MICHCON  
1011 HASTINGS  
TRAVERSE CITY, MI 49684  
ATTENTION: RONALD MARROW  
PHONE: 231-258-3784  
CELL: 231-990-1284

**ELECTRIC:**  
CONSUMERS ENERGY  
1325 WRIGHT AVENUE  
ALMA, MI 48801  
ATTENTION: RICH KLENDER  
PHONE: 989-466-4279

**CABLE:**  
CHARTER COMMUNICATIONS  
915 EAST BROOMFIELD ROAD  
MT. PLEASANT, MI 48858  
ATTENTION: BRYON CARROLL  
PHONE: 989-621-0505

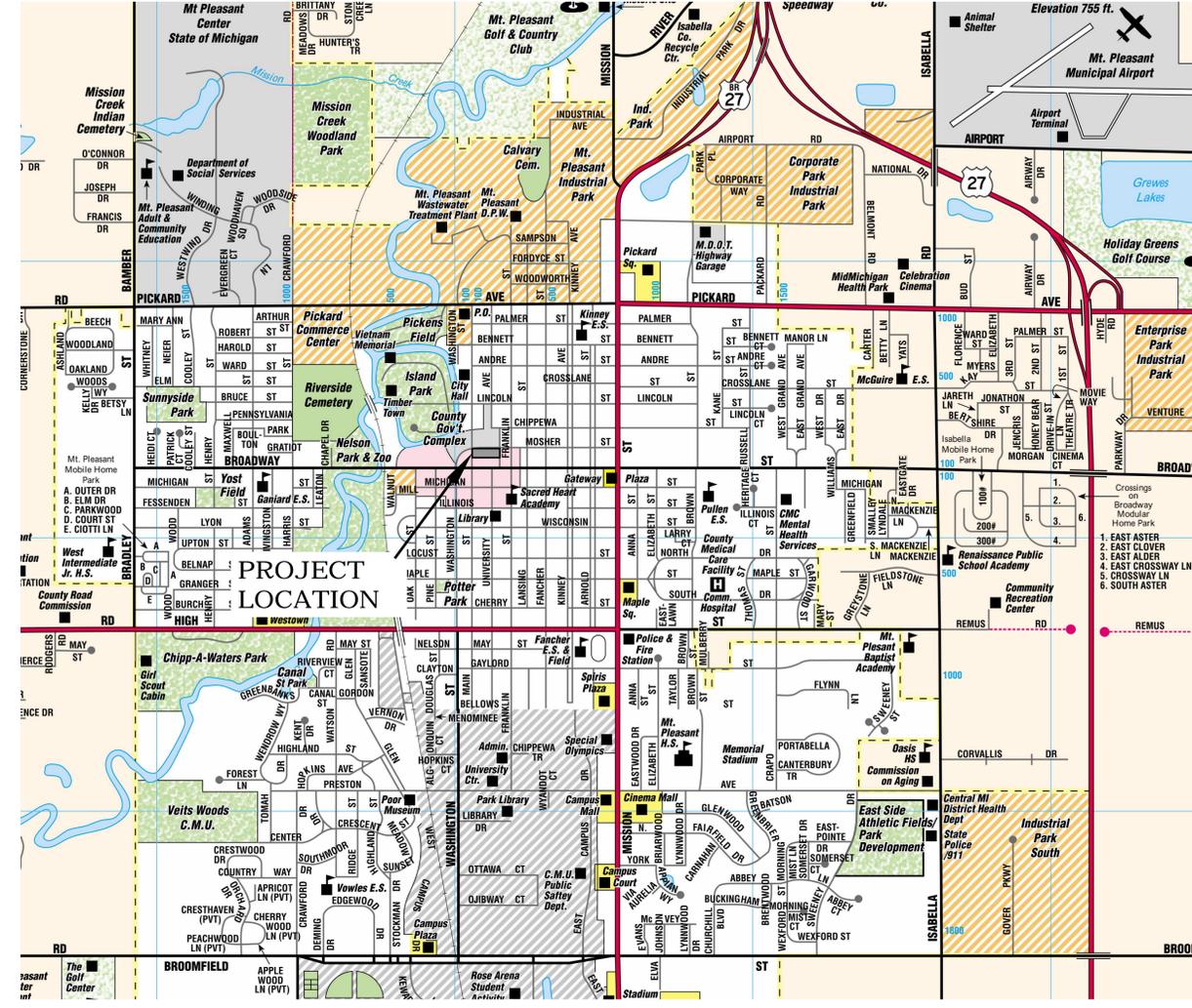
**WINN TELECOM:**  
402 N. MISSION STREET  
MT. PLEASANT, MICHIGAN 48858  
ATTENTION: PAUL LABRAI  
CELL: 989-621-8788

**MUNICIPAL CONTACTS**

**MT. PLEASANT CITY MANAGER:**  
CITY HALL - HISTORIC BORDEN BUILDING  
320 W. BROADWAY  
MT. PLEASANT, MICHIGAN 48858  
ATTENTION: KATHIE GRINZINGER, CITY MANAGER  
PHONE: 989-779-5323

**MT. PLEASANT DIVISION OF PUBLIC WORKS:**  
1303 N. FRANKLIN STREET  
MT. PLEASANT, MICHIGAN 48858  
ATTENTION: ROGER H. ROUSE, DIRECTOR  
PHONE: 989-772-6250

**MT. PLEASANT PLANNING & COMMUNITY DEVELOPMENT:**  
320 W. BROADWAY  
MT. PLEASANT, MICHIGAN 48858  
ATTENTION: JEFFREY M. GRAY, AICP, DIRECTOR  
PHONE: 989-779-5347  
EXT. 5346



LOCATION MAP  
NO SCALE



**INDEX OF DRAWINGS**

SHEET NO.	DESCRIPTION
C 1.0	COVER SHEET
C 2.0	TOPOGRAPHIC SURVEY
C 3.0	REMOVAL PLAN
C 4.0	SITE PLAN
C 5.0	GRADING / UTILITY / SESC PLAN
C 6.0	DETAIL SHEET
C 7.0	DETAIL SHEET
C 8.0	DETAIL SHEET
C 9.0	DETAIL SHEET
C 10.0	DETAIL SHEET
E 1.0	ELEC SITE POWER & LIGHTING PLAN
E 2.0	ELEC SPEC AND SCHEDULES
L 1.0	LANDSCAPE PLAN

**DATUM**  
VERTICAL: LOCAL DATUM  
HORIZONTAL: STATE PLANE

ALL PROPERTY AND/OR RIGHT-OF-WAY LINES SHOWN ARE APPROXIMATE  
THE LOCATION OF UNDERGROUND UTILITIES SHOWN ARE APPROXIMATE AND ARE BASED ON PLANS PROVIDED BY UTILITY COMPANIES AND / OR THE CITY OF MT. PLEASANT OR IN FIELD OBSERVATIONS.

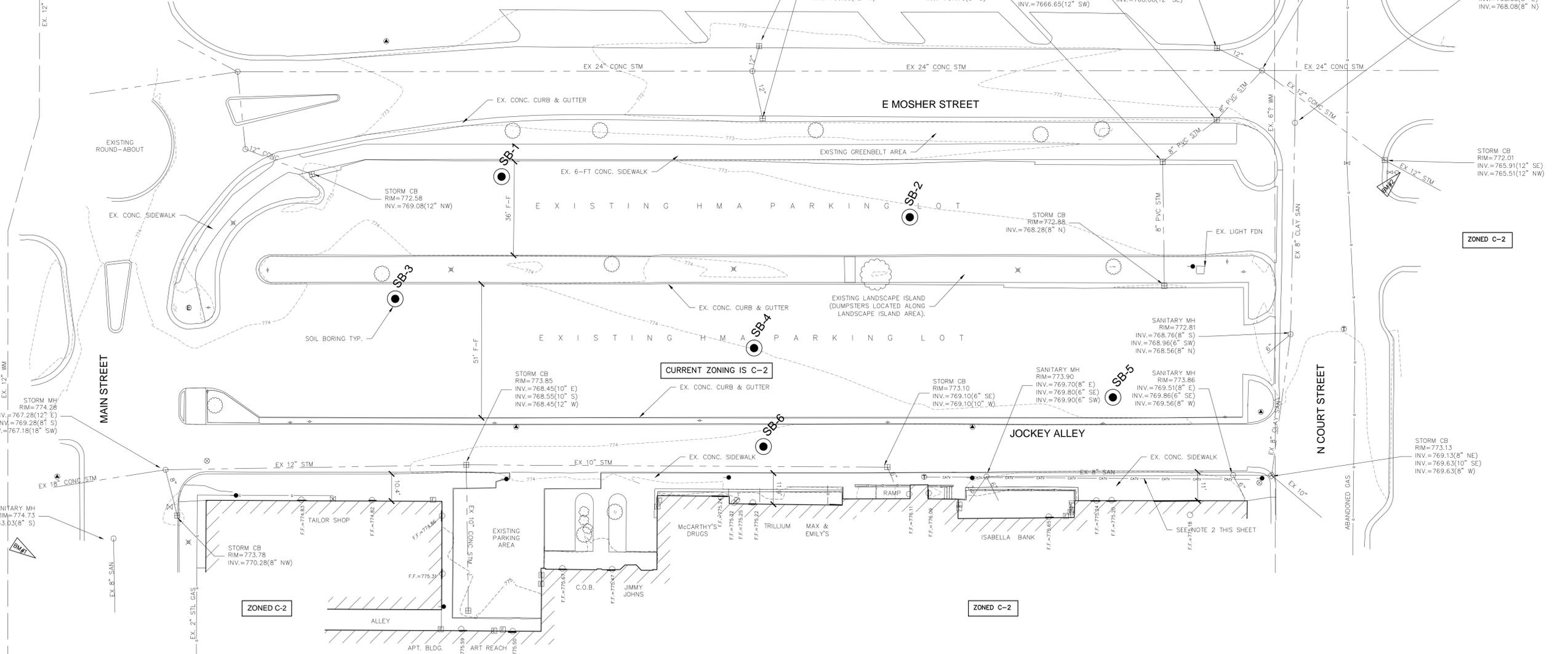


**FLEIS & VANDENBRINK**  
ENGINEERING, INC.  
304 W. Wackerly Road, Ste. 600, Midland, MI 48640  
Phone: (989) 837.3280 Fax: (989) 837.3290

PROJECT 813530  
**C1.0**

BM #1 EL. 774.63'  
NE COR CONC BASE TO 6x1.3' STEEL BOX, W  
SIDE OF MAIN ST, W OF PISANELLOS PIZZA  
(VERTICAL DATUM BASED ON EXISTING FF OF  
TAILOR SHOP FROM MEARS ENG. PLANS  
#8107-068, 1982)

BM #2 EL. 774.20'  
SE UPPER FLANGE BOLT UNDER 'E' IN EJIW, FH  
@ SE COR MOSHER & COURT



SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	TREE (DECIDUOUS)		CABLE BOX		SURVEY CONTROL POINT
	BUSH		TELEPHONE RISER		BENCHMARK
	TREE (CONIFEROUS)		TELEPHONE MANHOLE		SECTION CORNER
	DEAD TREE		ELECTRICAL RISER		BOUNDARY LINE
	STUMP		ELECTRICAL MANHOLE		PROPERTY LINE
	MANHOLE		POWER POLE		WATERMAIN
	SANITARY CLEANOUT		LIGHT POLE		SANITARY SEWER
	RD. CATCH BASIN		GUY POLE		STORM SEWER
	SQ. CATCH BASIN		GUY ANCHOR		CULVERT (UNDER 10")
	FIRE HYDRANT		RAILROAD		CULVERT (24" AND UP)
	WATER VALVE		CABLE T.V.		GAS
	CURB STOP & BOX		OVERHEAD LINES		OVERHEAD LINES
	WELL		GUARDRAIL		GUARDRAIL
	WATER MANHOLE		FENCE		FENCE
	WATER METER		WOODLUME		WOODLUME
	SOIL BORING		FOUND CONC. MONUMENT		FOUND IRON ROD
	MONITORING WELL		SET IRON ROD		

NOTE: ALL ITEMS LISTED ON THE LEGEND MAY NOT BE PRESENT ON DRAWINGS.

