

STORMWATER MANAGEMENT ANALYSIS:

GIVEN: STRUCTURAL EXPANSION OF EXISTING BUILDING INTO EXISTING PAVED PARKING LOT - NO INCREASE IN IMPERVIOUS AREA.

DRAINAGE AREA #1: AREA = 0.3 AC; RATIONAL RUNOFF COEFFICIENT = 0.95; 10-YR STM INTENSITY = 3.2 IN/HR
 $Q=CIA = 0.9 \text{ CFS}$

CHECK PIPE FLOW CAPACITY: USE MANNINGS FORMULA FOR 12" PIPE @ 0.5%
 $Q = A 1.49/N (R_H)^{0.66} (S)^{0.5}$
 $Q = 2.7 \text{ CFS} > 0.9 \text{ CFS}$ GOOD

DRAINAGE AREA #2: AREA = 0.33 AC; C = 0.95; I = 3.2 IN/HR
 $Q = 1 \text{ CFS}$

COMBINED RUNOFF FROM AREAS 1 & 2 = 1.9 CFS
 PIPE CAPACITY OF 2.7 EXCEEDS 1.9 CFS GOOD

PROPOSED LOADING & UNLOADING AREA (10' X 50')

PROPOSED 4" DIA. CB#1 RIM 749.40 12" INV SE 745.75

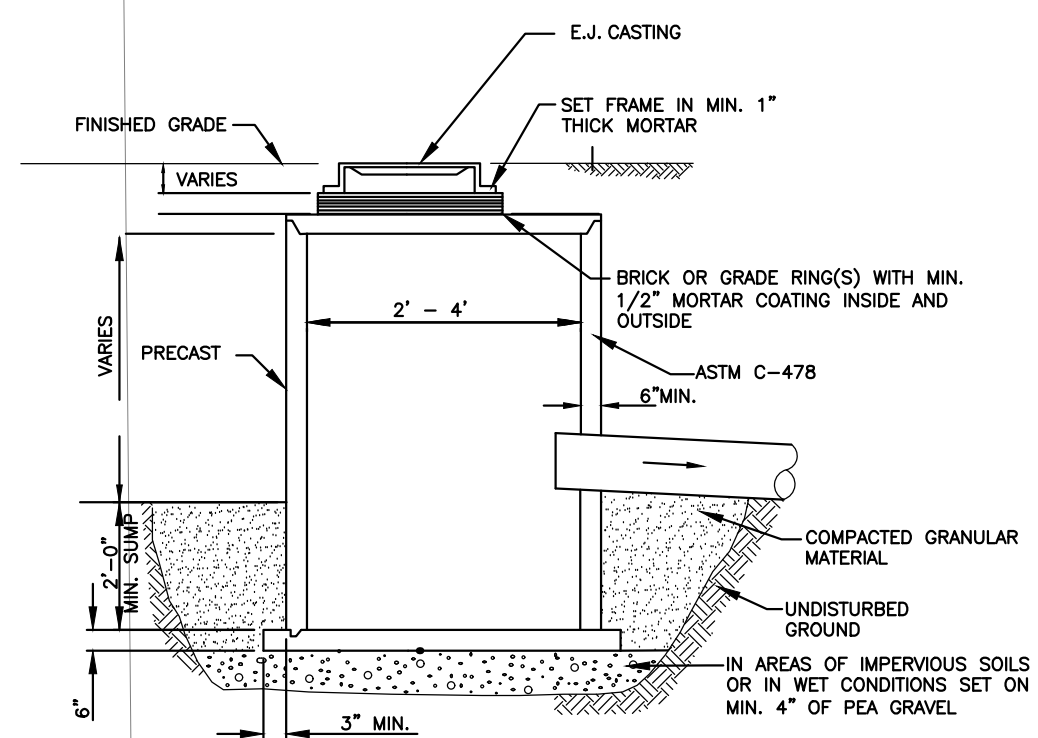
PROPOSED 2800 S.F. ADDITION

PROPOSED 2" DIA. CB#2 RIM 749.60 12" INV SE 746.15

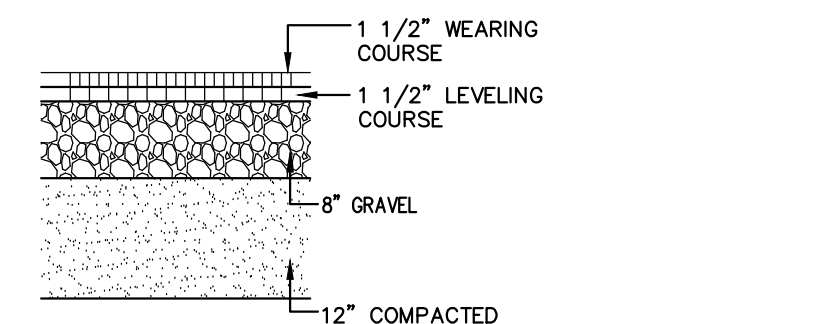
