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**LEGAL DESCRIPTION**

PART OF LOTS 190 AND 191 OF "SUPERVISORS NANKIN PLAT No. 6" OF PART OF THE NORTHEAST 1/4 OF SECTION 31, T. 2 S., R. 9 E., NANKIN TOWNSHIP (NOW CITY OF WAYNE), WAYNE COUNTY, MICHIGAN AS RECORDED IN LIBER 65 OF PLATS, PAGE 64, WAYNE COUNTY RECORDS DESCRIBED AS:

COMMENCING AT THE SOUTHEAST CORNER OF SAID LOT 191; THENCE S 76°19'55" W 3.81 FEET ALONG THE NORTH RIGHT OF WAY OF MICHIGAN AVENUE (204 FEET WIDE); THENCE S 76°34'55" W 23.95 FEET ALONG SAID NORTH RIGHT OF WAY LINE TO THE POINT OF BEGINNING; THENCE CONTINUING S 76°34'55" W 177.09 FEET ALONG SAID NORTH RIGHT OF WAY LINE TO THE SOUTHWEST CORNER OF SAID LOT 191; THENCE N 00°38'50" W 340.65 FEET ALONG THE WEST LINE OF SAID LOT 191; THENCE S 89°39'05" E 121.87 FEET ALONG THE NORTH LINE OF SAID LOT 191 TO A NORTHEASTERLY CORNER OF SAID LOT 191; THENCE S 00°02'05" W 70.00 FEET; THENCE S 89°39'05" E 90.00 FEET TO A POINT ON THE WESTERLY RIGHT OF LINE OF NEWBURGH ROAD (120 FEET WIDE); AND THENCE S 00°02'05" W 225.98 FEET ALONG SAID WESTERLY RIGHT OF WAY LINE TO THE POINT OF BEGINNING. CONTAINING 1.26 ACRES OF LAND, MORE OR LESS.

**BENCHMARKS**

**BM #1**  
DISK STAMPED 82667 2006 SET IN A 16 INCH DIAMETER CONCRETE POST FLUSH WITH THE GROUND LOCATED 420' EAST OF THE CENTERLINE OF TREADWELL STREET, 53.5 FEET WEST OF THE EASTERLY MOST CENTER OF THE DRIVE INTO THE REPUBLIC WASTE SERVICES ADDRESS 38850, 32.6 FEET NORTH OF THE CENTERLINE OF VAN BORN ROAD, 28.0 FEET EAST OF THE TOP OF A FIRE HYDRANT AND 3.2 FEET NORTH OF A CARSONITE WITNESS POST.  
ELEVATION: 663.88 NAVD 88

**BM #2**  
ARROW ON THE HYDRANT LOCATED ON THE NORTHWEST CORNER OF MICHIGAN AVENUE AND NEWBURGH ROADS.  
ELEVATION: 654.97 NAVD 88

**ZONING & SETBACKS**

ZONED: B-3 BUSINESS EXTENSIVE

SETBACK REQUIREMENTS:  
FRONT: NONE  
REAR: NONE  
SIDES: NONE

BUILDING CANNOT BE CLOSER THAN 20' TO A RESIDENTIAL BUILDING

**FLOODPLAIN**

APPROXIMATELY 49569sf (1.14ac) OF THE SUBJECT PROPERTY LIES IN FLOOD ZONE "X" WHICH IS AN AREA DETERMINED TO BE OUTSIDE THE 0.2 ANNUAL CHANCE FLOODPLAIN "X". APPROXIMATELY 5438sf (0.12ac) LIES IN FLOOD ZONE "A" WHICH IS AN AREA THAT NO BASE ELEVATION HAS BEEN DETERMINED PER FLOOD INSURANCE RATE MAP FOR THE CITY OF WAYNE, WAYNE COUNTY, MICHIGAN COMMUNITY-PANEL NUMBER 286300218E EFFECTIVE DATE: FEBRUARY 2, 2012

**UTILITY NOTE**

UNDERGROUND UTILITY LINES AND STRUCTURES SHOWN ARE PER RECORDS MADE AVAILABLE BY UTILITY OR MUNICIPALITY, AND BY FIELD OBSERVATION WHERE POSSIBLE. ALL MUNICIPALITIES AND UTILITY COMPANIES SHOULD BE NOTIFIED BY CONTRACTOR FOR FIELD LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION.

**UTILITY COMPANIES**

- AT&T  
31100 PLYMOUTH ROAD  
ROOM 105  
LIVONIA, MI 48150  
(734) 523-7564  
(734) 523-7589 FAX
- DETROIT EDISON  
ONE ENERGY PLAZA  
IGS GROUP, 515 SB  
DETROIT, MI 48226  
(313) 235-8811  
(313) 235-9366 FAX
- CONSUMERS ENERGY  
GAS INFORMATION MANAGEMENT  
530 WEST WILLOW STREET  
P.O. BOX 30162  
LANSING, MI 48909  
(877) 240-9602
- COMCAST REGIONAL DESIGN CENTER  
2826 TELEGRAPH ROAD  
SOUTHFIELD, MI 48034  
(248) 809-2749  
(248) 809-2721 FAX

**MUNICIPALITY**

CITY OF WAYNE  
3355 SOUTH WAYNE ROAD  
WAYNE, MI 48184

MAIN: 734-722-2000  
COMMUNITY DEVELOPMENT: 734-722-2002  
BUILDING/ENGINEERING: 734-728-9100

**SURVEYOR/ENGINEER**

GLA SURVEYORS & ENGINEERS  
8495 NORTH TERRITORIAL ROAD  
PLYMOUTH, MI 48170  
(734)-416-9650  
(734)-416-9657 FAX

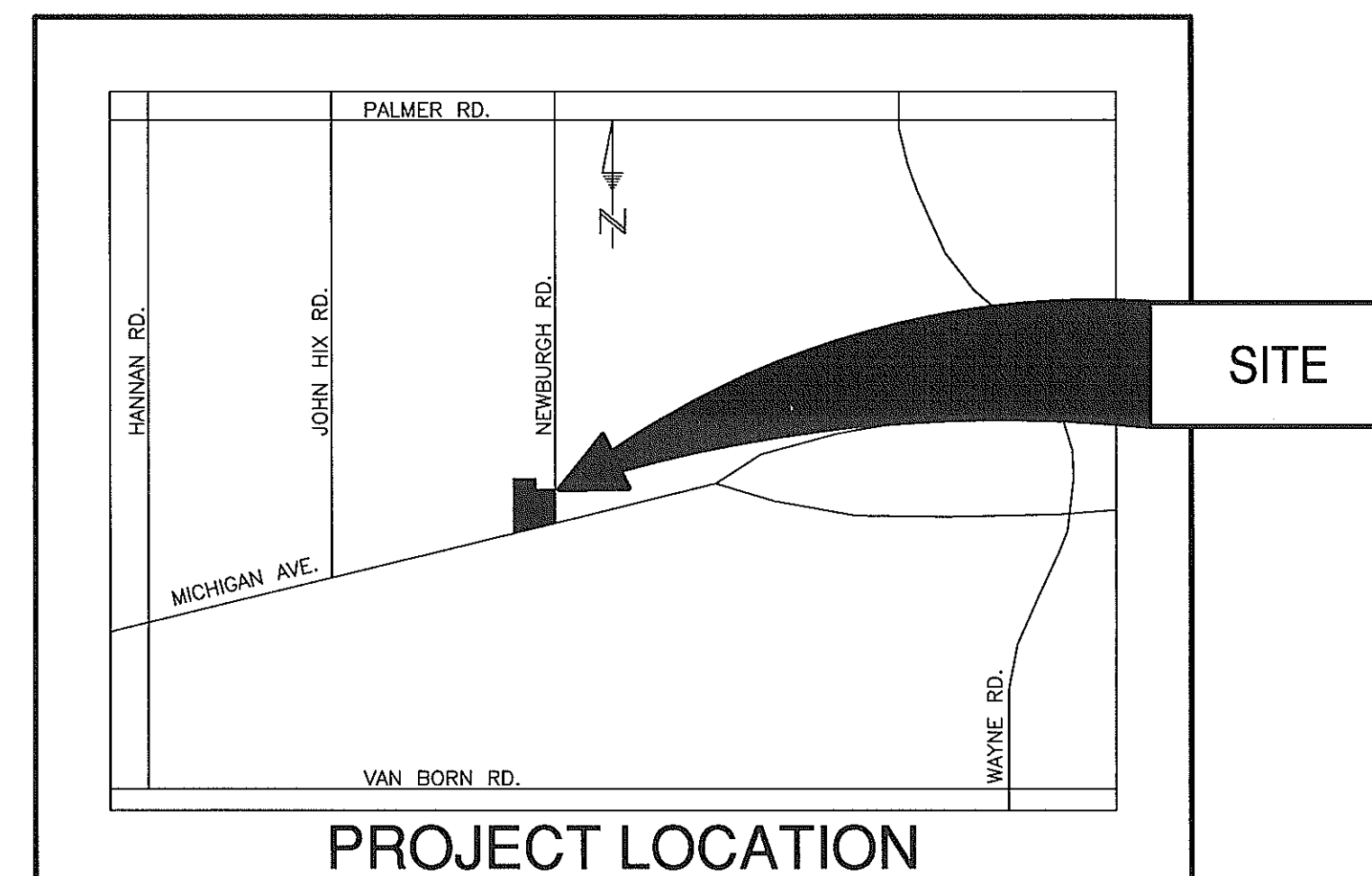
PROFESSIONAL SURVEYOR:  
GREG L. ASH, MICHIGAN REGISTRATION No. 28400

PROFESSIONAL ENGINEER:  
LAMI TAWHEEL, MICHIGAN REGISTRATION No. 21989

PROJECT ENGINEER/CONTACT PERSON:  
SCOTT SCHUMACHER

# JACK DEMMER FORD QUICKLANE

**37410 MICHIGAN AVENUE  
CITY OF WAYNE  
WAYNE COUNTY, MICHIGAN**



**SUBMITTAL NOTE**

1. THIS SET OF PLANS HAVE BEEN ISSUED FOR A SOIL EROSION PERMIT FROM WAYNE COUNTY AND A DEMOLITION PERMIT FROM THE CITY OF WAYNE. 11/12/13.

**PROPOSED LEGEND**

- STORMWATER PRETREATMENT UNIT
- WAYNE COUNTY OUTLET STRUCTURE
- STORM MANHOLE
- CATCH BASIN
- STORM SEWER
- SANITARY LEAD 6" S
- WATER LEAD 1-1/2" W
- DRAINAGE DIRECTION
- PROP. ELEVATION (0.00)

**LEGEND**

- |                    |        |                     |   |
|--------------------|--------|---------------------|---|
| BENCHMARK          | B.M.   | STORM MANHOLE       | ⊕ |
| FINISHED FLOOR     | F.F.   | STORM CATCH BASIN   | ⊕ |
| INVERT ELEVATION   | F.G.   | SANITARY MANHOLE    | ⊕ |
| GAS MAIN           | I.E.   | GATE VALVE & WELL   | ⊕ |
| WATERMAIN          | —      | DET. EDISON MANHOLE | ⊕ |
| STORM SEWER        | —      | WATERS/GAS SHUT OFF | ⊕ |
| SANITARY SEWER     | —      | FIRE HYDRANT        | ⊕ |
| OVERHEAD WIRES     | —      | UTILITY POLE        | ⊕ |
| FENCE              | —      | POLE OR POST        | ⊕ |
| EX. SPOT ELEVATION | —      | SIGN                | ⊕ |
| RECORDED DISTANCE  | R.     | LIGHT               | ⊕ |
| MEASURED DISTANCE  | M.     | DECIDUOUS TREE      | ⊕ |
| SET IRON           | S.I.   | EVERGREEN TREE      | ⊕ |
| FOUND IRON         | F.I.   | CUTWIRE             | ⊕ |
| FOUND CONC. MON.   | F.C.M. | GAS MARKER          | ⊕ |
| POINT OF BEGINNING | P.O.B. | SECTION CORNER      | ⊕ |
| TOP OF PIPE        | T/P    | UTILITY PEDESTAL    | ⊕ |
| TOP OF CURB        | T/C    | CUTTER              | ⊕ |
|                    |        | CLEAN OUT           | ⊕ |

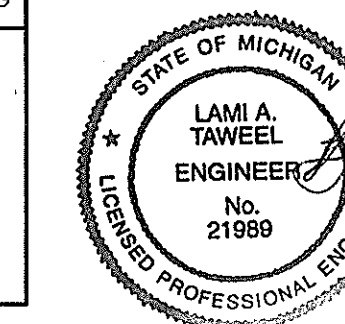
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DESIGNED BY: S.A.S.	SHEET No.
DRAWN BY: S.A.S.	<b>T-1</b>
CHECKED BY: L.A.T.	