- NOTES:
1. THE EXACT LOCATION OF THE EXISTING WIRING AND/OR CONDUIT TO EXISTING PARKING LOT LIGHTING IS UNKNOWN. USE CAUTION WHEN EXCAVATING IN THIS AREA.
  2. VERIFY EXACT LOCATION OF COMMUNICATION WIRING WITH FRONTIER COMMUNICATIONS PRIOR TO ANY DEMOLITION OR EXCAVATION IN THIS AREA.

**FLEIS & VANDENBRINK**  
ENGINEERING, INC.  
304 West Whiskey, Suite 600, Midland, MI 48840  
P: 989.837.3290  
F: 989.837.3290

**NOT FOR CONSTRUCTION**

NO.	DATE	BY	REVISIONS

REVISED IN ACCORDANCE WITH CONSTRUCTION RECORDS

CITY OF MT. PLEASANT  
ISABELLA COUNTY, MICHIGAN  
PARKING LOT #2 IMPROVEMENTS  
TOPOGRAPHIC PLAN

PROJECT MGR	DESIGN/ENG
GOB	DRS
DVD	ISSUE DATE
	FEB '13
CHECKED BY	DATE
CAD FILE	
C2.0 TOPO	
EDIT	
dand 021113	
DRAWING SCALE(S)	1"=20'

PROJECT 813530  
SHEET NO. C2.0



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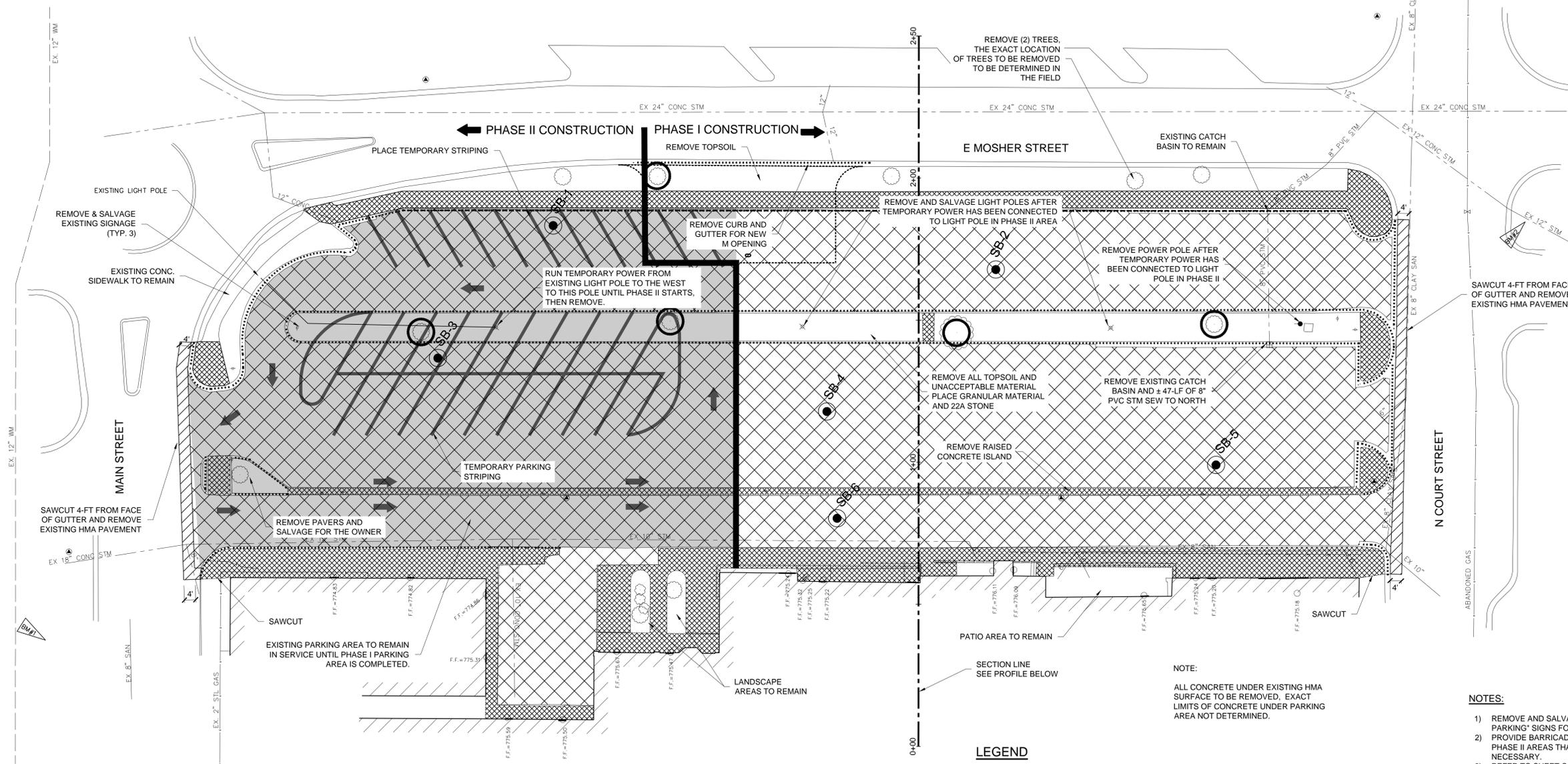
NO.	REVISIONS	DATE

**CITY OF MT. PLEASANT**  
ISABELLA COUNTY, MICHIGAN  
**PARKING LOT #2 IMPROVEMENTS**

**REMOVAL PLAN**

PROJECT MGR	DESIGN/ENG
GOB	DRS
DRAWN BY	ISSUE DATE
DJD	FEB '13
CHECKED BY	DATE
CAD FILE	
C3.0 REM	
EDIT	
dand 021313	
DRAWING SCALE(S)	

PROJECT 813530  
**C3.0**  
SHEET NO.

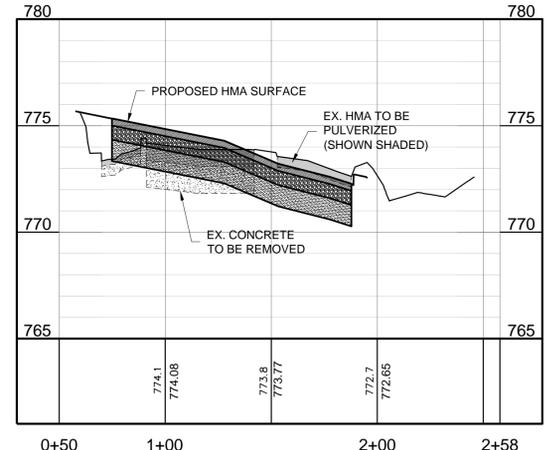


**NOTE:**  
ALL CONCRETE UNDER EXISTING HMA SURFACE TO BE REMOVED, EXACT LIMITS OF CONCRETE UNDER PARKING AREA NOT DETERMINED.

- LEGEND**
- REMOVE EXISTING CONCRETE
  - SAWCUT & REMOVE EXISTING HMA SURFACE
  - MILL EXISTING HMA SURFACE
  - REMOVE EXISTING CONCRETE CURB & GUTTER
  - REMOVE EXISTING TREE
  - PAVEMENT TO REMAIN UNTIL PHASE I PARKING AREA HIS COMPLETED
  - SOIL BORING LOCATION

- NOTES:**
- REMOVE AND SALVAGE EXISTING "3-HR PARKING" SIGNS FOR REINSTALLATION.
  - PROVIDE BARRICADES BETWEEN PHASE I AND PHASE II AREAS THAT CAN EASILY BE MOVED IF NECESSARY.
  - REFER TO SHEET C9.0 & C10.0 FOR PAVEMENT REMOVAL AROUND STAIRS AND PORCHES OF THE EXISTING STORE FRONT
  - CONTRACTOR TO COORDINATE WITH THE LOCAL WASTE HAUL COMPANY THE TEMPORARY LOCATION OF DUMPSTERS DURING PARKING LOT CONSTRUCTION

- PARKING AREA CONSTRUCTION PHASING**
- REMOVE ALL TREES AND TOP SOIL WITHIN GREENBELT AREA FOR ENTIRE PROJECT.
  - REMOVE ENTIRE RAISED CURB ISLAND TO TWO FEET BELOW EXISTING GRADE.
  - FILL CURB REMOVAL AREA WITH GRANULAR MATERIAL AND 8" OF AGGREGATE FLUSH TO EXISTING PAVEMENT.
  - PHASE I TO INCLUDE EAST PORTION OF PARKING AREA, DUMPSTER AND EQUIPMENT ENCLOSURE AND FINAL PARKING STRIPING.
  - EXISTING SIDEWALK TO REMAIN IN PLACE UNTIL PHASE I PARKING AREA IS COMPLETED.
  - EXISTING SIDEWALK MUST BE REMOVED AND NEW SIDEWALK PLACED WITHIN A ONE WEEK PERIOD.
  - RUN TEMPORARY POWER UNDERGROUND TO LIGHT POLE IN PHASE II AREA FROM LIGHT TO THE WEST.
  - PHASE II TO BE COMPLETED IN A SIMILAR MANNER.



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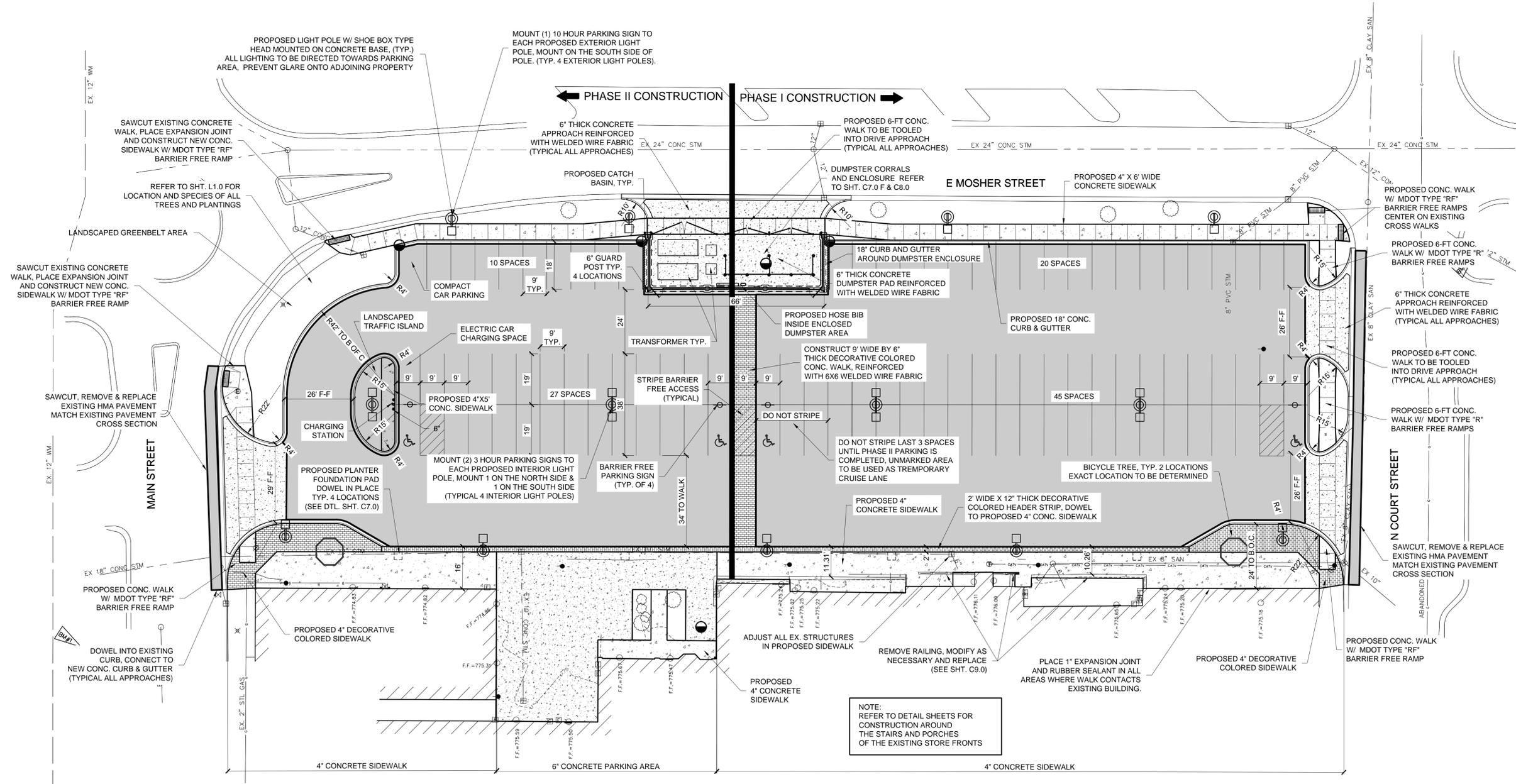
**NOT FOR CONSTRUCTION**

DATE	
BY	
REVISIONS	
NO.	