PROPOSED 6" DIA BOLLARD (6) CONCRETE FILLED
 PROPOSED DUMPSTER ENCLOSURE 10' X 10' CONCRETE PAD (SEE DETAIL ON SHEET C-2.1)

GENERAL NOTES:

- ALL CONSTRUCTION ACTIVITIES AND MATERIALS SHALL BE IN ACCORDANCE WITH TOWNSHIP STANDARDS. ALL NECESSARY PERMITS AND APPROVALS SHALL BE ACQUIRED PRIOR TO ANY CONSTRUCTION.
- EXISTING SITE ZONED INDUSTRIAL.
- PARCEL NUMBER: 70-10-24-400-065.
- MINIMUM SETBACKS
 FRONT 75'
 SIDE 25'
 REAR 20'
- PARKING AS REQUIRED BY ORDINANCE.
- STORM SEWER PIPE SHALL BE HDPE OR EQUIVALENT (APPROVAL BY ENGINEER).
- REMOVE 11,400 SF BITUMINOUS PAVEMENT.
- PLACE 8,225 SF BITUMINOUS REGULAR DUTY PAVEMENT.
- REMOVE 210 SF OF CONCRETE PAD.
- PLACE 650 SF OF 8" CONCRETE REINFORCED PAD.
- NO ADDITIONAL SIGNAGE.



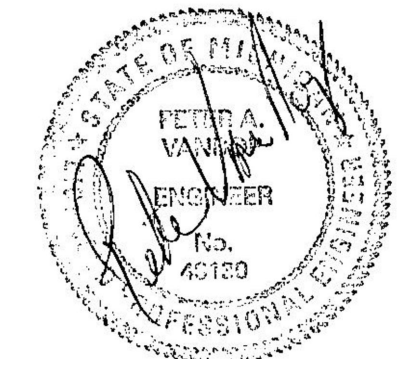
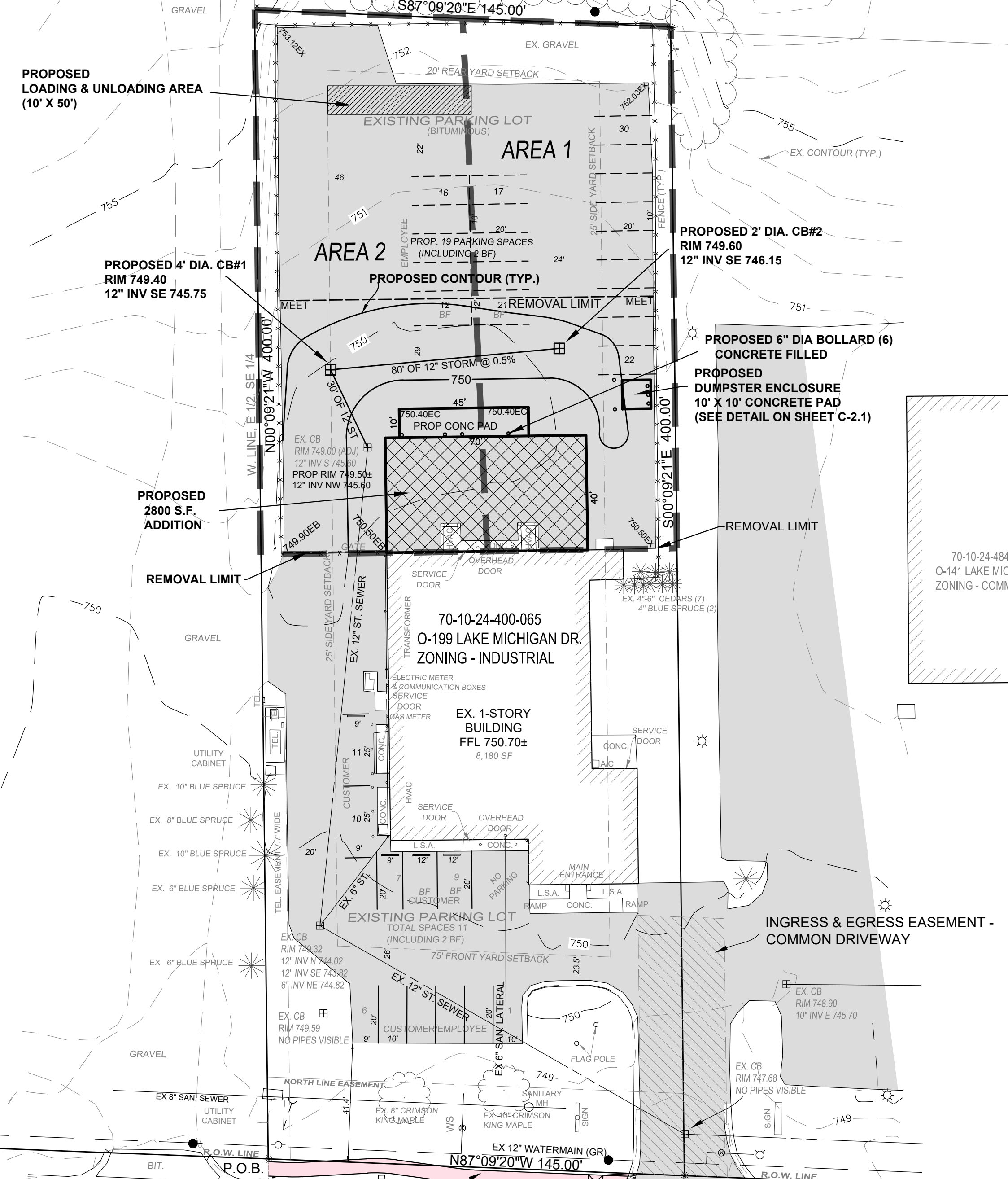
CATCH BASIN 2'-4' DIA. NO SCALE