CLIENT:	11/14/13
JACK DEMMER FORD	11/14/13 DEMO/SOIL EROSION PERMIT
37300 MICHIGAN AVENUE	12/18/13 CITY/COUNTY SUBMITTAL
WAYNE, MI 48184	1/15/14 SITE DEVELOPMENT PERMIT
	2/10/14 PER CITY OF WAYNE REVIEW

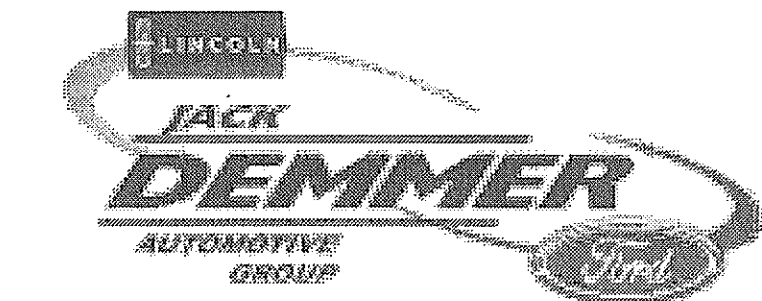
8495 N. TERRITORIAL RD.  
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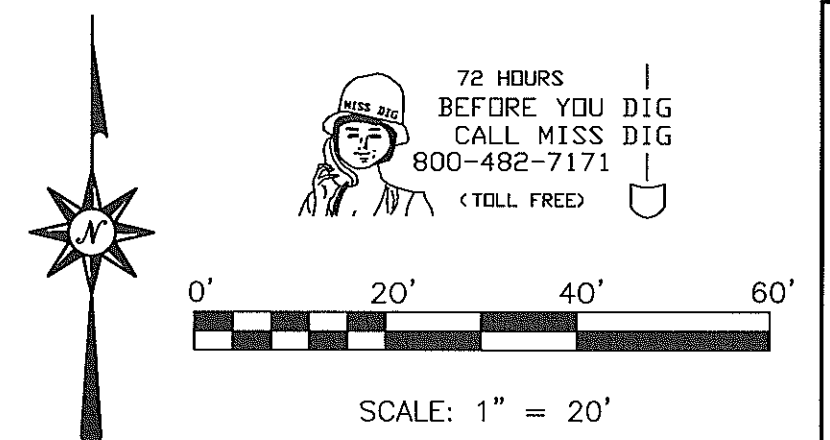
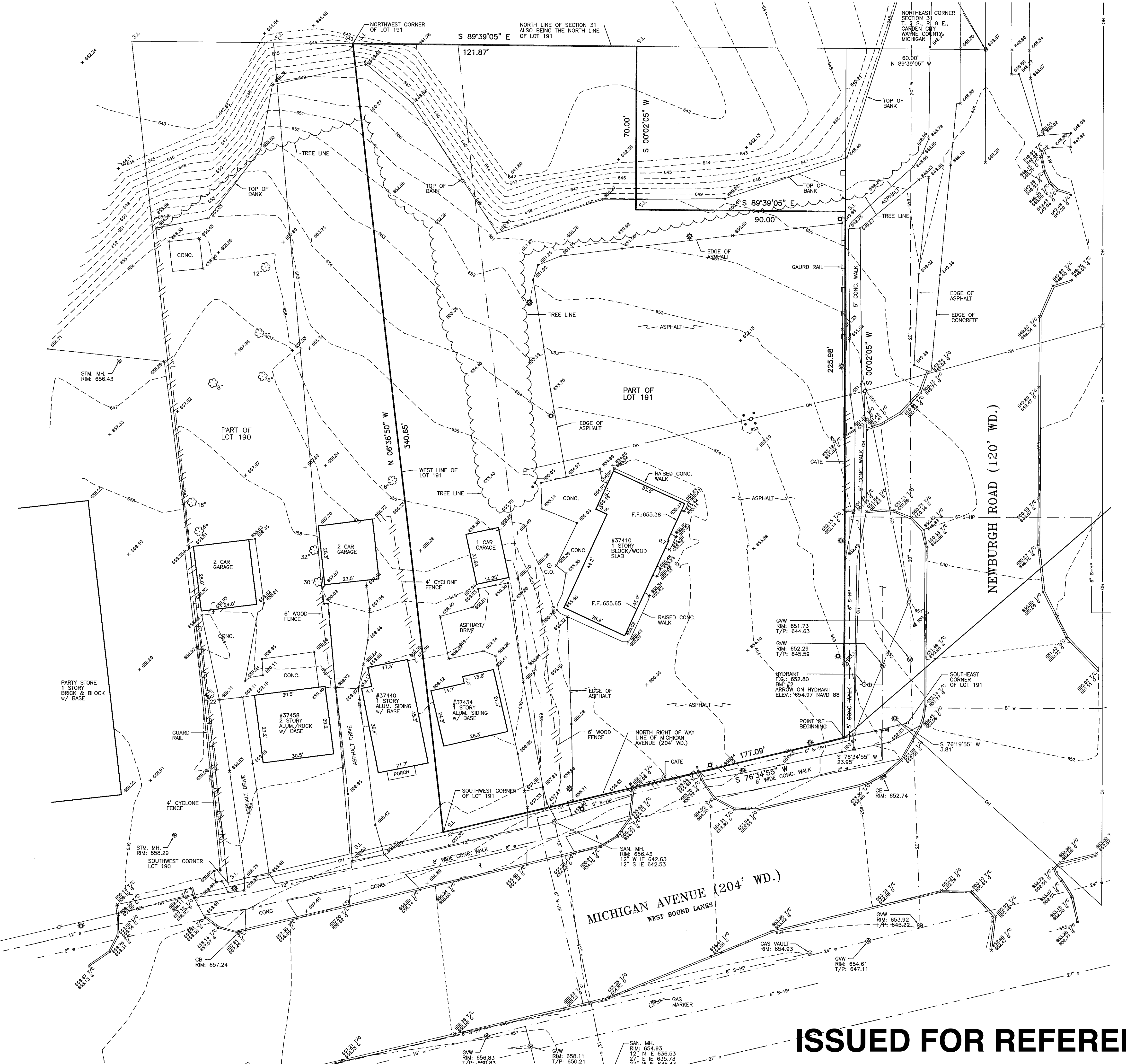
**GLA SURVEYORS & ENGINEERS**

**TITLE SHEET**  
JACK DEMMER FORD - QUICKLANE  
37410-37434 MICHIGAN AVENUE  
PART OF THE N.E. 1/4 SEC. 31  
CITY OF WAYNE, WAYNE COUNTY, MICHIGAN



**ISSUED FOR REFERENCE ONLY  
ENGINEERING CONSTRUCTION PLANS**





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PART OF LOTS 190 AND 191 OF "SUPERVISORS NANKIN PLAT No. 8" OF PART OF THE NORTHEAST 1/4 OF SECTION 31, T. 2 S., R. 9 E., NANKIN TOWNSHIP (NOW CITY OF WAYNE), WAYNE COUNTY, MICHIGAN AS RECORDED IN LIBER 65 OF PLATS, PAGE 64, WAYNE COUNTY RECORDS DESCRIBED AS:

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**BENCHMARKS**

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ZONED: B-3 BUSINESS EXTENSIVE

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**MUNICIPALITY**

CITY OF WAYNE  
3355 SOUTH WAYNE ROAD  
WAYNE, MI 48164

MAN: 734-722-2000  
COMMUNITY DEVELOPMENT: 734-722-2002  
BUILDING/ENGINEERING: 734-728-9100

**LEGEND**

BENCHMARK	B.M.	STORM MANHOLE	⊗
FINISHED FLOOR	F.F.	SANITARY CATCH BASIN	⊞
FINISHED GRADE	F.G.	GATE VALVE & WELL	⊕
INVERT ELEVATION	I.E.	DET. EDISON MANHOLE	⊖
GAS MAIN	—	WATER/GAS SHUT OFF	⊘
WATERMAIN	—	FIRE HYDRANT	⊙
STORM SEWER	—	UTILITY POLE	⊙
SANITARY SEWER	—	POLE OR POST	⊙
OVERHEAD WIRES	—	FENCE	—
EX. SPOT ELEVATION	•	LIGHT	⊙
RECORDED DISTANCE	R.	DECAUBUS TREE	⊙
MEASURED DISTANCE	M.	OVERGREEN TREE	⊙
SET IRON	S.I.	GLYRWIRE	⊙
FOUND IRON	F.I.	GAS MARKER	⊙
FOUND CONC. MON.	F.C.M.	SECTION CORNER	⊙
POINT OF BEGINNING	P.O.B.	UTILITY PEDESTAL	⊙
TOP OF PIPE	T/P	GUTTER	⊙
TOP OF CURB	T/C	CLEAN OUT	⊙

FILE NO.: 689-190	DWG. NO.: 689-190ENG
SHEET No.	
<b>S-1</b>	
SCALE: 1" = 20'	

CLIENT:  
JACK DEMMER FORD  
37300 MICHIGAN AVENUE  
WAYNE, MI 48184

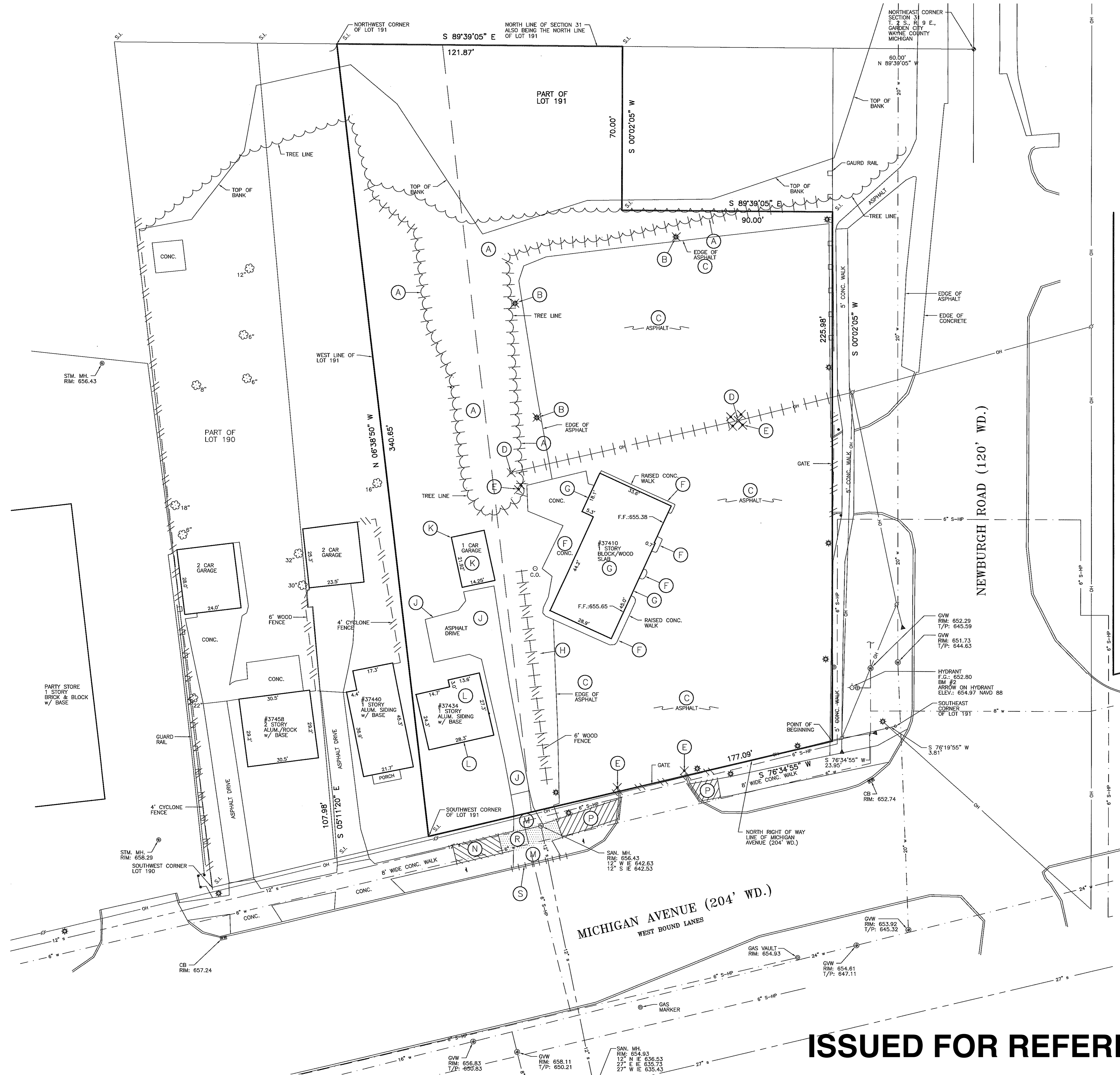
8495 N. TERRITORIAL RD.  
FLINTMOUTH, MI 48170  
PHONE: (734) 416-9650  
FAX: (734) 416-9657  
www.glsurveyor.com

**GLA SURVEYORS & ENGINEERS**

**BOUNDARY/TOPOGRAPHIC SURVEY**

JACK DEMMER FORD  
37410-37434 MICHIGAN AVENUE  
PART OF THE N.E. 1/4 SEC. 31  
CITY OF WAYNE, WAYNE COUNTY, MICHIGAN

**ISSUED FOR REFERENCE ONLY**

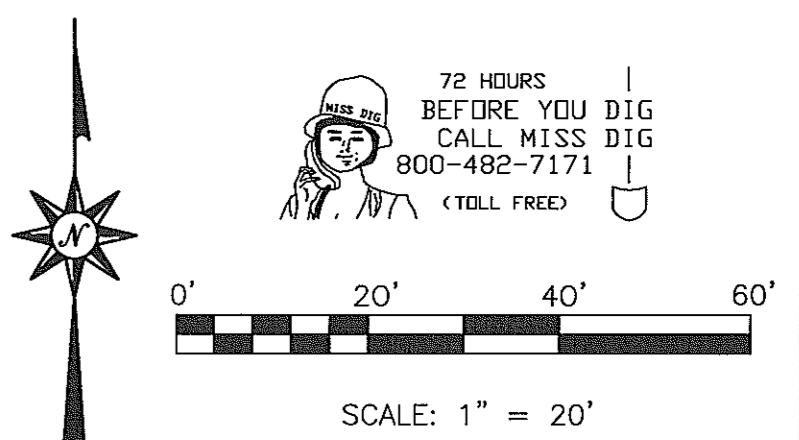


**DEMOLITION NOTE**

1. ALL DEMOLITION SHALL CONFORM TO THE RULES AND REGULATIONS OF THE CITY OF WAYNE, WAYNE COUNTY AND THE STATE OF MICHIGAN.
2. LOCATION OF UNDERGROUND UTILITIES SERVICING THE EXISTING BUILDING ARE UNKNOWN AT THIS TIME.