**CITY OF MT. PLEASANT**  
ISABELLA COUNTY, MICHIGAN  
**PARKING LOT #2 IMPROVEMENTS**  
SITE PLAN

PROJECT MGR	DESIGN/ENG
GOB	DRS
DRAWN BY	ISSUE DATE
DJD	FEB '13
CHECKED BY	DATE
CAD FILE	
C4.0 SP	
EDIT	
dand 021313	
DRAWING SCALE(S)	
	1"=20'

PROJECT 813530  
**C4.0**  
SHEET NO.



NOTE:  
REFER TO DETAIL SHEETS FOR CONSTRUCTION AROUND THE STAIRS AND PORCHES OF THE EXISTING STORE FRONTS

**LEGEND**

	PROPOSED HMA PAVEMENT
	4" CONCRETE SIDEWALK
	6" REINFORCED CONCRETE PAVEMENT

STANDARD PARKING SPACES	=	98
BARRIER FREE PARKING SPACES	=	4
TOTAL SPACES	=	102
CURRENT ZONING	=	C-2



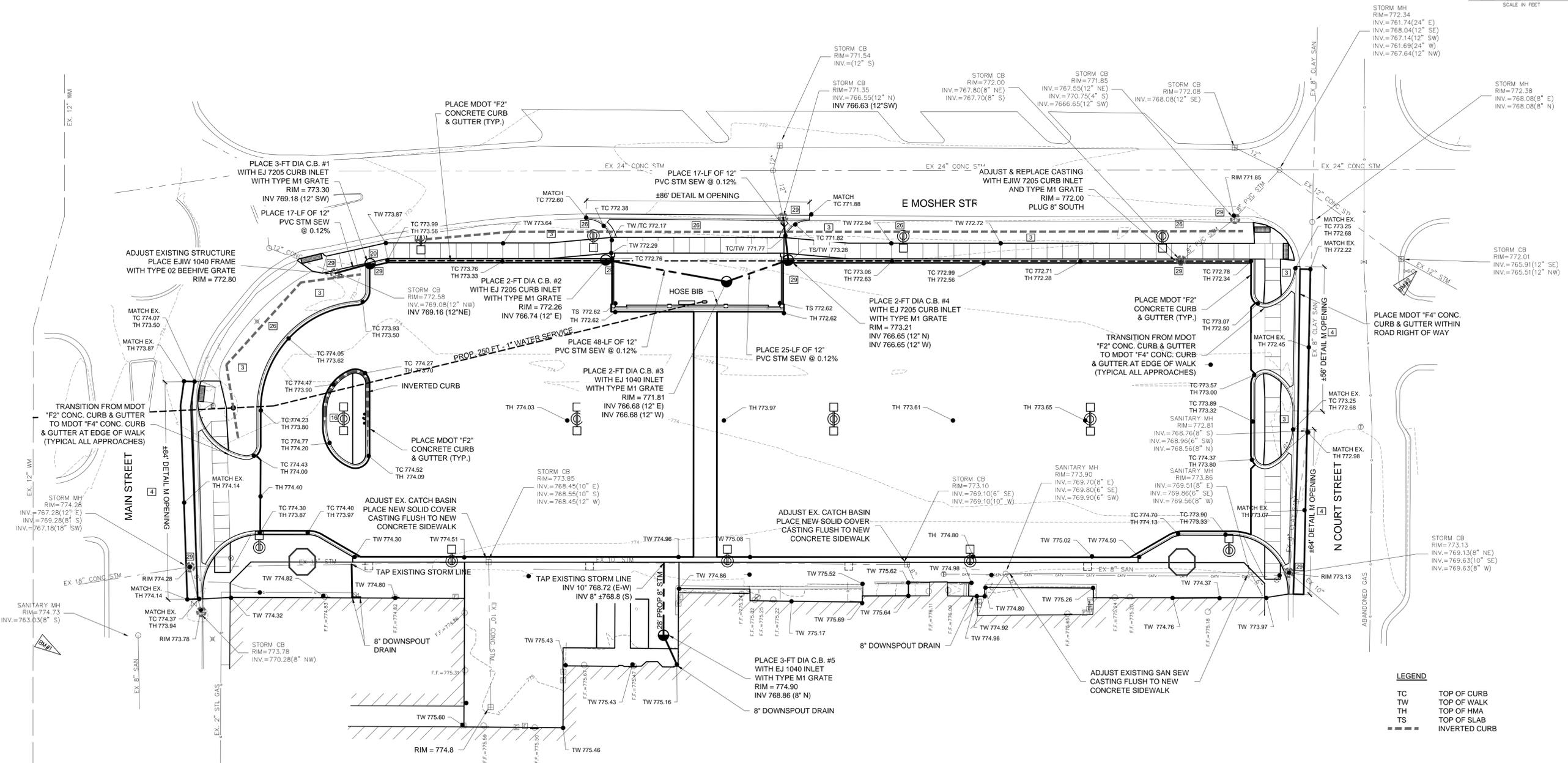
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**NOT FOR CONSTRUCTION**

DATE	
BY	
REVISIONS	
NO.	

**CITY OF MT. PLEASANT**  
ISABELLA COUNTY, MICHIGAN  
**PARKING LOT #2 IMPROVEMENTS**  
GRADING / UTILITY / SESC PLAN

PROJECT MGR:	DESIGN/ENG:
GOB	DRS
DRAWN BY:	ISSUE DATE:
DJD	FEB '13
CHECKED BY:	DATE:
CAD FILE:	
C5.0 GP-UP	
EDIT:	
dand 021313	
DRAWING SCALE(S):	
1"=20'	
PROJECT:	813530
SHEET NO.:	C5.0



**LEGEND**  
 TC TOP OF CURB  
 TW TOP OF WALK  
 TH TOP OF HMA  
 TS TOP OF SLAB  
 INVERTED CURB

**SOIL EROSION & SEDIMENTATION CONTROL MEASURES**

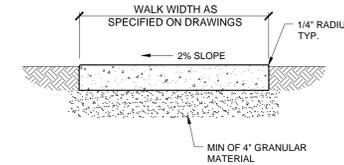
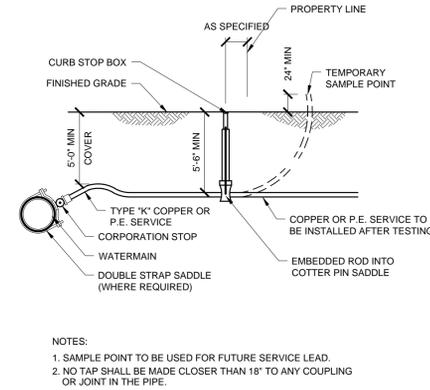
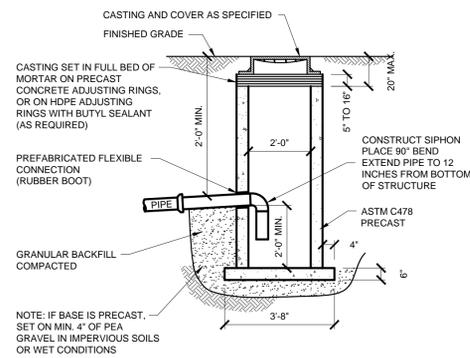
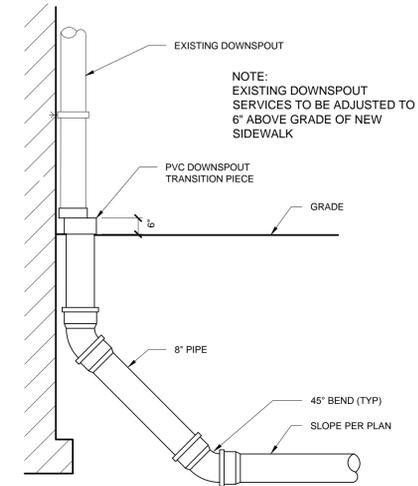
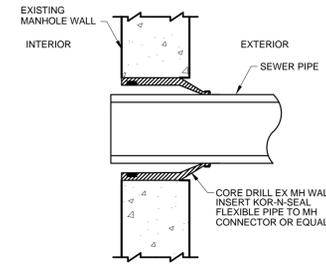
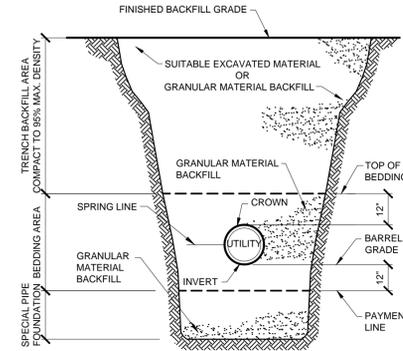
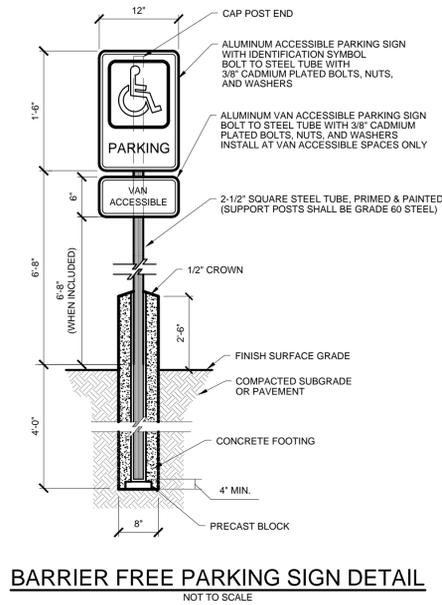
KEY	DETAIL
1	TURBIDITY CURTAIN
2	GRUBBING OMITTED
3	PERMANENT /TEMPORARY SEEDING
4	DUST CONTROL
5	SODDING
6	VEGETATED BUFFER STRIPS
7	RIPRAP
8	AGGREGATE COVER
9	BENCHES
10	DIVERSION DIKE
11	INTERCEPTING DITCH
12	INTERCEPTING DITCH AND DIVERSION DIKE
13	GRAVEL FILTER BERM
14	GRAVEL ACCESS APPROACH
15	SLOPE DRAIN SURFACE
16	TREES, SHRUBS AND PERENNIALS
17	PIPE DROP
18	DEWATERING WITH FILTER BAG