REGULAR DUTY PAVEMENT SCALE: NO SCALE

SYMBOL LEGEND

- PROPERTY CORNER
- MANHOLE
- FIRE HYDRANT
- TELEPHONE BOX
- UTILITY POLE
- CURB STOP BOX
- POST
- CATCH BASIN
- BUSH
- DECIDUOUS TREE
- CONIFEROUS TREE
- LIGHT POLE
- UTILITY BOX
- GUY WIRE
- HAND HOLE
- SPRINKLER HEAD
- WATER VALVE
- L.S.A. LANDSCAPE AREA



PETER A. VANDOP
 PROFESSIONAL ENGINEER NO. 40130

SOUTH 1/4 CORNER
 SECTION 24, T7N, R13W
 PER REMON. LCRC # L4 P456

OWNER:
DOUG'S AUTO BODY
 O-199 LAKE MICHIGAN DR.
 GRAND RAPIDS, MICHIGAN 49534
 CONTACT: MR. SCOTT OTTERBEIN

SOUTHEAST CORNER
 SECTION 24, T7N, R13W
 PER REMON. LCRC # L3 P53-54

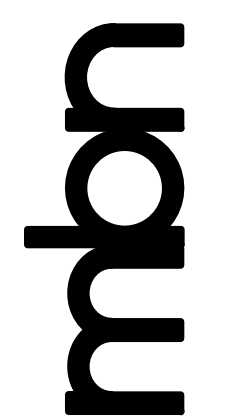
NOTE: EXISTING UTILITY INFORMATION SHOWN HAS BEEN TAKEN FROM EXISTING RECORDS AND FIELD SURVEY INFORMATION. EXISTING UTILITY INFORMATION MAY NOT BE COMPLETE OR ACCURATE. BUT IS A BEST REPRESENTATION OF AVAILABLE DATA.



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MBN	7/31/24	by
MBN	7/10/24	date
TOWNSHIP REVIEW		
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drawn by	date	date
MBN	4-24	4-24
checked by	name	date
MBN		4-24
revised in accordance with construction records	by	date

DOUG'S AUTO BODY
 2,800 S.F. ADDITION
 O-199 LAKE MICHIGAN DR.
 GRAND RAPIDS, MI 49534

project number	24013
sheet number	2 of 2