**DEVELOPER / CONTRACTOR NOTE**

1. THE DEVELOPER / CONTRACTOR IS RESPONSIBLE FOR RESOLVING ANY DRAINAGE PROBLEMS ON ADJACENT PROPERTIES WHICH ARE A RESULT OF THE DEVELOPER AND/OR CONTRACTORS ACTIVITIES.



**DEMOLITION ITEMS**

- A. REMOVE APPROXIMATELY 900 L.F. OF TREE AND BRUSH LINE AS NEEDED TO NEW PROPOSED TREE LINE.
- B. REMOVE LIGHT/LIGHT POLE AND BASE AS REQUIRED AND SHOWN. (3 TYP.)
- C. REMOVE ASPHALT PARKING LOT PAVEMENT, APPROXIMATELY 26,000 SF.
- D. REMOVE UTILITY POLE (2 TYP.) AND OVERHEAD WIRES PER REQUIREMENTS OF THE UTILITY COMPANIES.
- E. REMOVE CONCRETE BOLLARDS. (8 TYP.)
- F. REMOVE CONCRETE SIDEWALK AND CONCRETE ADJACENT AND BEHIND THE EXISTING BUILDING #37410. APPROXIMATELY 970 SF.
- G. REMOVE EXISTING BLOCK BUILDING, CONCRETE SLAB AND FOUNDATIONS OF #37410.
- H. REMOVE APPROXIMATELY 100 L.F. OF 6' HIGH WOOD FENCE.
- J. REMOVE ASPHALT DRIVEWAY LOCATED @ #37434. APPROXIMATELY 1900 SF.
- K. REMOVE GARAGE, CONCRETE SLAB AND FOUNDATION @ #37434.
- L. REMOVE HOUSE, BASEMENT WALLS, FOUNDATION AND HOUSE UTILITIES @ #37434.
- M. REMOVE THE CONCRETE DRIVE APPROACH WITHIN THE MICHIGAN AVE. RIGHT-OF-WAY PER MDOT PERMIT ONCE PERMIT IS ISSUED.
- N. REMOVE CONCRETE OF EXISTING SIDEWALK AS NECESSARY TO THE NEAREST JOINT TO FACILITATE THE INSTALLATION OF THE SANITARY LEAD AND WATER SERVICE PER MDOT PERMIT ONCE PERMIT IS ISSUED.
- P. REMOVE EXISTING DAMAGED CONCRETE SIDEWALK FROM 24 FEET WEST OF, THROUGH, AND TO 8 FEET EAST, OR THE NEAREST JOINT OF THE EXISTING DRIVE APPROACH TO THE SITE. ALSO THE PORTION THROUGH THE EXISTING APPROACH IS TO FACILITATE THE REMOVAL OF A PORTION OF CURB THAT CURRENTLY EXIST PER MDOT PERMIT ONCE PERMIT IS ISSUED.
- R. REMOVE CONCRETE SIDEWALK THROUGH THE APPROACH TO #37434 MICHIGAN AVENUE PER MDOT PERMIT ONCE PERMIT IS ISSUED.
- S. REMOVE APPROXIMATELY 24 FEET OF EXISTING GUTTER ALONG MICHIGAN AVENUE TO FACILITATE NEW CURB AND GUTTER ONCE THE DRIVE APPROACH HAS BEEN REMOVED PER MDOT PERMIT ONCE PERMIT IS ISSUED.

**UTILITY COMPANIES**

**A&K**  
31100 PLYMOUTH ROAD  
ROOM 105  
LIVONIA, MI 48150  
(734) 523-7564  
(734) 523-7589 FAX

**DETROIT EDISON ONE ENERGY PLAZA IGS GROUP, 518 SB**  
DETROIT, MI 48226  
(313) 235-8811  
(313) 235-9366 FAX

**CONSUMERS ENERGY GAS INFORMATION MANAGEMENT**  
530 WEST WILLOW STREET  
P.O. BOX 30162  
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**COMCAST REGIONAL DESIGN CENTER**  
25626 TELEGRAPH ROAD  
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**LEGEND**

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FINISHED FLOOR	F.F.	STORM CATCH BASIN	⊞
FINISHED GRADE	F.G.	SANITARY MANHOLE	⊞
INVERT ELEVATION	I.E.	GATE VALVE & WELL	⊞
GAS MAIN	— 2 —	DET. EDISON MANHOLE	⊞
WATERMAIN	— 12 —	WATER/GAS SHUT OFF	⊞
STORM SEWER	— 1 —	FIRE HYDRANT	⊞
SANITARY SEWER	— 4 —	UTILITY POLE	⊞
OVERHEAD WIRES	— OH —	POLE OR POST	⊞
FENCE	— F —	SIGN	⊞
EX. SPOT ELEVATION	⊙	LIGHT	⊞
RECORDED DISTANCE	R.	DECIDUOUS TREE	⊞
MEASURED DISTANCE	M.	EVERGREEN TREE	⊞
SET IRON	S.I.	GLYEWIRE	⊞
FOUND IRON	F.I.	GAS MARKER	⊞
FOUND CONC. MON.	F.C.M.	SECTION CORNER	⊞
POINT OF BEGINNING	P.O.B.	UTILITY PEDESTAL	⊞
TOP OF PIPE	T/P	GUTTER	⊞
TOP OF CURB	T/C	CLEAN OUT	⊞
		C.O.	⊞

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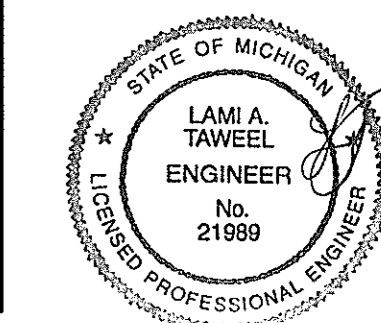
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 1/15/15 SITE DEVELOPMENT PERMIT  
 2/10/14 PER CITY OF WAYNE REVIEW

JACK DEMMER FORD  
 37300 MICHIGAN AVENUE  
 WAYNE, MI 48184

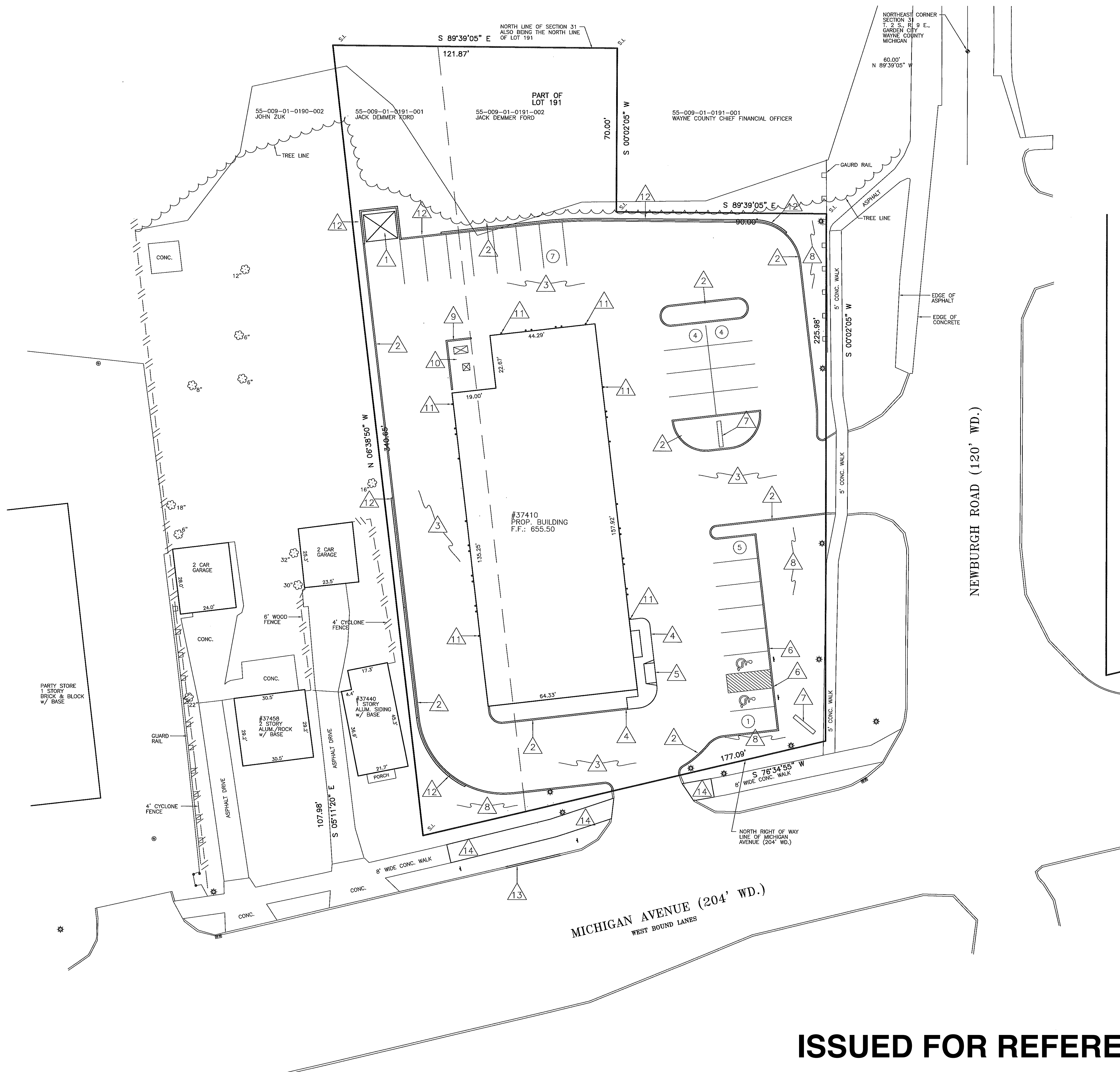
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**GLA SURVEYORS & ENGINEERS**

**DEMOLITION PLAN**  
 JACK DEMMER FORD  
 37410-37434 MICHIGAN AVENUE  
 PART OF THE N.E. 1/4 SEC. 31 T. 2 S., R. 9 E.,  
 CITY OF WAYNE, WAYNE COUNTY, MICHIGAN



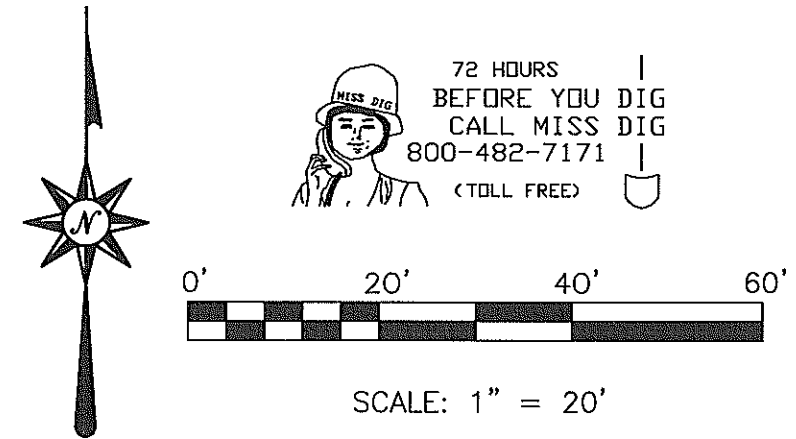
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**BENCHMARKS**

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ARROW ON THE HYDRANT LOCATED ON THE NORTHWEST CORNER OF MICHIGAN AVENUE AND NEWBURGH ROADS. ELEVATION: 654.97 NAVD 88



**SITE ITEMS**

- DUMPSTER ENCLOSURE SET ON 16' x 15' CONCRETE PAD, SEE DETAIL ON DETAIL SHEET
- M.D.O.T. TYPE F-1 CURB (REVERSE CURB), SEE DETAIL ON DETAIL SHEET
- BITUMINOUS PAVEMENT, SEE PAVEMENT DETAIL OF DETAIL SHEET
- INTEGRAL CURB AND SIDEWALK, SEE DETAIL ON DETAIL SHEET
- ADA PEDESTRIAN BUILDING ACCESS, SEE DETAIL ON DETAIL SHEET
- INSTALL HANDICAPPED PARKING SIGN, SEE DETAIL ON DETAIL SHEET
- GROUND SIGN LOCATION, THIS ILLUSTRATION DOES NOT DEPICT THE ACTUAL SIGN SIZE
- GRASS AND LANDSCAPE AREA
- 6' HIGH MASONARY WALL
- ELECTRICAL TRANSFORMER, A/C UNIT AREA, WATER METER, GAS METER
- 6" DIA. CONCRETE BOLLARDS (28 TYP.)
- 8" WIDE KEYSTONE RETAINING WALL. "BY OTHERS".
- INSTALL APPROXIMATELY 24 FEET OF NEW CONCRETE CURB AND GUTTER ALONG MICHIGAN AVENUE OR TO THE NEAREST JOINT AT THE REMOVE DRIVE APPROACH FOR #37434 MICHIGAN AVENUE PER MDT PERMIT ONCE PERMIT ISSUED.
- INSTALL NEW 8 FEET WIDE CONCRETE WALK AS NECESSARY PER REMOVED CONCRETE SIDEWALK AS LISTED ON SHEET C-1. THE REPLACE SIDEWALK SHALL NOT BE CURBED AT THE SIDES OF THE APPROACH. INSTALLATION TO BE PER MDT PERMIT ONCE PERMIT ISSUED.