19	ENERGY DISSIPATORS
20	SEDIMENT TRAP
21	VEGETATIVE BUFFER
22	VEGETATIVE BUFFER AND WATERCOURSE
23	STREAM RELOCATION
24	SAND AND STONE BAGS
25	SAND FENCE AND DUNE STABILIZATION
26	SILT FENCE
27	PLASTIC SHEETS OR GEOTEXTILE COVER
28	MULCHING AND MULCH ANCHORING
29	INLET PROTECTION FABRIC DROP
30	INLET PROTECTION GEOTEXTILE AND STONE
31	INLET PROTECTION SEDIMENT TRAP
32	SLOPE ROUGHENING AND SCARIFICATION
33	MULCH BLANKETS AND HIGH VELOCITY MULCH BLANKETS
34	COFFERDAM
35	TEMPORARY BYPASS CHANNEL
36	CONSTRUCTION DAM
37	CHECK DAM

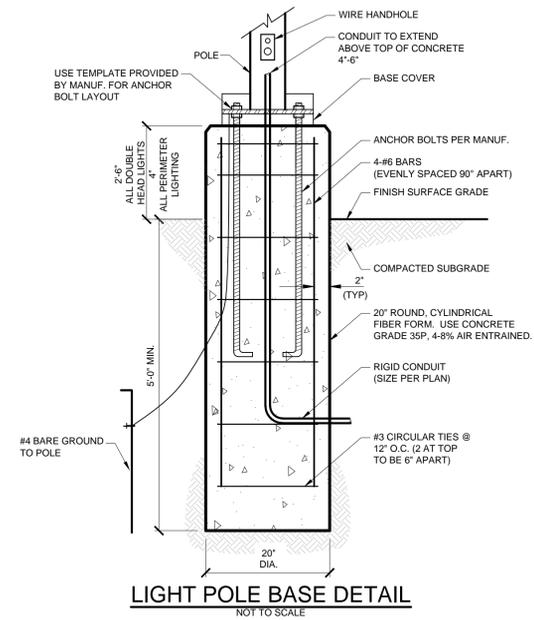
SOIL EROSION / SEDIMENTATION CONTROL OPERATION TIME SCHEDULE

CONSTRUCTION SEQUENCE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
INSTALL & MAINTAIN TEMP. CONTROL MEASURES												
CONSTRUCTION SAFETY AND SECURITY												
BUILDING DEMOLITION												
SITE DEMOLITION												
UTILITY DEMOLITION												
CONSTRUCT IRRIGATION SYSTEM												
CONSTRUCT ROADS AND WALKS												
FINISH GRADING/SEEDING												
CLEAN STORM WATER MANAGEMENT FACILITIES												
INSPECT FOR PERMANENT MEASURES FUNCTIONING												
REMOVE TEMPORARY MEASURES												



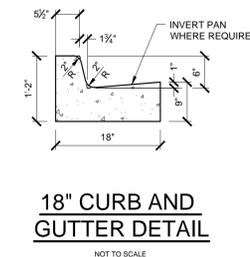
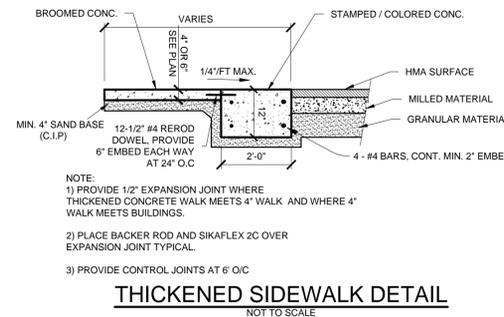
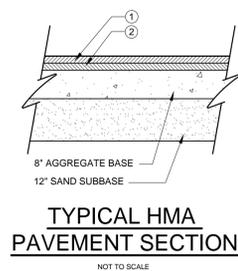


- NOTES:
- 1/2" EXPANSION JOINTS SHALL BE MAXIMUM OF 50' ON CENTER
  - 1/2" EXPANSION JOINT MATERIAL SHALL BE PLACED BETWEEN SIDEWALK AND RIGID STRUCTURES.
  - INsofar AS POSSIBLE, SIDEWALK SHALL BE DIVIDED INTO SQUARE UNIT AREAS BY MEANS OF CUT CONTROL JOINTS NOT MORE THAN 36 SFT OR LESS THAN 16 SFT.



HMA APPLICATION TABLE						
COURSE	TYPE	ITEM	EST. YIELD	BINDER GRADE	AWI	REMARKS
①	LEVELING	HMA 3C	220 LBS/SYD	PG 64-28	-	
②	SURFACE	HMA 4C	220 LBS/SYD	PG 64-28	220	

NOTE: BOND COAT SHALL BE APPLIED BETWEEN SUCCESSIVE COURSES OF HMA (PAYMENT INCLUDED IN HMA MIX). APPLICATION RATE 0.00 - 0.10 GAL/SYD SS-IH, AS DIRECTED BY ENGINEER.



DATE	
BY	
REVISIONS	
NO.	

PROJECT MGR	DESIGN/ENG
GOB	DRS
DRAWN BY	ISSUE DATE
DJD	FEB '13
CHECKED BY	DATE
CAD FILE	
C6.0 DET	
EDIT	
dand 021313	
DRAWING SCALE(S)	
	1"=20'



**NOT FOR CONSTRUCTION**

DATE	
BY	
REVISIONS	
NO.	

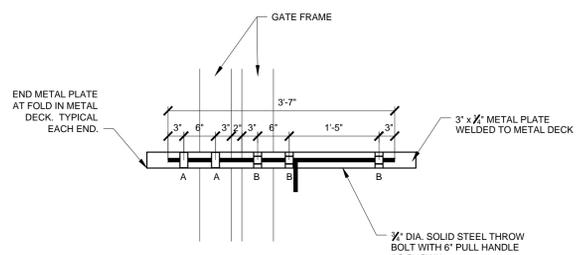
REVISED IN ACCORDANCE WITH CONSTRUCTION RECORDS

**CITY OF MT. PLEASANT  
ISABELLA COUNTY, MICHIGAN  
PARKING LOT #2 IMPROVEMENTS**

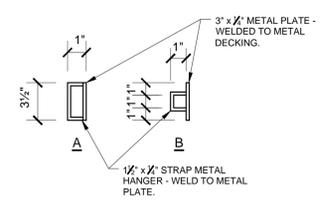
**DETAIL SHEET**

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DRAWN BY	ISSUE DATE
DJZ	REB-13
CHECKED BY	DATE
DRS	2-4-13
CAD FILE	
C8.0 DET	2011
EST.	
dand 021313	
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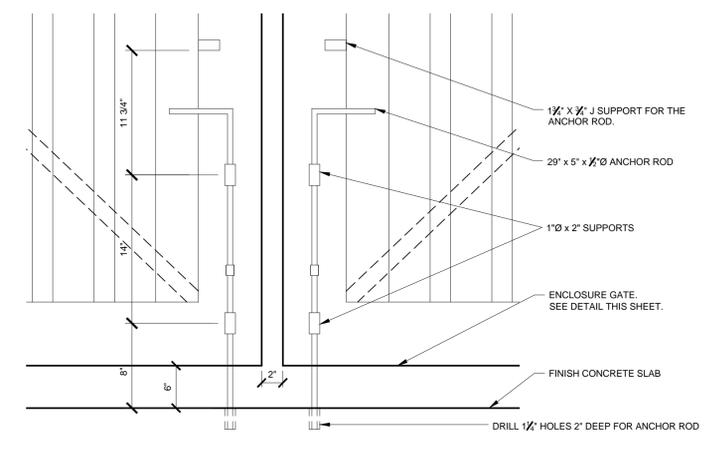
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**C8.0**  
SHEET NO.



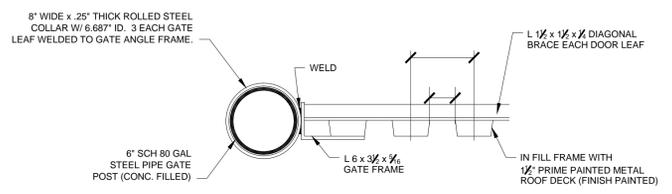
**GATE LATCH**  
SCALE: 3/4"=1'-0"



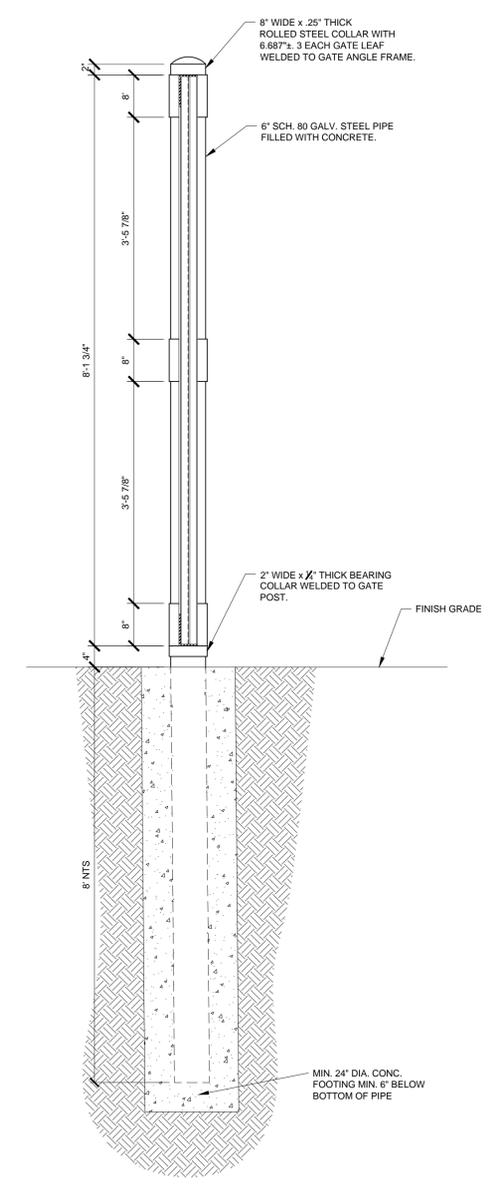
GENERAL NOTES: ALL METAL PARTS TO BE HOT DIPPED GALVANIZED.



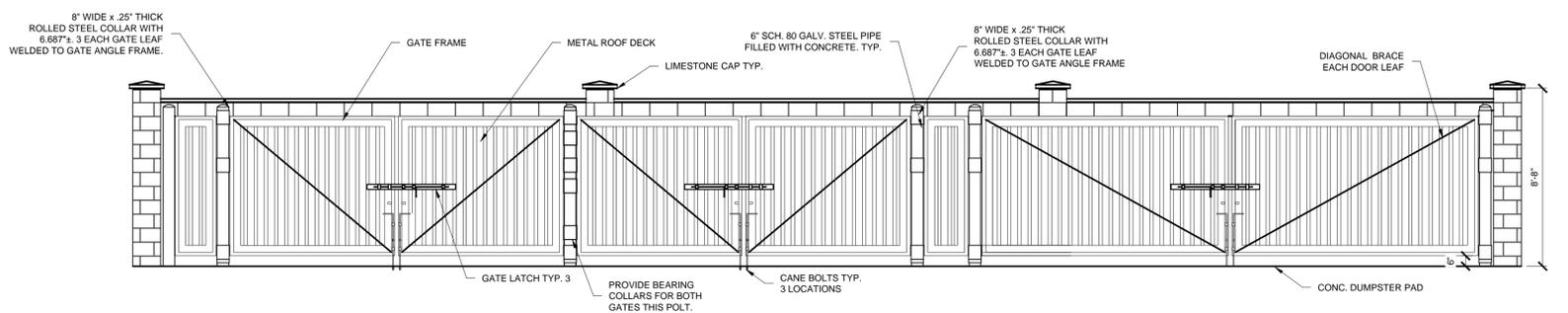
**CANE BOLTS**  
SCALE: 1 1/2"=1'-0"



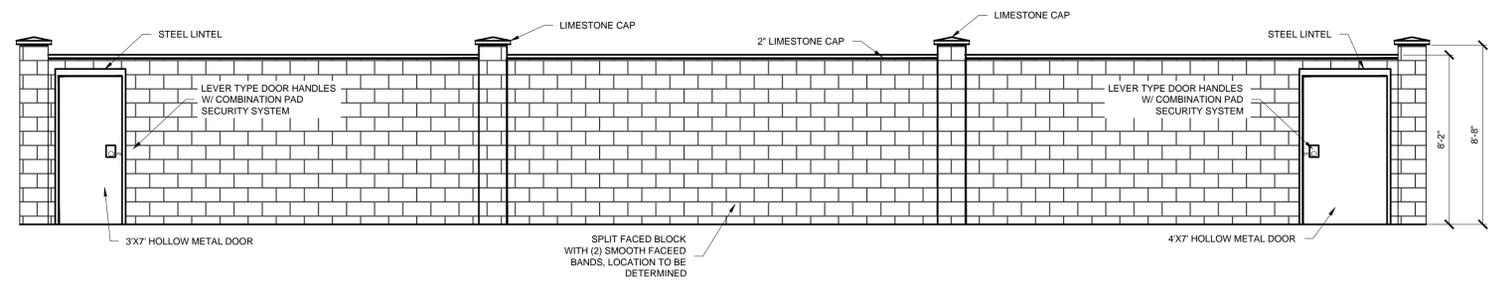
**ENCLOSURE GATE DETAIL**  
SCALE: 1 1/2"=1'-0"



**GATE POST DETAIL**  
SCALE: 3/4"=1'-0"



**NORTH DUMPSTER ENCLOSURE ELEVATION**  
SCALE: 1/4"=1'-0"



**SOUTH DUMPSTER ENCLOSURE ELEVATION**  
SCALE: 1/4"=1'-0"



ADJUST MANHOLE TO NEW ELEVATION  
NEW WALK TO MATCH ELEVATION OF EXISTING WALK AT BUILDING



NEW WALK TO BE RAISED TO ELIMINATE STEP AT DOORS



OVERHEAD DROP "A" CHANGED TO UNDERGROUND  
OVERHEAD DROP "B" CHANGED TO UNDERGROUND  
OVERHEAD DROP "C" CHANGED TO UNDERGROUND



EXISTING STEP TO BE REMOVED  
NEW SIDEWALK ELEVATION TO MATCH EXISTING TOP SLAB  
EXISTING PAINTED SLAB TO REMAIN  
SAWCUT AT BACK OF PAINTED BRICK AND REMOVE STEP



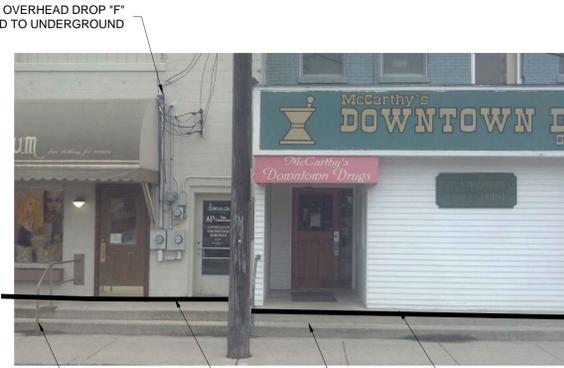
OVERHEAD DROP "D" CHANGED TO UNDERGROUND  
NEW SIDEWALK TO MATCH ELEVATION OF EXISTING PAINTED SLAB  
ADJUST MANHOLE TO NEW ELEVATION  
EXISTING WALL REMAINS BY OTHERS  
HANDRAIL TO BE MODIFIED BY OTHERS  
E.I.F.S. SYSTEM MODIFIED BY OTHERS



HANDRAIL TO BE MODIFIED BY OTHERS  
EXISTING WALL REMAINS  
ADJUST CATCH BASIN TO NEW ELEVATION AND REPLACE WITH SOLID COVER  
REMOVE THIS PORTION OF WALL  
E.I.F.S. SYSTEM MODIFIED BY OTHERS  
NEW SIDEWALK ELEVATION TO BE RAISED TO THIS HEIGHT



OVERHEAD DROP "E" CHANGED TO UNDERGROUND  
REMOVE EXISTING HANDRAIL  
NEW SIDEWALK TO MATCH EXISTING TOP SLAB ELEVATION  
STEPS TO BE REMOVED



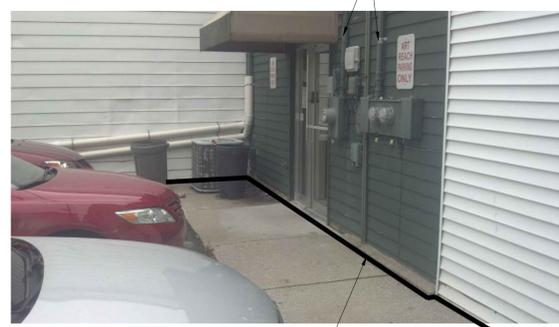
OVERHEAD DROP "F" CHANGED TO UNDERGROUND  
REMOVE EXISTING HANDRAIL  
NEW SIDEWALK TO MATCH EXISTING TOP SLAB ELEVATION  
TOP STEP TO REMAIN  
STEPS TO BE REMOVED



OVERHEAD DROP "G" CHANGED TO UNDERGROUND  
TOP STEP TO REMAIN  
STEPS TO BE REMOVED  
NEW SIDEWALK TO MATCH EXISTING TOP SLAB ELEVATION



NEW SIDEWALK TO MATCH EXISTING TOP SLAB ELEVATION



NEW SIDEWALK TO MATCH EXISTING TOP SLAB ELEVATION



NEW STORM LEAD FOR EXISTING DOWNSPOUTS



ADJUST STRUCTURE TO NEW ELEVATION AND REPLACE W/ SOLID COVER  
NEW SIDEWALK ELEVATION SLIGHTLY ABOVE EXISTING



FINISH GRADE OF PROPOSED OF SIDEWALK  
NEW STORM LEAD FOR EXISTING DOWNSPOUTS



FINISH GRADE OF PROPOSED OF SIDEWALK

NO.	REVISIONS	DATE

PROJECT MGR	DESIGN/ENG
GOB	DRS
DRAWN BY	ISSUE DATE
DJD	FEB '13
CHECKED BY	DATE
CAD FILE	
C9.0 DET	
EDIT	
dougloss 02/12/13	
DRAWING SCALE(S)	
	1"=20'

FOR FINISH GRADES, REFER TO SHEET C5.0

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**NOT FOR CONSTRUCTION**

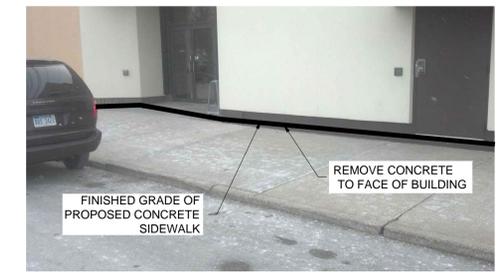
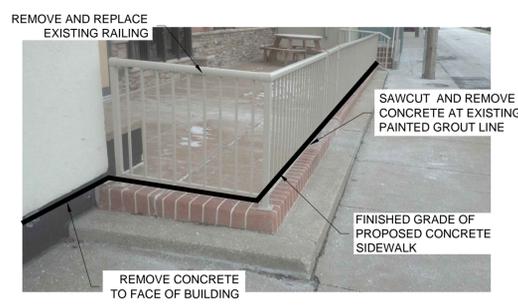
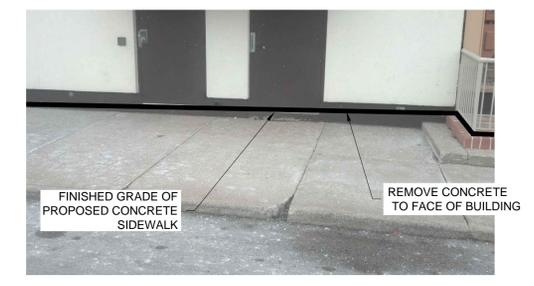
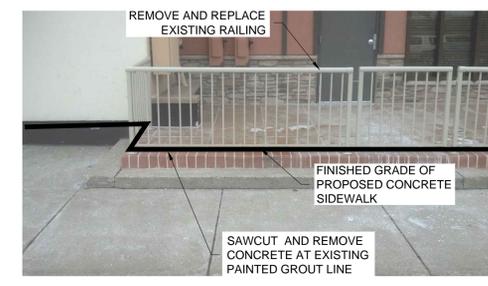
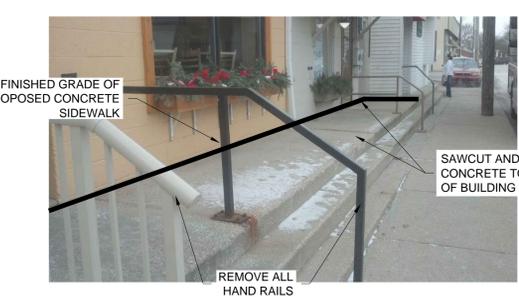
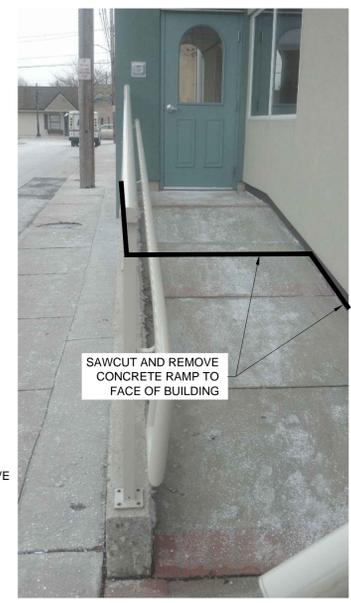
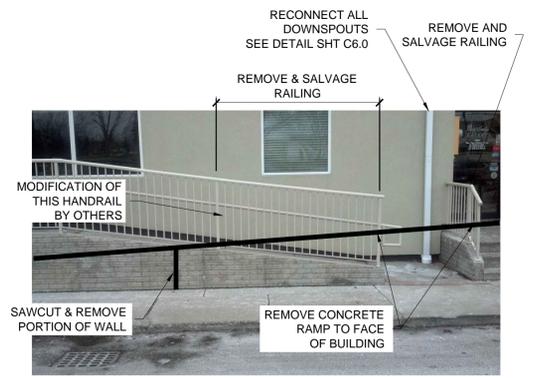
DATE	
BY	
REVISIONS	
NO.	

**CITY OF MT. PLEASANT**  
**ISABELLA COUNTY, MICHIGAN**  
**PARKING LOT #2 IMPROVEMENTS**

**DETAILS**

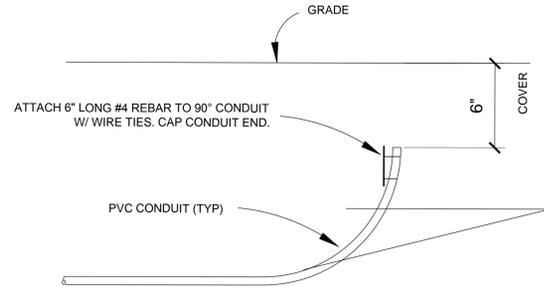
PROJECT MGR	DESIGN/ENG
GOB	DRS
DRAWN BY	ISSUE DATE
DJD	FEB '13
CHECKED BY	DATE
CAD FILE	
C10.0 DET	
EDIT	
douglass 021313	
DRAWING SCALE(S)	
	1" = 20'

PROJECT 813530  
**C10.0**  
 SHEET NO.