**ZONING & SETBACKS**

ZONED: B-3 BUSINESS EXTENSIVE

SETBACK REQUIREMENTS:  
FRONT: NONE  
REAR: NONE  
SIDES: NONE

BUILDING CANNOT BE CLOSER THAN 20' TO A RESIDENTIAL BUILDING

PROPOSED  
SITE: 1.26 ACRES  
PAVING/HARD SURFACE: 0.92 AC (73.2%)  
LANDSCAPE/GREENBELT: 0.34 AC (26.8%)  
BUILDING FOOTPRINT: 9,563 sf

**MUNICIPALITY**

CITY OF WAYNE  
3355 SOUTH WAYNE ROAD  
WAYNE, MI 48184

MAIN: 734-722-2000  
COMMUNITY DEVELOPMENT: 734-722-2002  
BUILDING/ENGINEERING: 734-728-9100

**UTILITY NOTE**

UNDERGROUND UTILITY LINES AND STRUCTURES SHOWN ARE PER RECORDS MADE AVAILABLE BY UTILITY OR MUNICIPALITY, AND BY FIELD OBSERVATION WHERE POSSIBLE. ALL MUNICIPALITIES AND UTILITY COMPANIES SHOULD BE NOTIFIED BY CONTRACTOR FOR FIELD LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION.

**LEGEND**

BENCHMARK	B.M.	STORM MANHOLE	
FINISHED FLOOR	F.F.	STORM CATCH BASIN	
FINISHED GRADE	F.G.	SANITARY MANHOLE	
INVERT ELEVATION	I.E.	GATE VALVE & WELL	
GAS MAIN		DET. EDISON MANHOLE	
WATERMAIN		WATER/GAS SHUT OFF	
STORM SEWER		FIRE HYDRANT	
SANITARY SEWER		UTILITY POLE	
OVERHEAD WIRES		POLE OR POST	
FENCE		SIGN	
EX. SPOT ELEVATION		LIGHT	
RECORDED DISTANCE	R.	DECIDUOUS TREE	
MEASURED DISTANCE	M.	EVERGREEN TREE	
SET IRON	S.I.	UTILITY	
FOUND IRON	F.I.	GAS MARKER	
FOUND CONC. MON.	F.C.M.	SECTION CORNER	
POINT OF BEGINNING	P.O.B.	UTILITY PEDESTAL	
TOP OF PIPE	T/P	GUTTER	
TOP OF CURB	T/C	CLEAN OUT	

FILE NO.: 689-190	DWG. NO.: 689-190ENG
DESIGNED BY: S.A.S.	SHEET No.
DRAWN BY: S.A.S.	<b>C-2</b>
CHECKED BY: L.A.T.	
SCALE: 1" = 20'	

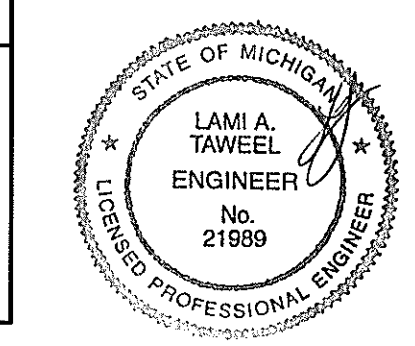
CLIENT  
11/14/13  
11/14/13 DEMO/SOIL EROSION PERMIT  
12/18/13 CITY/COUNTY SUBMITTAL  
1/15/14 SITE DEVELOPMENT PERMIT  
2/10/14 PER CITY OF WAYNE REVIEW

JACK DEMMER FORD  
37300 MICHIGAN AVENUE  
WAYNE, MI 48184

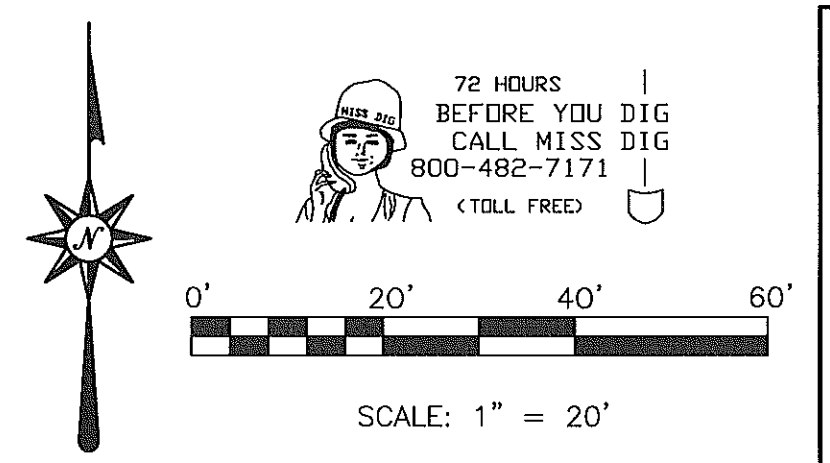
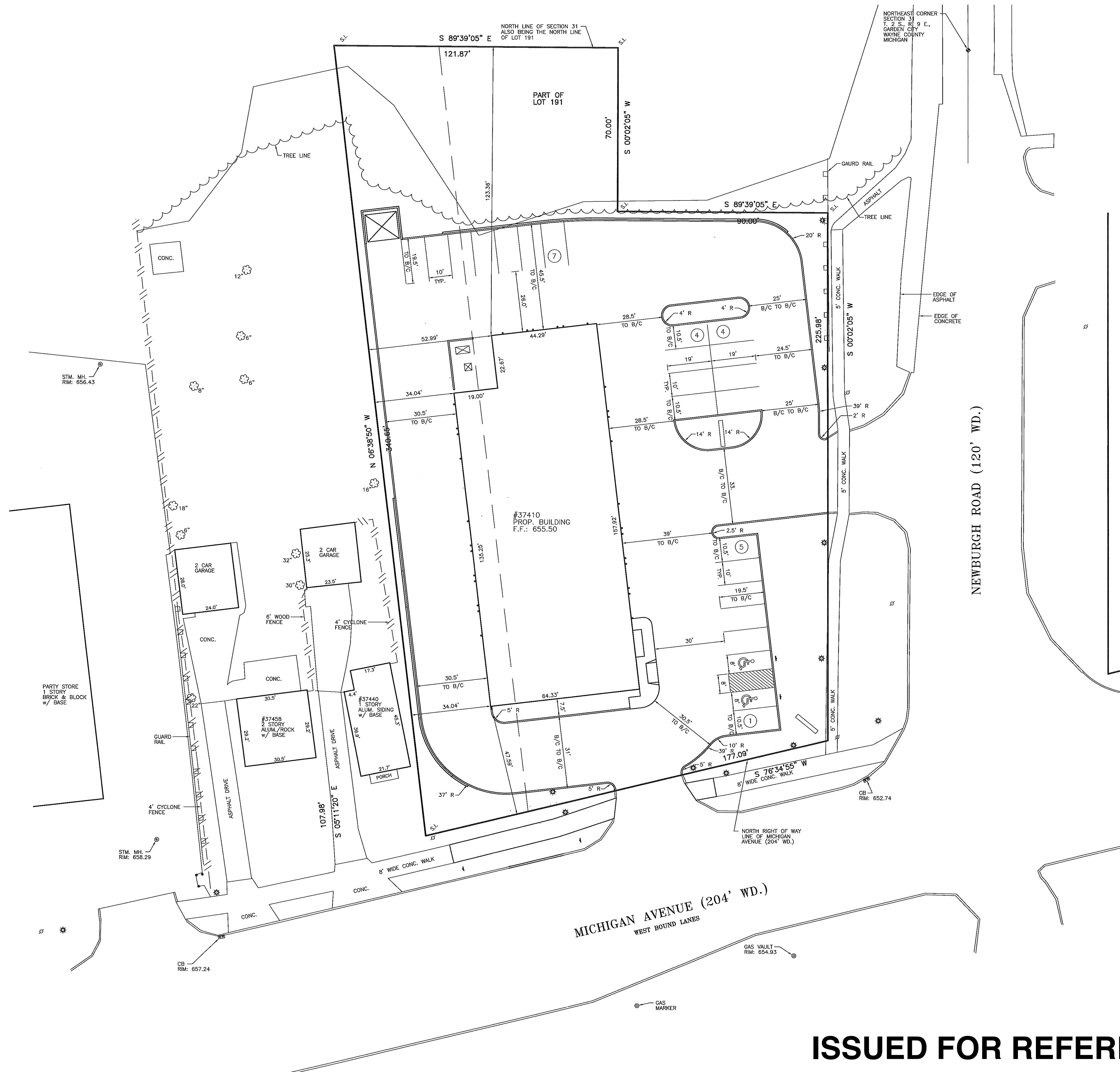
8495 N. TERRITORIAL RD.  
PLYMOUTH, MI 48170  
PHONE: (734) 416-9650  
FAX: (734) 416-9657  
www.glsurveyors.com

**GLA**  
SURVEYORS &  
ENGINEERS

**SITE PLAN**  
JACK DEMMER FORD  
37410-37434 MICHIGAN AVENUE  
PART OF THE N.E. 1/4 SEC. 31 T. 2 S.; R. 9 E.,  
CITY OF WAYNE, WAYNE COUNTY, MICHIGAN



**ISSUED FOR REFERENCE ONLY**



CLIENT:	11/14/13
	11/17/13 DEMO/SOIL EROSION PERMIT
	12/18/13 CITY/COUNTY SUBMITAL
	1/15/14 SITE DEVELOPMENT PERMIT
	2/10/14 PER CITY OF WAYNE REVIEW

CLIENT:  
**JACK DEMMER FORD**  
 37300 MICHIGAN AVENUE  
 WAYNE, MI 48184

8495 N. TERRITORIAL RD.  
 PLYMOUTH, MI 48170  
**GLA SURVEYORS & ENGINEERS**  
 PHONE: (734) 416-9650  
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**BENCHMARKS**

BM #1  
 DISK STAMPED 82667 2006 SET IN A 16 INCH DIAMETER CONCRETE POST FLUSH WITH THE GROUND LOCATED 420' EAST OF THE CENTERLINE OF TREADWELL STREET, 53.5 FEET WEST OF THE EASTERLY MOST CENTER OF THE DRIVE INTO THE REPUBLIC WASTE SERVICES ADDRESS 36850, 32.6 FEET NORTH OF THE CENTERLINE OF VAN BORN ROAD, 28.0 FEET EAST OF THE TOP OF A FIRE HYDRANT AND 3.2 FEET NORTH OF ELEVATION: 653.88 NAVD 88

BM #2  
 ARROW ON THE HYDRANT LOCATED ON THE NORTHWEST CORNER OF MICHIGAN AVENUE AND NEWBURGH ROADS. ELEVATION: 654.97 NAVD 88

**ZONING & SETBACKS**

ZONED: B-3 BUSINESS EXTENSIVE  
 SETBACK REQUIREMENTS:  
 FRONT: NONE  
 REAR: NONE  
 SIDES: NONE  
 BUILDING CANNOT BE CLOSER THAN 20' TO A RESIDENTIAL BUILDING

**MUNICIPALITY**

CITY OF WAYNE  
 3355 SOUTH WAYNE ROAD  
 WAYNE, MI 48184  
 MAIN: 734-722-2000  
 COMMUNITY DEVELOPMENT: 734-722-2002  
 BUILDING/ENGINEERING: 734-728-9100

**UTILITY NOTE**

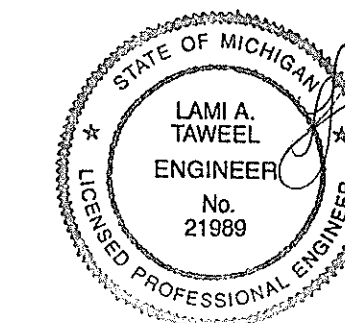
UNDERGROUND UTILITY LINES AND STRUCTURES SHOWN ARE PER RECORDS MADE AVAILABLE BY UTILITY OR MUNICIPALITY, AND BY FIELD OBSERVATION WHERE POSSIBLE. ALL MUNICIPALITIES AND UTILITY COMPANIES SHOULD BE NOTIFIED BY CONTRACTOR FOR FIELD LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION.