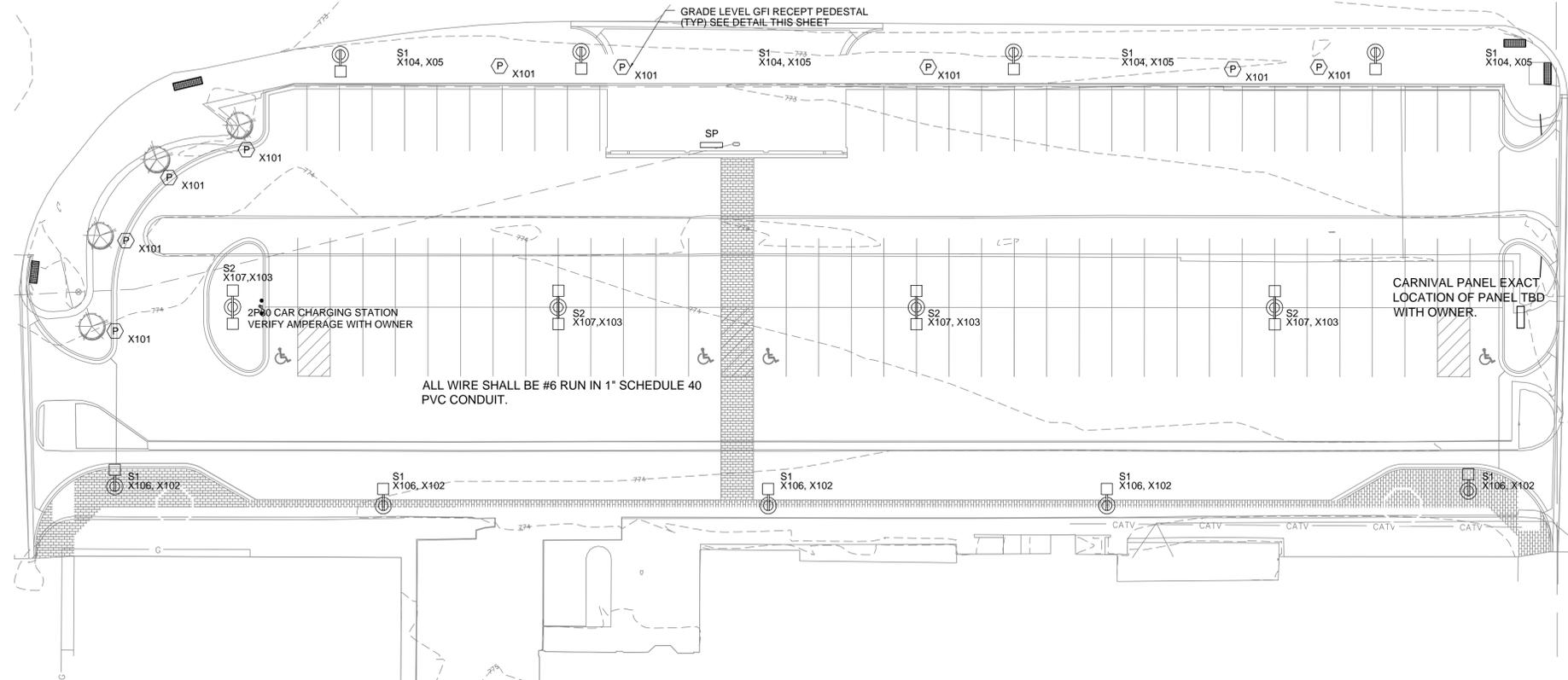


FOR FINISH GRADES, REFER TO SHEET C5.0

M:\Projects\2013\813530\813530-02\Drawings\C10.0 DET.dwg, 2/13/2013 3:26:36 AM, douglass, 1/1

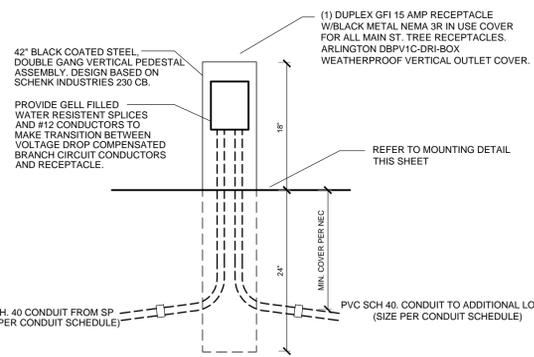


**SPARE CONDUIT TERMINATION LOCATOR DETAIL**  
(USE FOR SPARE CONDUIT TERMINATIONS)



ALL WIRE SHALL BE #6 RUN IN 1" SCHEDULE 40 PVC CONDUIT.

CARNIVAL PANEL EXACT LOCATION OF PANEL TBD WITH OWNER.



**GRADE LEVEL GFI RECEPTACLE PEDESTAL**

NO SCALE  
PROVIDE GELL FILLED WATER RESISTANT SPLICES AND #12 CONDUCTORS TO MAKE TRANSITION BETWEEN VOLTAGE DROP COMPENSATED BRANCH CIRCUIT CONDUCTORS AND RECEPTACLE.

**ELECTRICAL LEGEND**

	Grade level GFI rec. on pedestal. See relay schedule. Number indicate control circuits.
	Site Light w/Concrete Base. Numbers indicate control circuits.
	Inground Pull Box, Furnish and Install. See detail this sheet.
	New Electric Service Panel.

**LIGHT FIXTURE LEGEND**

FIXTURE TYPE	DESCRIPTION	MANU.	CATALOG PART#	VOLTAGE	LAMPS	REMARKS
S1	LED SINGLE HEAD	LUMEC LTD	DM550-90W49LED4K-ES-LE3F-240-BE2TX	120	LED INCLUDED	GFI RECEPT AT TOP AND BASE OF POLE
			BRACKET NM-1A-BE2TX			
			POLE RTA61F-15-GFII-BE2TX			
S2	LED DOUBLE HEAD	LUMEC LTD	DM550-90W49LED4K-ES-LE3F-240-BE2TX	120	LED INCLUDED	GFI RECEPT AT TOP AND BASE OF POLE
			BRACKET NM-1A-BE2TX			
			POLE RTA61F-15-GFII-BE2TX			

NOTE: Coordinate exact location of poles and outlets in field with engineer.



**GENERAL ELECTRICAL NOTES:**

- CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR ALL ELECTRICAL EQUIPMENT FOR APPROVAL BY ENGINEER.
- CONTRACTOR SHALL PROVIDE ALL WIRING FOR ALL POLES AND FIXTURES.
- ALL ELECTRICAL WORK SHALL BE DONE IN ACCORDANCE WITH NATIONAL, STATE, AND LOCAL ELECTRICAL CODES AS APPLICABLE.
- CONDUIT DEPTHS SHALL BE IN ACCORDANCE WITH MINIMUM COVER REQUIREMENTS OF NEC ARTICLE 300-5 OR LOCAL CODE, WHICHEVER IS GREATER.
- CONTRACTOR SHALL PROVIDE LIGHT POLE BASE PER DETAIL ON SHEET.
- NOT USED
- WHERE CONDUCTORS ARE OVSIZED FOR VOLTAGE DROP AND TOO LARGE FOR CONTACTOR LUGS, PROVIDE #12 CONDUCTORS FROM PANEL CONTROL CIRCUITS TO TERMINAL STRIP TO MAKE TRANSITION TO OVSIZED CONDUCTORS AS NECESSARY INSIDE SP ENCLOSURE.
- NOT USED
- FUSE EACH LIGHT AND RECEPTACLE INDIVIDUALLY AT BASE OF EACH POLE WITH INLINE FUSE HOLDERS AND TIME DELAY FUSES. FUSE RECEPTACLES AT DECORATIVE LIGHTS PER MANUFACTURERS RECOMMENDATIONS.
- CALL MISS DIG 3 WORKING DAYS PRIOR TO AN EXCAVATION FOR THE LOCATIONS OF UNDERGROUND UTILITIES.
- ALL WIRES & CABLES SHALL BE TAGGED IN A PERMANENT MANNER INDICATING THE SOURCE & USE OF EACH. THIS SHALL BE DONE IN ALL MANHOLES, HANDHOLES, AND CABINETS WHERE THESE CABLES OR WIRES ENTER, EXIT, ARE SPLICED AND ARE TERMINATED.

ALL PROPERTY AND/OR RIGHT-OF-WAY LINES SHOWN ARE APPROXIMATE

ALL UNDERGROUND UTILITIES ARE APPROXIMATE BASED ON UTILITY PLANS, AS-BUILT PLANS OR FIELD OBSERVATIONS.



**FLEIS & VANDENBRINK**  
ENGINEERING, INC.  
304 West Wadsworth, Suite 600, Melrose, MA 02126  
P: 978.687.3280

**WPF**  
Engineering LLC  
1671 HOUSE ST NE  
BIRMINGHAM, MI 49306  
P. 616-340-9627

NO.	REVISIONS	BY	DATE

**CITY OF MT. PLEASANT**  
ISABELLA COUNTY, MICHIGAN  
PARKING LOT #2 IMPROVEMENTS  
ELEC SITE POWER & LIGHTING PLAN

PROJECT MGR.	DESIGN/ENG.
R.W.S.	2-1-2013
DRAWN BY	ISSUE DATE
LMS	FEB '13
CHECKED BY	DATE
ABZ	2-6-2013
CAD FILE	
813530_E1	
EDIT	
DRAWING SCALE(S)	
	1"=20'

PROJECT 813530  
**E1**  
SHEET NO.

**PART 1 GENERAL**

**1.01 RELATED SECTIONS**

- A. The general provisions of the Contract, including General and Supplementary Conditions and General Requirements (if any), apply to the work specified in this Section.

**1.02 DESCRIPTION OF WORK**

- A. This Section specifies several categories of provisions for electrical work, including:
  - General performance requirements within the electrical systems as a whole.
  - General work to be performed as electrical work because of its close association with other trades.
  - Drawings and Specifications
    - a. Drawings: Refer to the E-Series Drawings for graphic representations, schedules, and notations showing electrical work.
    - b. Specifications: Refer to the sheet specification for technical specifications of electrical work.
    - c. Drawings and Specifications are intended to supplement each other, and all work specified or indicated in either shall be provided.

**1.01 COORDINATION OF ELECTRICAL WORK**

- A. General: It is recognized that the documents are diagrammatic in showing physical relationships which must be established within the electrical work and in its interface with other work, including utilities and mechanical work. Such establishment is the exclusive responsibility of the Electrical Contractor.
  - B. Advise other trades of openings required in their work for the installation of large electrical equipment.
  - C. The Electrical Contractor shall be responsible for all subcontractors and suppliers, and include in his bid all materials, labor, and equipment to other trades involved in accordance with all local customs, rules, regulations, jurisdictional awards, and decisions and secure compliance of all parts of the specifications and drawings regardless of Sectional inclusion in these specifications.

**1.02 PRODUCT SUBSTITUTIONS**

- A. Substitutions requested for review during or after bidding may be reviewed by the WPF Engineering upon request at a fee of \$500.00 per product review.

**1.03 SUBMITTAL PROCEDURES**

- A. General: Provide Shop drawings for all equipment as follows: Light fixtures, Lighting controls and Electrical Gear. Provide at a minimum 6 copies of each shop drawing.

**1.04 SITE AND PROJECT DOCUMENTATION EXAMINATION**

- A. Submission of proposal is considered evidence the Electrical Contractor has visited site, examined drawings and specifications of all trades including Architectural, Structural, Mechanical and Electrical, and is fully informed with all project and site conditions. It is also evidence that they are proficient, experienced, and knowledgeable of all standards, codes, ordinances, permits, and regulations which affect his completion, cost, and time required, and that all costs are included in the proposal.
  - B. Each Electrical Contractor and subcontractor shall examine all drawings and specifications of his trade and work shown on drawings, shop drawings and field layouts of all other trades (including Architectural, Structural, Mechanical and Electrical) working on the project prior to starting his required work, and coordination of all work with other trades.
  - C. All schedules on drawings and specifications are only for convenience of the Electrical Contractor. Each Electrical Contractor shall make his own count and, where fixtures or equipment are shown on drawings but not on schedule, provide like equipment or fixtures for like rooms or use.