**LEGEND**

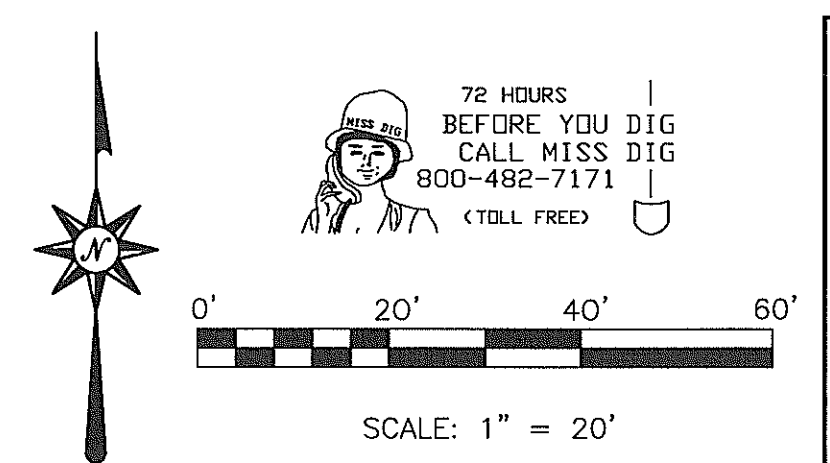
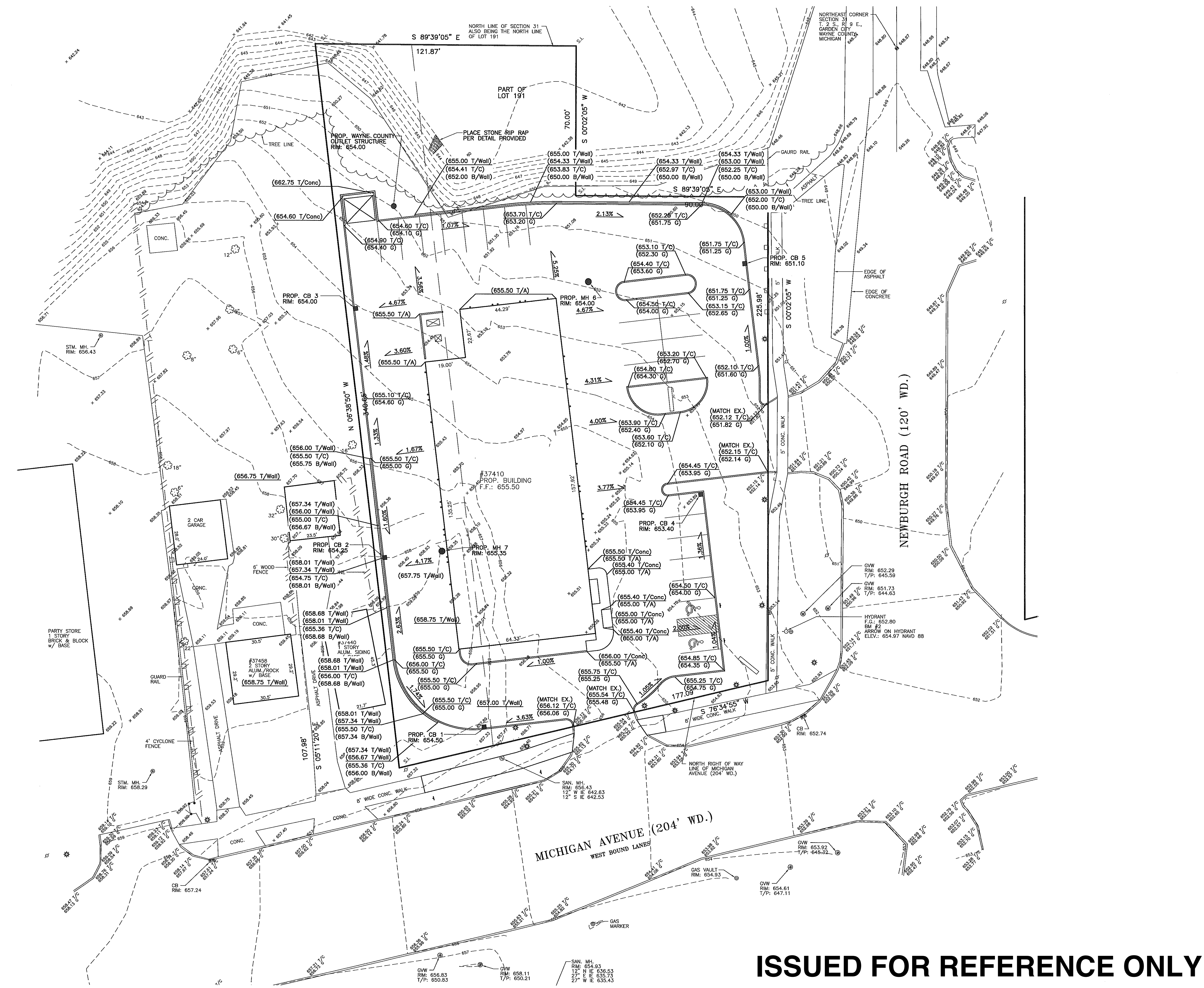
BENCHMARK	B.M.	STORM MANHOLE	⊕
FINISHED FLOOR	F.F.	STORM CATCH BASIN	⊞
FINISHED GRADE	F.G.	SANITARY MANHOLE	⊞
INVERT ELEVATION	I.E.	GATE VALVE & WELL	⊞
GAS MAIN	—	DET. EDISON MANHOLE	⊞
WATERMAIN	—	WATER/GAS SHUT OFF	⊞
STORM SEWER	—	FIRE HYDRANT	⊞
SANITARY SEWER	—	UTILITY POLE	⊞
OVERHEAD WIRES	—	POLE OR POST	⊞
FENCE	—	SIGN	⊞
EX. SPOT ELEVATION	⊙	LIGHT	⊞
RECORDED DISTANCE	R.	DECIDUOUS TREE	⊞
MEASURED DISTANCE	M.	EVERGREEN TREE	⊞
SET IRON	S.I.	GUYWIRE	⊞
FOUND IRON	F.I.	GAS MARKER	⊞
FOUND CONC. MON.	F.C.M.	SECTION CORNER	⊞
POINT OF BEGINNING	P.O.B.	UTILITY PEDESTAL	⊞
TOP OF PIPE	T/P	GUTTER	⊞
TOP OF CURB	T/C	CLEAN OUT	⊞

FILE NO.: 689-190	DWG. NO.: 689-190ENG
DESIGNED BY: S.A.S.	SHEET No.
DRAWN BY: S.A.S.	<b>C-3</b>
CHECKED BY: L.A.T.	
SCALE: 1" = 20'	

**DIMENSIONAL SITE PLAN**  
**JACK DEMMER FORD**  
 37410-37434 MICHIGAN AVENUE  
 PART OF THE N.E. 1/4 SEC. 31 T. 2 S., R. 9 E.,  
 CITY OF WAYNE, WAYNE COUNTY, MICHIGAN



**ISSUED FOR REFERENCE ONLY**



**BENCHMARKS**

BM #1  
DISK STAMPED 82667 2006 SET IN A 16 INCH DIAMETER CONCRETE POST FLUSH WITH THE GROUND LOCATED 420' EAST OF THE CENTERLINE OF TREADWELL STREET, 53.5 FEET WEST OF THE EASTERLY MOST CENTER OF THE DRIVE INTO THE REPUBLIC WASTE SERVICES ADDRESS 38850, 32.8 FEET NORTH OF THE CENTERLINE OF VAN BORN ROAD, 25.0 FEET EAST OF THE TOP OF A FIRE HYDRANT AND 3.2 FEET NORTH OF A CARSONITE WITNESS POST.  
ELEVATION: 663.88 NAVD 88

BM #2  
ARROW ON THE HYDRANT LOCATED ON THE NORTHEAST CORNER OF MICHIGAN AVENUE AND NEWBURGH ROADS.  
ELEVATION: 654.97 NAVD 88

**MUNICIPALITY**

CITY OF WAYNE  
3355 SOUTH WAYNE ROAD  
WAYNE, MI 48184  
MAIN: 734-722-2000  
COMMUNITY DEVELOPMENT: 734-722-2002  
BUILDING/ENGINEERING: 734-728-9100

**PROPOSED LEGEND**

STORMWATER PRETREATMENT UNIT  
WAYNE COUNTY OUTLET STRUCTURE  
STORM MANHOLE  
CATCH BASIN  
DRAINAGE DIRECTION  
PROP. ELEVATION (0.00)

**LEGEND**

BENCHMARK	B.M.	STORM MANHOLE	⊕
FINISHED FLOOR	F.F.	STORM CATCH BASIN	⊕
FINISHED GRADE	F.G.	SANITARY MANHOLE	⊕
INVERT ELEVATION	I.E.	GATE VALVE & WELL	⊕
GAS MAN	—	DET. EDISON MANHOLE	⊕
WATERMAN	—	WATER/GAS SHUT OFF	⊕
STORM SEWER	—	FIRE HYDRANT	⊕
SANITARY SEWER	—	UTILITY POLE	⊕
OVERHEAD WIRES	—	POLE OR POST	⊕
FENCE	—	SIGN	⊕
EX. SPOT ELEVATION	⊕	LIGHT	⊕
RECORDED DISTANCE	R.	DEODOROUS TREE	⊕
MEASURED DISTANCE	M.	EVERGREEN TREE	⊕
SET IRON	S.I.	GYWIRE	⊕
FOUND IRON	F.I.	GAS MARKER	⊕
FOUND CONC. MON.	F.C.M.	SECTION CORNER	⊕
POINT OF BEGINNING	P.O.B.	UTILITY PEDESTAL	⊕
TOP OF PIPE	T/P	GUTTER	⊕
TOP OF CURB	T/C	CLEAN OUT	⊕

FILE NO.: 689-190	DWG. NO.: 689-190ENG
DESIGNED BY: S.A.S.	SHEET No.
DRAWN BY: S.A.S.	<b>C-4</b>
CHECKED BY: L.A.T.	SCALE: 1" = 20'

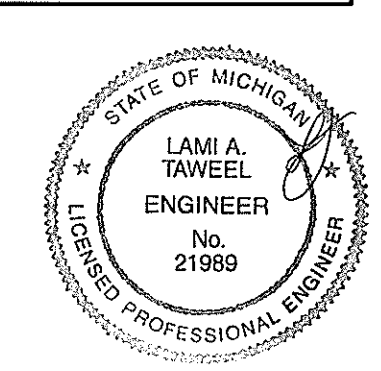
CLIENT:	11/14/13
JACK DEMMER FORD	11/14/13 DEMO/SOIL EROSION PERMIT
37300 MICHIGAN AVENUE	12/18/13 CITY/COUNTY SUBMITTAL
WAYNE, MI 48184	1/15/14 SITE DEVELOPMENT PERMIT
	2/10/14 PER CITY OF WAYNE REVIEW

JACK DEMMER FORD  
37300 MICHIGAN AVENUE  
WAYNE, MI 48184

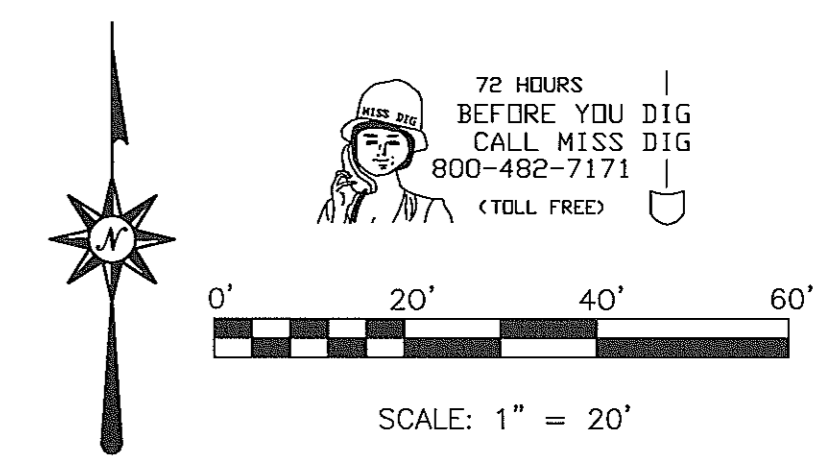
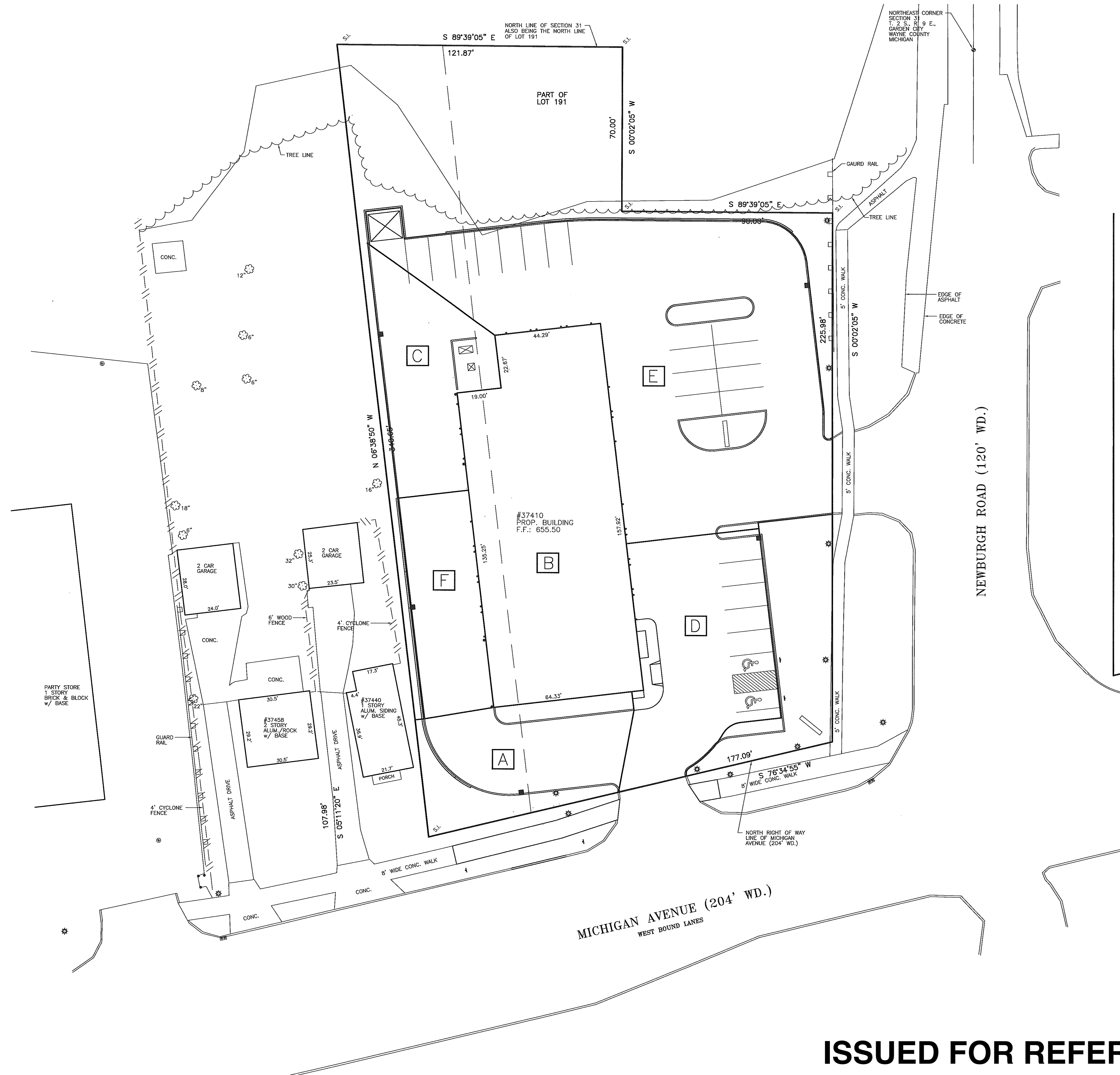
8495 N. TERRITORIAL RD.  
PLYMOUTH, MI 48170  
PHONE: (734) 416-9650  
FAX: (734) 416-9657  
www.glasurveyor.com

**GLA SURVEYORS & ENGINEERS**

**GRADING PLAN**  
JACK DEMMER FORD  
37410-37434 MICHIGAN AVENUE  
PART OF THE N.E. 1/4 SEC. 31 T. 2 S., R. 9 E.,  
CITY OF WAYNE, WAYNE COUNTY, MICHIGAN



**ISSUED FOR REFERENCE ONLY**



AREA	GRASS (SQ. FT.)	HARD SURFACE (SQ. FT.)	SQ. FT. (TOTAL)	ACRE (TOTAL)	WEIGHTED "C"
A	436	3,694	4,130	0.09	0.88
B	0	12,568	12,568	0.29	0.95
C	0	3,509	3,509	0.08	0.95
D	102	5,438	5,540	0.13	0.94
E	814	14,543	15,357	0.35	0.91
<b>Total</b>	<b>1,352</b>	<b>39,752</b>	<b>41,104</b>	<b>0.94</b>	<b>0.93</b>

SURFACE	"C" VALUE	City of Wayne Values
GRASS:	0.25	
HARD:	0.95	

**BENCHMARKS**

BM #1  
DISK STAMPED 82667 2006 SET IN A 16 INCH DIAMETER CONCRETE POST FLUSH WITH THE GROUND LOCATED 420' EAST OF THE CENTERLINE OF TREADWELL STREET, 53.5 FEET WEST OF THE EASTERLY MOST CENTER OF THE DRIVE INTO THE REPUBLIC WASTE SERVICES ADDRESS 38850, 32.6 FEET NORTH OF THE CENTERLINE OF VAN BORN ROAD, 26.0 FEET EAST OF THE TOP OF A FIRE HYDRANT AND 3.2 FEET NORTH OF A CARBONITE WITNESS POST.  
ELEVATION: 663.88 NAVD 88

BM #2  
ARROW ON THE HYDRANT LOCATED ON THE NORTHWEST CORNER OF MICHIGAN AVENUE AND NEWBURGH ROADS.  
ELEVATION: 654.97 NAVD 88

**MUNICIPALITY**

CITY OF WAYNE  
3355 SOUTH WAYNE ROAD  
WAYNE, MI 48184

MAN: 734-722-2000  
COMMUNITY DEVELOPMENT: 734-722-2002  
BUILDING/ENGINEERING: 734-728-9100

**UTILITY NOTE**

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**LEGEND**

BENCHMARK	B.M.	STORM MANHOLE	
FINISHED FLOOR	F.F.	STORM CATCH BASIN	
FINISHED GRADE	F.G.	SANITARY MANHOLE	
INVERT ELEVATION	I.E.	GATE VALVE & WELL	
GAS MAIN		DET. EDISON MANHOLE	
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OVERHEAD WIRES		POLE OR POST	
FENCE		SIGN	
EX. SPOT ELEVATION		LIGHT	
RECORDED DISTANCE	R.	DECIDUOUS TREE	
MEASURED DISTANCE	M.	EVERGREEN TREE	
SET IRON	S.I.	CURB	
FOUND IRON	F.I.	GAS MARKER	
FOUND CONC. MON.	F.C.M.	SECTION CORNER	
POINT OF BEGINNING	P.O.B.	UTILITY PEDESTAL	
TOP OF PIPE	T/P	GUTTER	
TOP OF CURB	T/C	CLEAN OUT	

FILE NO.: 689-190	DWG. NO.: 689-190ENG
DESIGNED BY: S.A.S.	SHEET No.
DRAWN BY: S.A.S.	<b>C-5</b>
CHECKED BY: L.A.T.	
SCALE: 1" = 20'	

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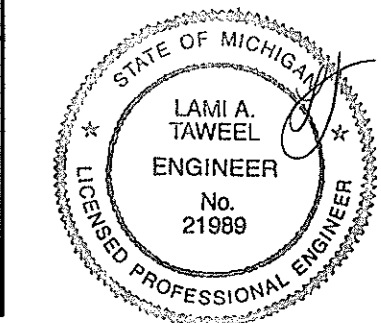
CLIENT: 11/14/13  
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12/18/13 CITY/COUNTY SUBMITTAL  
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2/19/14 PER CITY OF WAYNE REVIEW

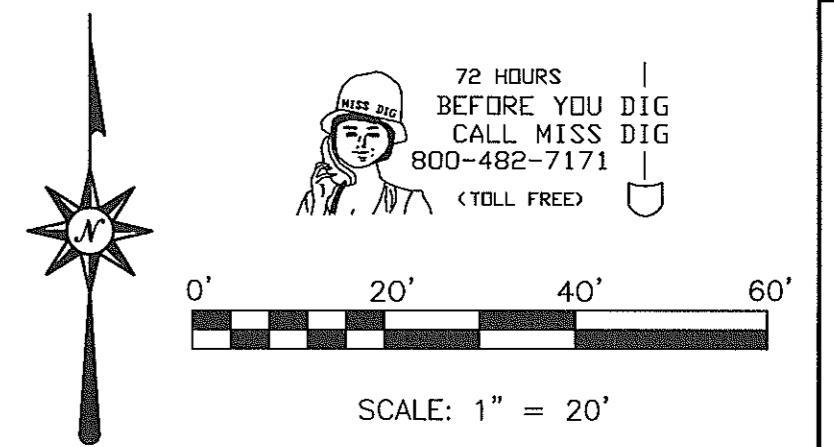
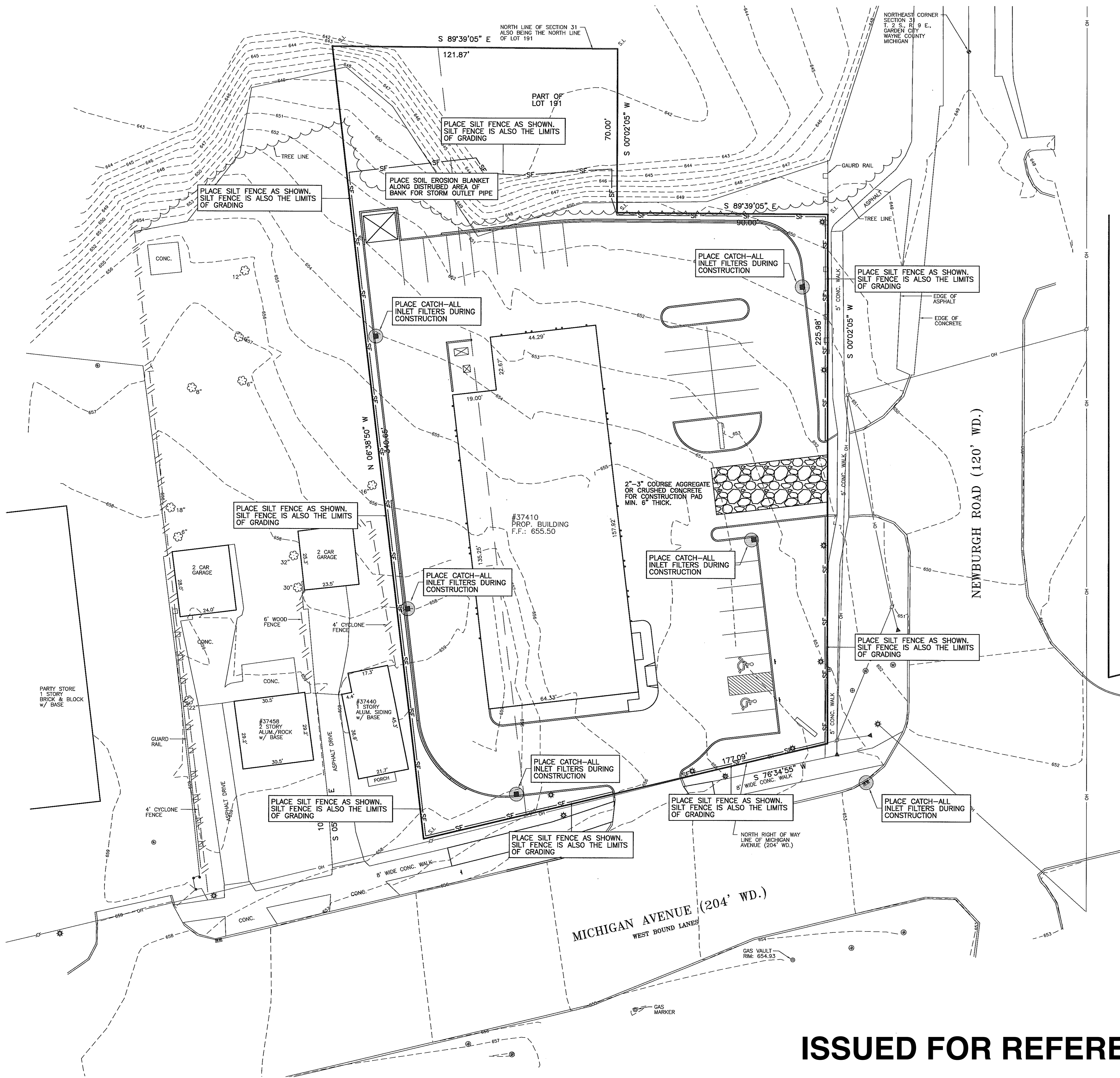
JACK DEMMER FORD  
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WAYNE, MI 48184

8495 N. TERRITORIAL RD.  
PLYMOUTH, MI 48170  
PHONE: (734) 416-9650  
FAX: (734) 416-9657  
www.glasurveyor.com

**GLA SURVEYORS & ENGINEERS**

**DRAINAGE DISTRICTS**  
JACK DEMMER FORD  
37410-37434 MICHIGAN AVENUE  
PART OF THE N.E. 1/4 SEC. 31 T. 2 S., R. 9 E.,  
CITY OF WAYNE, WAYNE COUNTY, MICHIGAN





**SOIL EROSION NOTE**

1, SOIL EROSION NOTES AND DETAILS ARE ON SHEET C-8

**CONTRACTOR NOTE**

ALL CONSTRUCTION CONTRACTORS ARE REQUIRED TO CONTROL ALL POLLUTANT SOURCES AT THE CONSTRUCTION SITE THAT MAY CAUSE ADVERSE IMPACTS TO WATER QUALITY, INCLUDING BUT NOT LIMITED TO: CONSTRUCTION MATERIALS AND WASTE DISCARDED BUILDING MATERIALS, CONCRETE WASHOUT, CHEMICALS, FUEL, LITTER AND SANITARY WASTE. THE CONTRACTOR MUST REPORT TO THE PROJECT ENGINEER, WAYNE COUNTY AND/OR CITY OF WAYNE OFFICIAL ANY ILLEGAL DISCHARGES THEY MAY OBSERVE, IMPACTING WATER QUALITY.