**1.05 QUALITY ASSURANCE, STANDARDS, AND SYMBOLS**

- A. General: Specifically, for the electrical work (in addition to standards specified in individual work sections), the following standards are imposed, as applicable to the work in each instance:
  - NEC (NFPA 70), National Electrical Code
  - AWS, American Welding Society, Standards for Welding
  - ANSI C2, National Electrical Safety Code
  - ANSI C73, Dimensions of Attachment Plugs & Receptacles
  - NECA, Standards for Installation
  - NEMA, Standards for Materials and Products
  - ASTM, American Society for Testing Materials
  - ASA, American Standards Association
  - NFPA, National Fire Protection Association
  - UL, Underwriters' Laboratories, Inc.
  - OSHA, Occupational Safety and Health Act
  - ADA, Americans with Disabilities Act
- B. NOTE: ALWAYS REFER TO THE MOST CURRENT ADOPTED CODES AND STANDARDS.
- C. All work to be provided and tested in accordance with all applicable local, county and state laws, ordinances, codes, rules, and regulations.
- D. Where quantities, sizes, or other requirements on drawings or specifications are in excess of code requirements, drawings or specifications govern.
- E. When conflict exists between referenced specifications or standards, more stringent requirements govern. No extra compensation for such compliance requirements shall be allowed.
- F. No work shall be covered or enclosed until tested in accordance with applicable codes and regulations, and successful tests witnessed and approved by authorized inspection authority. Written approvals shall be secured by the Electrical Contractor and submitted to Engineer before final acceptance of work.
- G. In general, all material where applicable shall be labeled or listed by Underwriters' Laboratories, Inc.
- H. Permits and Fees: Give all notices, file all drawings, obtain necessary approvals, obtain all permits, and pay all fees, deposits and expenses required for installation of all work under this Contract.

**PART 2 PRODUCTS**

**2.01 PRODUCTS, ELECTRICAL WORK**

- A. Compatibility: Provide products which are compatible with other products of the electrical work and with other work requiring interface with the electrical work, including electrical connections and control devices. For exposed electrical work, coordinate colors and finishes with other work.
- B. Standards:
  - All electrical material, equipment and accessories shall be new and conform to all applicable standards, codes and requirements and all applicable local, state and federal specifications.
  - All products shall be of established manufacturers regularly engaged in making type of materials to be provided and complete with all parts, accessories, connections, etc., reasonably incidental thereto as specified in detail or as described in manufacturer's catalog. All properly tested, cleaned, adjusted, lubricated and put in complete working order ready for service.

**2.02 CLEANING AND REPAIR**

- A. All equipment and accessories with baked enamel finish to be touched up with factory matching paint before final acceptance by Owner.
- B. Where surface cannot be repaired by touching up, the entire scratched or marred equipment shall be electrostatically powder coated with finish to match original.

**2.03 WIRE**

- A. Wire shall be single conductor copper with 600 volt insulation. #12 and larger wire shall be stranded. The minimum wire size shall be #12. #14 may be used for control wiring. Type THHN/THWN.

**2.04 WIRING DEVICES**

- A. GFCI Receptacles: Convenience receptacle with WR designation and integral ground fault circuit interrupter to meet regulatory requirements. 5-20R.
- B. Cover Plates: Weatherproof Cover Plates: Gasketed cast metal with gasketed in use device cover.

**2.08 LIGHTING CONTROL PANEL HARDWARE**

- A. Enclosure - Each relay panel shall have the following features:
  - Lockable Niema 3R enclosure
  - Available in relay sizes as indicated on the drawings.
  - Strip Heater with integral thermostat
  - A cover secured by screws shall be provided to enclose the high voltage compartment. It shall be properly marked to warn of the danger of high voltage.
- B. Lighting Control Relay - Each controlled circuit shall be connected through a single pole or Double pole as indicated on plans, single throw momentary-pulsed mechanically latching contractor rated at 20 amps, 120-240 VAC. Relay shall be:
  - Mechanically latching relay.
  - Relays shall attach to the barrier and plug into the Relay Interface Board. Screw termination is acceptable.
  - Individual relays shall have built in lever for manual override. Lever shall also indicate status of relay.
  - Relay shall be rated for a minimum of 50,000 cycles at full load.
  - The load contacts shall be rated as follows: 20A, 125 VAC Tungsten; 20 A @ 277 VAC H.I.D. Ballast or Resistive.
  - All relays shall be factory wired for low voltage control and shall not have to be rewired in the field regardless of panel zoning requirements.
  - Systems using multiple relays mounted on printed circuit boards (relay cards) are not acceptable.
- C. The system electronics shall consist of pre-assembled electronics including a panel controller, output interface modules, optional switch input modules as required by the drawings, interconnect cables and power supply.
- D. Panel Controller - It shall provide:
  - 12 Output Capability: The unit shall provide switching for up to 60 loads. Outputs shall be sequenced to reduce the inrush effects on the power system.
  - Commanded Load Feedback - The unit shall provide Real Time status of the commanded state of each lighting zone.
  - Output energize time - The unit shall provide energize durations max. 2 seconds. All circuits shall not be turned on or off simultaneously, but staged on and off to prevent line surges.
  - Relay Grouping - The unit shall provide selectable grouping of relays in up to 60 lighting zones. Any output can be assigned to any lighting zone without any rewiring.
  - Output Refresh Rate - The unit shall provide the capability to send commands to its outputs to assure proper status based on a user selectable rate of every 3-30 minutes. This feature is important for areas where power company fluctuations occur.
  - Selectable Switch Input Types - The unit shall provide maintained, momentary on, momentary off, momentary on/off and linked switch inputs with selectable switch input timers of up to 16 hours. The system shall have the ability to disable the switches during occupied hours in public spaces to prevent the lights from accidentally being turned off.
  - Selectable Switch Input Polarity - The unit shall provide for normally open or normally closed switch inputs or be 2-wire polarity reversing switches.
  - Isolated RS-485 serial communications port.
  - Local Programming - All features shall be selectable by a Laptop, PC, or removable touch screen.
  - Remote Programming - All features shall be selectable via modem.
  - Light Level Sensor Input mounted on building exterior for parking lot lighting
  - Local LED's shall indicate communication and system OK.
  - Memory Loss Protection - Nonvolatile memory shall be provided so data is not lost during power outages or brown outs. Battery backed memory shall not be allowed eliminating the need to replace batteries.
  - Filtering to reduce noise emissions and power line spikes.
  - Serial Priority - The unit shall provide the capability to have serial commands take priority over momentary switch inputs. This feature only applies to systems that utilize the RS-485 communication capability.
  - Maintained Input Priority - Maintained switch inputs shall have the capability of having priority over serial commands and momentary switch inputs
  - Independent Operation - Capability to function independently of other panels if a network failure occurs. All the features listed here shall continue to operate.
- E. Output Interface Module - Each of the low voltage coils on the outputs shall plug into an interface for ease of installation and replacement.
- F. Panel Controller Power Supply - The unit shall provide a single transformer with primary fusing. It shall be capable of 120V or 277V +10%, primary power. Units with single primary transformers shall be unacceptable. A grounding stud shall be provided in the high voltage compartment to ground primary power. Power shall be provided from the panelboard buses.

**3.04 ADJUSTMENTS AND BALANCING**

- A. Subsequent to the installation of the electrical power and distribution system and upon the beginning of operation, Contractor shall make all necessary adjustments to equipment installed or connected by him under this Contract so as to insure proper operation of the same. Contractor shall measure phase balance and make necessary adjustments to any portion of the electrical system that is substantially out of balance.

**3.05 TESTING**

- A. All equipment shall be factory tested using industry standard testing procedures. Refer to individual specification sections for specific testing requirements.

**3.06 GUARANTEE**

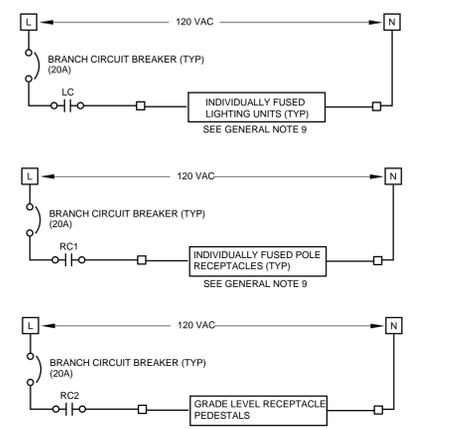
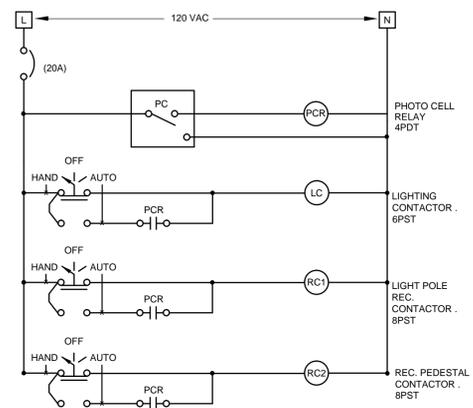
- A. Provide written guarantee for all work performed under this Contract for a period of not less than one year from the date of substantial completion.
  - B. Acceptance date of substantial completion shall be the date of Owner occupancy as defined by Architect/Engineer.
  - C. Contractor shall make all necessary alterations, repairs, and adjustments, replacements during guarantee period as directed by Architect/Engineer to comply with Drawings and Specifications at no cost to Owner.
  - D. Repair or replacements made under guarantee to bear further one year guarantee from date of acceptance of repair or replacement.

**3.07 ELECTRICAL WORK CLOSEOUT**

- A. General: Refer to the Division 1 Sections for general closeout requirements.
- B. Coordinate closeout operations with closeout of mechanical systems and other power consuming equipment as follows:
  - Test run electrical equipment in coordination with test runs of mechanical systems.
  - Clean and lubricate operational equipment.
  - Instruct Owner's operating personnel thoroughly in the operation, sequencing, maintenance and safety/emergency provisions of the electrical systems.
  - Turn over the operations to the Owner's personnel at the time(s) of substantial completion.
  - Until the time of final acceptance of the total work of the Contract, respond promptly with consultation and services to assist the Owner's personnel with operation of electrical systems.
- C. Conditions of Final Closeout:
  - All completion checklists signed and returned to Engineer.
  - Maintenance manuals submitted and approved.
  - Record drawings submitted and approved.
  - Final certificate of electrical inspection and Contractor's written 1 year warranty submitted and approved.
  - Circuit directory in each panelboard. Electrical component identification complete.
  - Equipment clean-up and final adjustments made.
  - Contractor has instructed Owner's representative in the safe operation and use of the electrical systems.
  - All temporary wiring and facilities have been removed.