**BENCHMARKS**

BM #1  
DISK STAMPED 82667 2006 SET IN A 18 INCH DIAMETER CONCRETE POST FLUSH WITH THE GROUND LOCATED 420' EAST OF THE CENTERLINE OF TREADWELL STREET, 53.5 FEET WEST OF THE EASTERLY MOST CENTER OF THE DRIVE INTO THE REPUBLIC WASTE SERVICES ADDRESS 36850, 32.6 FEET NORTH OF THE CENTERLINE OF VAN BORN ROAD, 26.0 FEET EAST OF THE TOP OF A FIRE HYDRANT AND 3.2 FEET NORTH OF A CARSONITE WITNESS POST.  
ELEVATION: 663.88 NAVD 88

BM #2  
ARROW ON THE HYDRANT LOCATED ON THE NORTHWEST CORNER OF MICHIGAN AVENUE AND NEWBURGH ROADS.  
ELEVATION: 654.97 NAVD 88

**MUNICIPALITY**

CITY OF WAYNE  
3355 SOUTH WAYNE ROAD  
WAYNE, MI 48184

MAIN: 734-722-2000  
COMMUNITY DEVELOPMENT: 734-722-2002  
BUILDING/ENGINEERING: 734-728-9100

**UTILITY NOTE**

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**LEGEND**

BENCHMARK	B.M.	STORM MANHOLE	⊕
FINISHED FLOOR	F.F.	STORM CATCH BASIN	⊕
SANITARY MANHOLE	S.M.	SANITARY MANHOLE	⊕
INVERT ELEVATION	I.E.	GATE VALVE & WELL	⊕
GAS MAIN	—	DET. EDISON MANHOLE	⊕
WATERMAIN	—	WATER/GAS SHUT OFF	⊕
STORM SEWER	—	FIRE HYDRANT	⊕
SANITARY SEWER	—	UTILITY POLE	⊕
OVERHEAD WIRES	—	POLE OR POST	⊕
FENCE	—	SON	⊕
EX. SPOT ELEVATION	⊕	LIGHT	⊕
RECORDED DISTANCE	R.	DECIDUOUS TREE	⊕
MEASURED DISTANCE	M.	EVERGREEN TREE	⊕
SET IRON	S.I.	GLYVIRE	⊕
FOUND IRON	F.I.	GAS MARKER	⊕
FOUND CONC. MON.	F.C.M.	SECTION CORNER	⊕
POINT OF BEGINNING	P.O.B.	UTILITY PEDESTAL	⊕
TOP OF PIPE	T/P	GUTTER	⊕
TOP OF CURB	T/C	CLEAN OUT	⊕

FILE NO.: 689-190	DWG. NO.: 689-190ENG
DESIGNED BY: S.A.S.	SHEET No.
DRAWN BY: S.A.S.	<b>C-6</b>
CHECKED BY: L.A.T.	
SCALE: 1" = 20'	

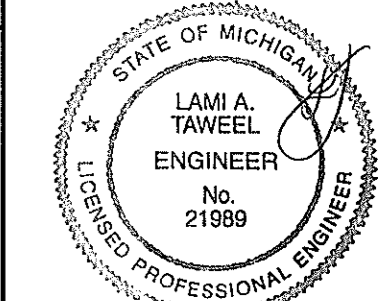
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CLIENT:  
JACK DEMMER FORD  
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WAYNE, MI 48184

8495 N. TERRITORIAL RD.  
PLYMOUTH, MI 48170

**GLA** SURVEYORS & ENGINEERS  
PHONE: (734) 416-9650  
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**SOIL EROSION PLAN**  
JACK DEMMER FORD  
37410-37434 MICHIGAN AVENUE  
PART OF THE N.E. 1/4 SEC. 31 T. 2 S., R. 9 E.,  
CITY OF WAYNE, WAYNE COUNTY, MICHIGAN

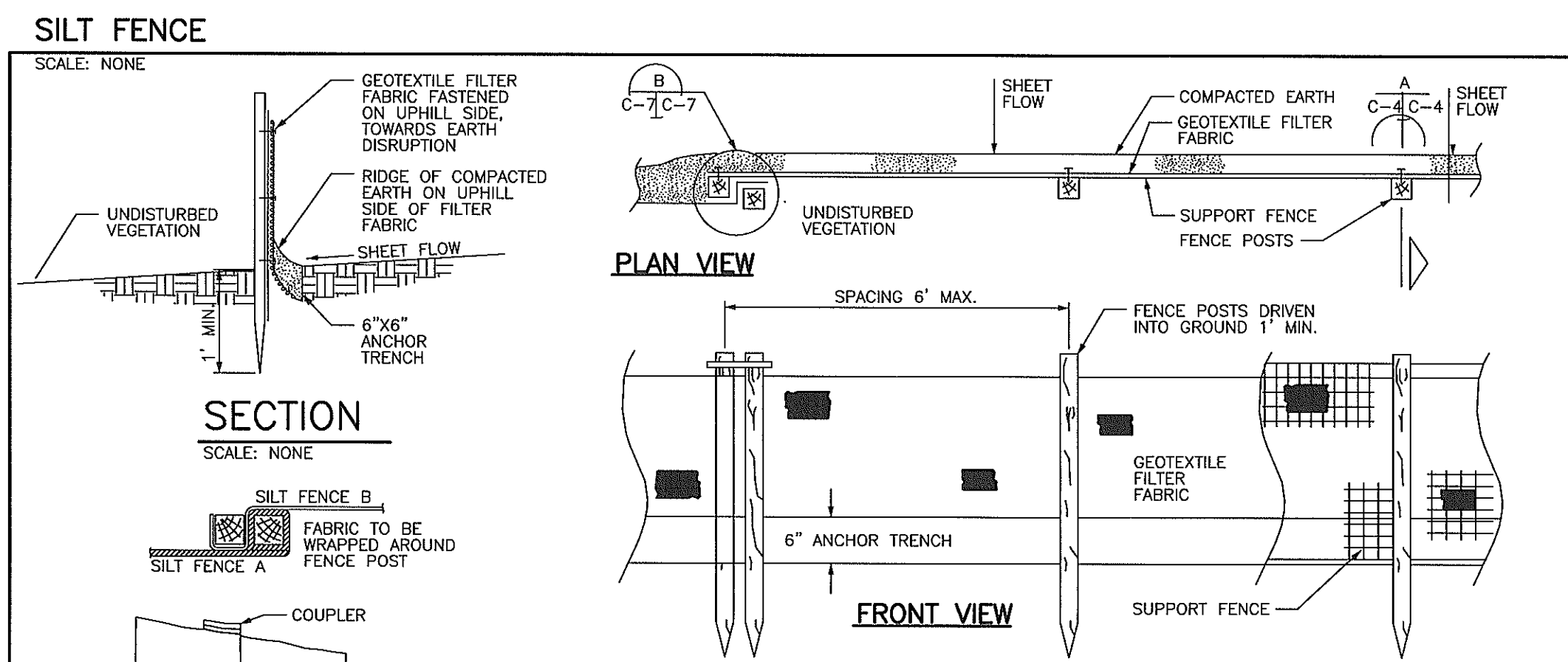


**ISSUED FOR REFERENCE ONLY**



### SOIL EROSION MAINTENANCE SCHEDULE

TASKS	COMPONENTS						SCHEDULE
	PAVED AREAS	PERVIOUS AREAS	STORM DRAINAGE SYSTEM	CATCH BASIN SUMPS	SILT FENCE	CONSTRUCTION ENTRANCE	
INSPECT FOR SEDIMENT ACCUMULATION	X	X	X	X	X		WEEKLY
REMOVAL OF SEDIMENT ACCUMULATION	X	X	X	X	X	X	AS NEEDED
CLEANING FOR FLOATABLES AND DEBRIS			X	X	X		WEEKLY/AFTER RAIN EVENT
INSPECTION FOR EROSION		X					WEEKLY/AFTER RAIN EVENT
REESTABLISH PERMANENT VEGETATION ON ERODED SLOPES		X					AS NEEDED
CLEAN DRIVES AND PARKING LOT	X			X	X		AS NEEDED/WEEKLY
WATER DISTURBED AREAS TO PROVIDE DUST CONTROL	X						AS NEEDED
MAKE ADJUSTMENTS OR REPLACEMENTS AS DETERMINED	X					X	WEEKLY/AS DETERMINED BY PERMITTING AGENCY



### CATCH - ALL INLET FILTER NOTES

DESCRIPTION: THIS WORK SHALL CONSIST OF THE FURNISHING, INSTALLATION AND REMOVAL OF A DRAINAGE STRUCTURE INLET FILTER ASSEMBLY, CONSISTING OF A FRAME AND FILTER BAG, TO COLLECT SEDIMENT IN SURFACE STORMWATER RUNOFF AT LOCATIONS SHOWN ON THE PLAN OR AS DIRECTED BY THE DESIGN ENGINEER.

THE CONTRACTOR SHALL INSPECT THE WORK SITE AND REVIEW THE PLANS TO DETERMINE THE NUMBER AND DIMENSIONS OF THE VARIOUS TYPES OF DRAINAGE STRUCTURE FRAMES (CIRCULAR AND RECTANGULAR) INTO WHICH THE INLET FILTERS WILL BE INSTALLED PRIOR TO ORDERING MATERIALS.

THE DRAINAGE STRUCTURE INLET FILTER ASSEMBLY SHALL BE INSTALLED UNDER THE GRATE ON THE UP OF THE DRAINAGE STRUCTURE FRAME WITH THE FABRIC BAG HANGING DOWN INTO THE DRAINAGE STRUCTURE.

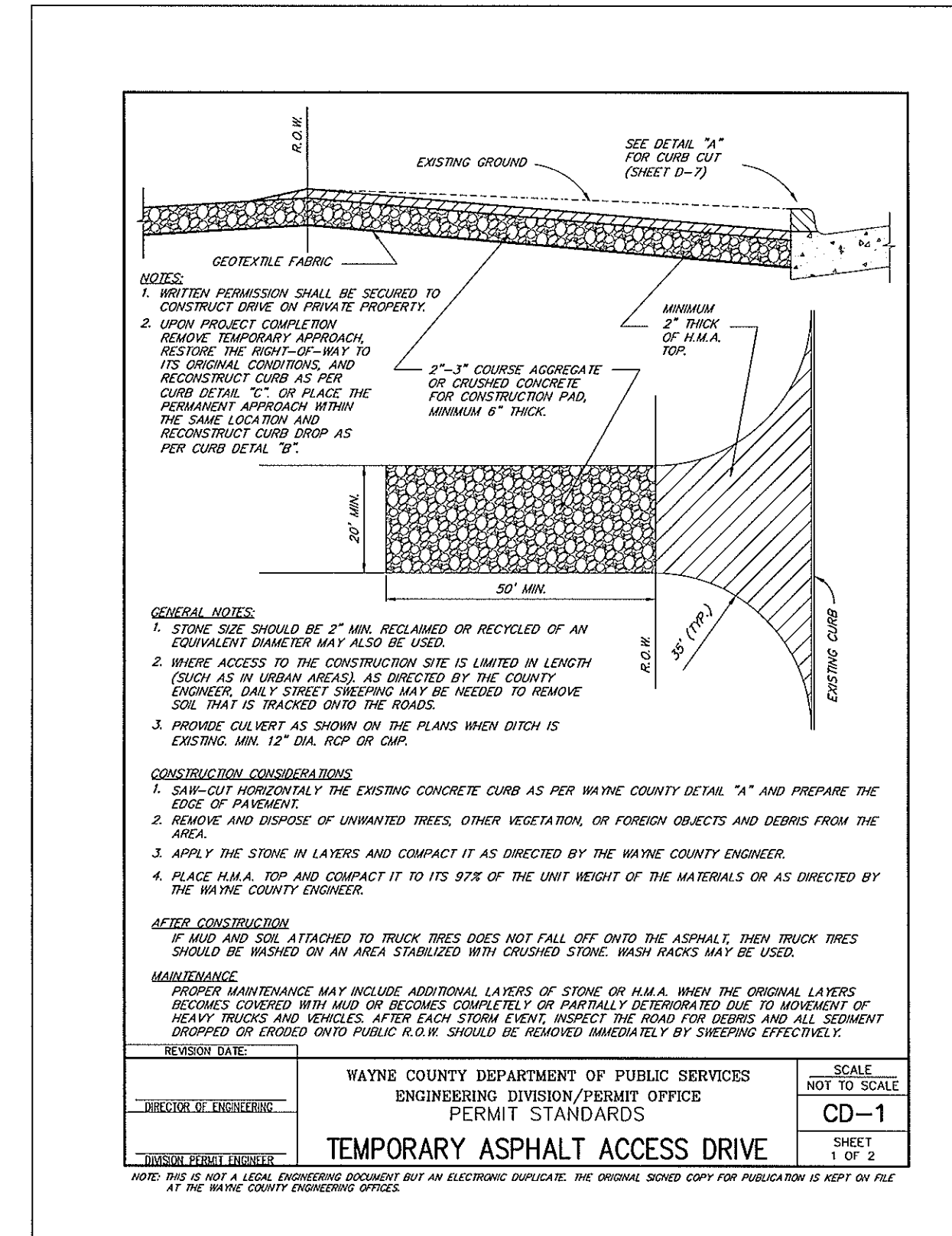
THE DRAINAGE STRUCTURE INLET FILTER ASSEMBLY SHALL REMAIN IN PLACE UNTIL FINAL REMOVAL OF THE ASSEMBLY AS DIRECTED BY THE ENGINEER.