PANELBOARD LOADSHEET - 1 PHASE				FILE NO.	PANELS
LTG.	MTRS.	REC.	OTHER	DATE	8/6/2013
1530.00	0.00	6300.00	0.00	PROJECT #	813530
1.53	0.00	6.30	0.00	PHASE	1
1.00	1.00	Note 1	1.00	VOLTAGE	240
1.53	0.00	6.30	0.00	CIRCUIT CAPACITY	12
				MAIN BREAKER/LUGS	100
				MOUNTING	Surface
				TVSS:	
				200% NEUTRAL:	

CKT NO	VOLT AMPS			DESCRIPTION	CKT BREAKER	L BREAKER	DESCRIPTION	VOLT AMPS			CKT NO
	LTG.	REC.	MTRS.					OTHER	MTRS.	REC.	
1	810			LED parking lot lgt	1P20	A	Tree receipts X101			1620	2
3	720			LED parking lot lgt	1P20	B	Pole receipts X102			1800	4
5		1440		Pole receipts X105	1P20	A	Pole receipts X103		1440		6
7				Car charging station	2P30	B	Carnival Panel				8
9						A					10
11					1P20	B					12
13	X	X	X	X	X	A	X	X	X	X	14
15	X	X	X	X	X	B	X	X	X	X	16
17	X	X	X	X	X	A	X	X	X	X	18
19	X	X	X	X	X	B	X	X	X	X	20
21	X	X	X	X	X	A	X	X	X	X	22
23	X	X	X	X	X	B	X	X	X	X	24
25	X	X	X	X	X	A	X	X	X	X	26
27	X	X	X	X	X	B	X	X	X	X	28
29	X	X	X	X	X	A	X	X	X	X	30
31	X	X	X	X	X	B	X	X	X	X	32
33	X	X	X	X	X	A	X	X	X	X	34
35	X	X	X	X	X	B	X	X	X	X	36
37	X	X	X	X	X	A	X	X	X	X	38
39	X	X	X	X	X	B	X	X	X	X	40
41	X	X	X	X	X	A	X	X	X	X	42
SUBT	1530	1440	0	0				0	0	4680	0



**TYPICAL CIRCUIT CONNECTION DETAILS**

LIGHTING CONTROL RELAY PANEL MAY BE UTILIZED IN LIEU OF CONTACTOR AND TIME CLOCK. EC TO PROVIDE HOFFMAN NIEMA 3R LOCKABLE ENCLOSURE WITH STRIP HEATER AND INTEGRAL THERMOSTAT. RELAY PANEL BY LEVITON, WATTS/TOPIPER, HUBBELL OR I.C. RELAYS TO BE PROVIDED AS DETAILED ON LIGHTING CONTROL SCHEDULE THIS SHEET.

EC TO PROVIDE ALL PROGRAMMING AND COORDINATE SCHEDULES OF RELAY PANEL AND OR TIME CLOCK WITH OWNER.

EC TO PROVIDE 2 HOUR TRAINING WITH OWNER DURING SET UP OF SCHEDULES.

LOAD NUMBER		CIRCUIT NUMBER	LOAD DESCRIPTION	VOLT	QTY	WATTS	REMARKS
X101	SP-2		North Tree Receptacles	120	9	1620	
X102	SP-4		South Pole Recepts (2 per pole)	120	5	1800	
X103	SP-6		Middle Pole Recepts (2 per pole)	120	4	1440	
X104	SP-1		Pole lighting	120	4	360	
X105	SP-5		North Pole Recepts (2 per pole)	120	5	1800	
X106	SP-1		Pole lighting	120	5	450	
X107	SP-3		Pole lighting	120	8	720	

**FLEIS & VANDENBRINK**  
ENGINEERING, INC.  
304 West Washtenaw, Suite 600, Midland, MI 48640  
P: 989.637.2620  
F: 989.637.2620

**WPF**  
Engineering, LLC  
1671 HOUSE ST NE  
BELMONT, MI 49306  
P. 616-340-9627

NO.	REVISIONS	BY	DATE

**CITY OF MT. PLEASANT**  
ISABELLA COUNTY, MICHIGAN  
**PARKING LOT #2 IMPROVEMENTS**  
**ELEC SPEC & SCHEDULES**

PROJECT MGR.	DESIGN/ENG.
R.W.S.	2-1-2013
DRAWN BY	ISSUE DATE
LMS	FEB '13
CHECKED BY	DATE
ABZ	2-6-13
CAD FILE	813530_E2
EDIT	
DRAWING SCALE(S)	1"=20'

PROJECT 813530  
**E2**  
SHEET NO.

ALL PROPERTY AND/OR RIGHT-OF-WAY LINES SHOWN ARE APPROXIMATE  
ALL UNDERGROUND UTILITIES ARE APPROXIMATE BASED ON UTILITY PLANS, AS-BUILT PLANS OR FIELD OBSERVATIONS.  
**BEFORE YOU DIG CALL MISS DIG**  
CALL 3 FULL WORKING DAYS: 811  
1-800-482-7171

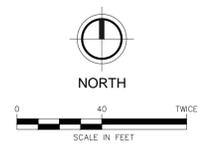
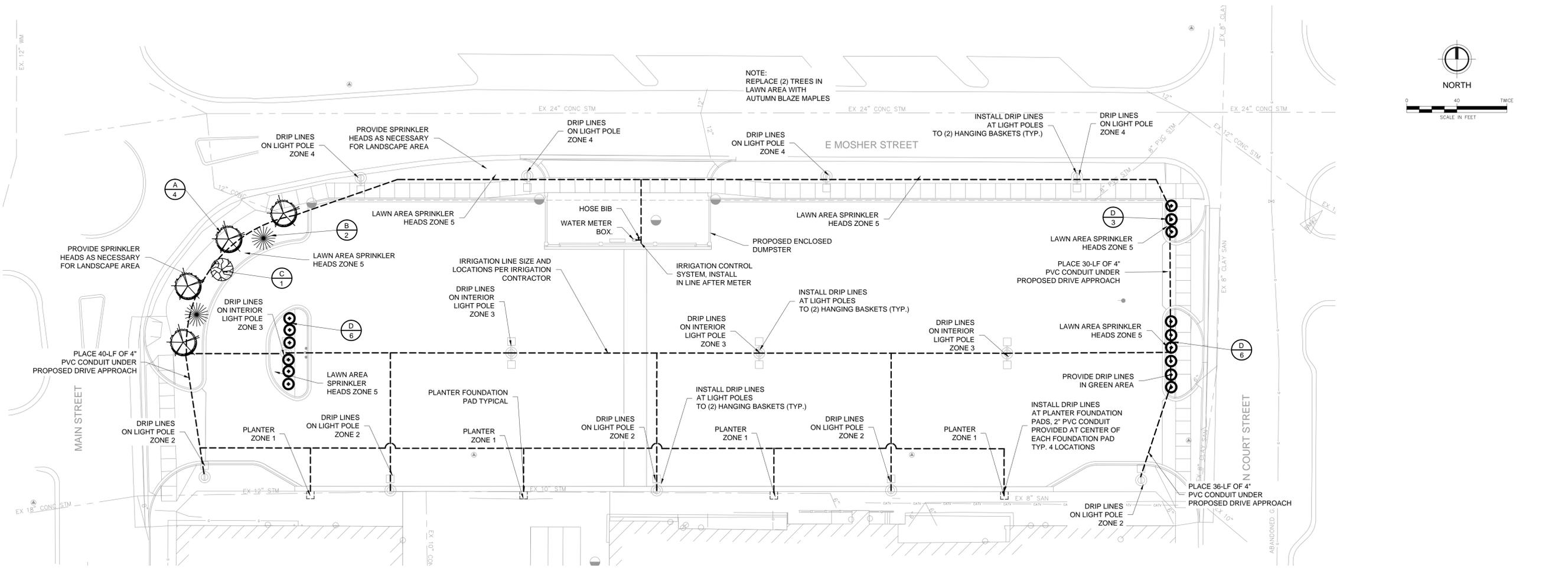
**NOT FOR CONSTRUCTION**

NO.	REVISIONS	DATE	BY

CITY OF MT. PLEASANT  
ISABELLA COUNTY, MICHIGAN  
PARKING LOT #2 IMPROVEMENTS  
LANDSCAPE PLAN

PROJECT MGR	DESIGN/ENG.
GOB	2-12-13
DRAWN BY	DATE
DJ2	FEB '13
CHECKED BY	DATE
DRS	2-12-13
CAD FILE	2011
L1.0	
EDIT	
dand 021313	
DRAWING SCALE(S)	1"=20'

PROJECT 813530  
**L1.0**  
SHEET NO.



NOTE:  
REPLACE (2) TREES IN  
LAWN AREA WITH  
AUTUMN BLAZE MAPLES

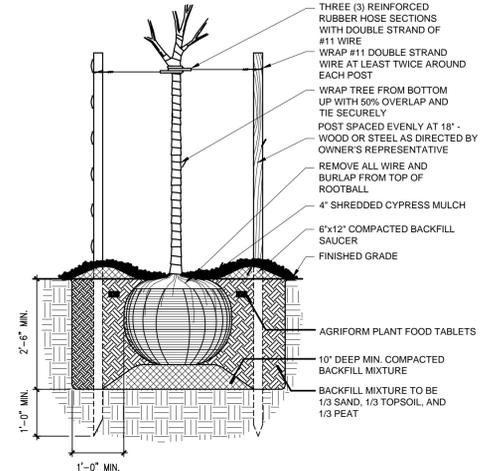
NOTE:  
IRRIGATION LINES SHOWN HEREON ARE  
SCHEMATIC ONLY...THE EXACT LOCATION,  
SIZE, AND IRRIGATION OUTLETS TO BE  
DESIGNED AND SUBMITTED FOR APPROVAL  
BY THE IRRIGATION CONTRACTOR.

**PLANTING NOTES**

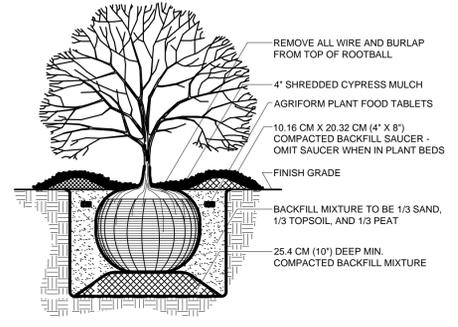
- ALL SHRUB BEDS SHALL RECEIVE 4" OF EVENLY SPREAD CYPRESS MULCH.
- ALL NEW PLANTING BEDS SHALL BE EDGED WITH 3/16" X 4" ALUMINUM EDGING (PERMALOCK) OR AS APPROVED BY THE OWNER. SEPARATE ALL PERENNIAL AND GROUNDCOVER BEDS WITH EDGING.
- CONTRACTOR SHALL NOTIFY MISS DIG TO LOCATE ANY UNDERGROUND UTILITY LINES OR STRUCTURES PRIOR TO STARTING CONSTRUCTION.
- CONTRACTOR SHALL PROVIDE SPECIFIED SHRUBS, GROUNDCOVERS AND OTHER PLANT MATERIALS THAT COMPLY WITH ALL RECOMMENDATIONS AND REQUIREMENTS OF ANSI Z60.1 "AMERICAN STANDARD FOR NURSERY STOCK". PLANT MATERIAL SHALL BE HEALTHY, VIGOROUS STOCK, GROWN WITH GOOD HORTICULTURAL PRACTICE AND INSTALLED IN ACCORDANCE WITH METHODS ESTABLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
- SEED SHALL BE PLACED OVER 4" TOPSOIL IN ALL PROPOSED LAWN/SOD AREAS AND ALL AREAS DISTURBED BY CONSTRUCTION. SEED MIXES SHALL BE AS SPECIFIED.
- ALL PLANTINGS AND LANDSCAPE IMPROVEMENTS SHALL BE CONSISTENT WITH CITY OF MT PLEASANT ZONING REQUIREMENTS.

PLANT MATERIALS LIST				
KEY	QTY.	COMMON NAME	SIZE	ROOT
A	6	AUTUMN BLAZE MAPLE - (ACER X FREEMANII)	3" CAL.	B&B
B	2	GINKO BILOBA - (GINKO BILOBA)	3" CAL.	B&B
C	1	JAPANESE ZELKOVA - (ZELKOVA SERRATA)	3" CAL.	B&B
D	15	BURNING BUSH - (EUONYMUS ALATUS)	#5	CONT.

NOTES:  
1. ALL PLANTING BEDS TO HAVE 4" SHREDDED CYPRESS MULCH.



**TREE PLANTING DETAIL**  
NOT TO SCALE



**SHRUB INSTALLATION**  
NOT TO SCALE