FINAL REMOVAL OF THE ASSEMBLY SHALL INCLUDE THE DISPOSAL OF DEBRIS OR SILT THAT HAS ACCUMULATED IN THE FILTER BAG AT THE TIME OF REMOVAL.

CLEANING OF THE INLET FILTER SHALL CONSIST OF INSPECTING, CLEANING (INCLUDES REMOVAL AND PROPER DISPOSAL OF DEBRIS AND SILT THAT HAS ACCUMULATED IN THE FILTER FABRIC BAG), BY VACUUMING, REMOVING AND DUMPING OR ANY OTHER METHOD APPROVED BY THE ENGINEER.

### SOIL EROSION MAINTENANCE REQUIREMENTS

- ALL EROSION AND SEDIMENT CONTROL WORK SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE WAYNE COUNTY DEPARTMENT OF ENVIRONMENT LAND RESOURCE MANAGEMENT DIVISION.
- DAILY INSPECTIONS SHALL BE MADE BY THE CONTRACTOR OR OWNER TO DETERMINE EFFECTIVENESS OF EROSION AND SEDIMENT CONTROL MEASURES, AND ANY NECESSARY REPAIRS SHALL BE PERFORMED WITHOUT DELAY.
- EROSION AND ANY SEDIMENT FROM WORK ON THIS SITE SHALL BE CONTAINED ON THE SITE AND NOT ALLOWED TO COLLECT ON ANY OFF-SITE AREAS OR IN WATERWAYS. WATERWAYS INCLUDE BOTH NATURAL AND MAN-MADE OPEN DITCHES, STREAMS, STORM DRAINS, LAKES AND PONDS.
- EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP IN CONSTRUCTION; SEDIMENT CONTROL PRACTICES WILL BE APPLIED AS PERIMETER DEFENSE AGAINST ANY TRANSPORTING OF SILT OFF THE SITE.
- CONTRACTOR SHALL APPLY TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES AS REQUIRED AND AS DIRECTED ON THESE PLANS. TYPICALLY, SILT FENCE OR STRAW BALES SHALL BE REMOVED AS SOON AS PERMANENT STABILIZATION OF SLOPES, DITCHES, AND OTHER EARTH CHANGES HAVE BEEN ACCOMPLISHED AND APPROVED BY THE CITY OF WAYNE OR COUNTY ENGINEER.
- DEBRIS FROM THE PROJECT WILL BE LEFT ON THE SITE BY DELIVERY OR CONSTRUCTION VEHICLES THROUGH THE USE OF CLEAN STONE EXITS. SHOULD THE STONE BECOME LESS EFFICIENT IT WILL BE REPLACED. ALL CONSTRUCTION TRAFFIC WILL USE THE CLEAN STONE EXITS.
- DUST CONTROL WILL BE EXERCISED AT ALL TIMES WITHIN THE PROJECT BY THE DEVELOPER AND/OR HIS CONTRACTORS. SPRINKLING TANK TRUCKS WILL BE AVAILABLE AT ALL TIMES TO BE USED ON HAUL ROUTES OR OTHER PLACES WHERE DUST BECOMES A PROBLEM.
- IMMEDIATELY AFTER SEEDING, MULCH ALL SEEDED AREAS WITH UNWEATHERED SMALL GRAIN STRAW OR HAY SPREAD UNIFORMLY AT THE RATE OF 1-1/2 TO 2 TONS PER ACRE OR 100 POUNDS PER 1000 SQUARE FEET. ANCHOR MULCH WITH DISC-TYPE MULCH ANCHORING TOOL OR OTHER MEANS AS APPROVED BY THE CITY OF WAYNE OR COUNTY ENGINEER.
- ALL MUD, DIRT, AND DEBRIS TRACKED ONTO EXISTING ROADS FROM THIS SITE SHALL BE PROMPTLY REMOVED BY THE CONTRACTOR AND/OR BUILDER. ALL MUD, DIRT, AND DEBRIS TRACKED OR SPILLED ONTO PAVED SURFACES WITHIN THIS SITE SHALL BE PROMPTLY REMOVED BY THE CONTRACTOR AND/OR BUILDER.
- PERMANENT SOIL EROSION CONTROL MEASURES FOR ALL SLOPES, CHANNELS, DITCHES, OR ANY DISTURBED LAND AREA SHALL BE COMPLETED WITHIN 15 CALENDAR DAYS AFTER FINAL GRADING OR FINAL EARTH CHANGES HAVE BEEN COMPLETED. IF IT IS NOT PERMANENTLY STABLE, A DISTURBED AREA AFTER AN EARTH CHANGE HAS BEEN COMPLETED OR WHERE SIGNIFICANT EARTH CHANGE ACTIVITY CEASES TEMPORARY SOIL EROSION CONTROL MEASURES SHALL BE IMPLEMENTED WITHIN 30 CALENDAR DAYS. ALL TEMPORARY SOIL EROSION CONTROL MEASURES SHALL BE MAINTAINED UNTIL PERMANENT SOIL EROSION CONTROL MEASURES ARE IMPLEMENTED AND/OR ESTABLISHED. ALL PERMANENT SOIL EROSION CONTROL MEASURES WILL BE IMPLEMENTED AND ESTABLISHED BEFORE A CERTIFICATE OF COMPLIANCE IS ISSUED. PERMANENT SOIL EROSION MEASURES INCLUDE SEED AND MULCH, SOIL, OR OTHER FORM OF GROUND COVER.
- CITY OF WAYNE, WAYNE COUNTY AND/OR DESIGN ENGINEER RESERVES THE RIGHT TO REQUIRE ADDITIONAL AND/OR DIFFERENT SOIL EROSION MEASURES AS NEEDED BY FIELD CONDITIONS.



### SOIL EROSION CONTROL NOTES

CUTTING, FILLING AND GRADING SHALL BE MINIMIZED AND THE NATURAL TOPOGRAPHY OF THE SITE SHALL BE PRESERVED TO THE MAXIMUM POSSIBLE EXTENT, EXCEPT WHERE SPECIFIC FINDINGS DEMONSTRATE THAT MAJOR ALTERATIONS WILL STILL MEET THE PURPOSES AND REQUIREMENTS OF THIS ORDINANCE.

DEVELOPMENT SHALL BE STAGED TO KEEP THE EXPOSED AREAS OF SOIL AS SMALL AS PRACTICABLE.

SOIL EROSION CONTROL MEASURES SHALL BE INSTALLED BETWEEN THE DISTURBED AREA AND ANY WATERCOURSES, INCLUDING RIVERS, STREAMS, CREEKS, LAKES, PONDS AND OTHER WATERCOURSES.

SEDIMENT RESULTING FROM ACCELERATED SOIL EROSION SHALL BE REMOVED FROM RUNOFF WATER BEFORE THAT WATER LEAVES THE SITE.

TEMPORARY AND PERMANENT SOIL EROSION CONTROL MEASURES DESIGNED FOR THE CONVEYANCE OF WATER AROUND, THROUGH, OR AWAY FROM THE SITE SHALL BE DESIGNED TO LIMIT THE WATER FLOW TO A NON-EROSIVE VELOCITY.

TEMPORARY SOIL EROSION CONTROL MEASURES SHALL BE REMOVED AFTER PERMANENT SOIL EROSION CONTROL MEASURES HAVE BEEN IMPLEMENTED. ALL SITES SHALL BE STABILIZED WITH PERMANENT SOIL EROSION CONTROL MEASURES.

IF LAKES, PONDS, CREEKS, STREAMS, CANALS, RIVERS, OR WETLANDS ARE LOCATED ON OR NEAR THE SITE, EROSION CONTROL MEASURES WHICH DIVERT RUNOFF AND TRAP SEDIMENTS MUST BE PROVIDED AT STRATEGIC LOCATIONS. STRAW BALE BERMS MAY BE USED AS TEMPORARY STORMWATER DIVERSION STRUCTURES, BUT WILL NOT BE CONSIDERED SUFFICIENT FOR PERMANENT STABILIZATION OF SEDIMENT BASINS. FILTER FABRIC, VEGETATED BUFFER STRIPS AND ROCK FILTERS IN LIEU OF STRAW BALE BERMS SHALL BE STRONGLY ENCOURAGED. OTHER MEASURES MAY BE REQUIRED IF REASONABLY DETERMINED TO BE NECESSARY TO PROTECT A WATERCOURSE OR WETLAND.

WHEN IT IS NOT POSSIBLE TO PERMANENTLY STABILIZE A DISTURBED AREA AFTER AN EARTH CHANGE HAS BEEN COMPLETED OR WHEN SIGNIFICANT EARTH CHANGES CEASES, TEMPORARY SOIL EROSION CONTROL MEASURES SHALL BE INSTALLED.

PERMANENT EROSION CONTROL MEASURES FOR ALL SLOPES, CHANNELS, DITCHES OR ANY DISTURBED LAND AREA SHALL BE COMPLETED WITHIN 15 (FIFTEEN) CALENDAR DAYS AFTER FINAL GRADING OF THE FINAL EARTH CHANGE HAS BEEN COMPLETED. ALL TEMPORARY SOIL EROSION CONTROL MEASURES SHALL BE MAINTAINED UNTIL PERMANENT SOIL EROSION CONTROL MEASURES ARE IMPLEMENTED.

VEGETATED BUFFER STRIPS SHALL BE CREATED OR RETAINED ALONG THE EDGES OF ALL LAKES, PONDS, CREEKS, STREAMS, CANALS, RIVERS, OTHER WATERCOURSES OR WETLANDS.

EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE RECEIVED REGULAR MAINTENANCE TO ASSURE PROPER FUNCTIONING.

ALL GRADING PLANS AND SPECIFICATIONS, INCLUDING EXTENSIONS OF PREVIOUSLY APPROVED PLANS SHALL INCLUDE PROVISIONS FOR EROSION AND SEDIMENT CONTROL IN ACCORDANCE WITH, BUT NOT LIMITED TO, THE STANDARDS CONTAINED IN THE "STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL", PUBLISHED BY OAKLAND SOIL CONSERVATION DISTRICT.

### SOIL EROSION CONTROL NOTES SEQUENCE OF OPERATION (NEW CONSTRUCTION)

- INSTALL ACCESS DRIVE AT THE SITE ENTRANCE AS INDICATED ON THE PLANS.
- INSTALL SILT FENCE AND/OR OTHER SIMILAR APPROVED SILT BARRIER ALONG PROPERTY LINES.
- STRIP EXISTING TOPSOIL, VEGETATION AND ORGANIC MATTER FROM BUILDING AND ROADWAY AREAS. COMMENCE LAND GRADING AND MASS GRADING OPERATIONS. MAINTAIN A MINIMUM BUFFER OF 15' OF EXISTING VEGETATION WHEREVER POSSIBLE AROUND SITE PERIMETER. STOCK PILES SHOULD BE LOCATED AWAY FROM EXISTING DRAINAGE FACILITIES.
- EXCAVATE AND INSTALL UNDERGROUND UTILITIES. INSTALL PEAS STONE INLET FILTERS AROUND ALL NEW STORM SEWER FACILITIES AS INDICATED ON THE PLANS. EXISTING AND PROPOSED STORM SEWER FACILITIES SHALL BE PROTECTED FROM EROSION AND SEDIMENT INFILTRATION AT ALL TIMES.
- COMMENCE FINAL GRADING AND TRIMMING OPERATIONS. PREPARE SURFACE FOR INSTALLATION OF PROPOSED PAVEMENT.
- SEED AND MULCH ALL DISTURBED SITE AREAS AND INSTALL SITE LANDSCAPING.
- REMOVE CONSTRUCTION DEBRIS AND SET VAC NEWLY INSTALLED STORM SEWER SYSTEM AS REQUIRED BY THE MUNICIPALITY.
- REMOVE ALL REMAINING TEMPORARY SOIL EROSION AND SEDIMENTATION CONTROL MEASURES ONCE PERMANENT MEASURES ARE ESTABLISHED.
- WHEN EVER POSSIBLE, THE SITE SHALL BE GRADED TO WITHIN SIX INCHES (6") OF THE PROPOSED FINISH GRADE PRIOR TO INSTALLATION OF THE UNDERGROUND FACILITIES.
- STAGING OF PROPOSED WORK SHALL BE COMPLETED BY THE CONTRACTOR AS REQUIRED TO ENSURE PROGRESSIVE STABILIZATION OF DISTURBED AREAS.

### CONTRACTOR NOTE

ALL CONSTRUCTION CONTRACTORS ARE REQUIRED TO CONTROL ALL POLLUTANT SOURCES AT THE CONSTRUCTION SITE THAT MAY CAUSE ADVERSE IMPACTS TO WATER QUALITY, INCLUDING BUT NOT LIMITED TO: CONSTRUCTION MATERIALS AND WASTE DISCARDED BUILDING MATERIALS, CONCRETE WASHOUT, CHEMICALS, FUEL, LITTER AND SANITARY WASTE. THE CONTRACTOR MUST REPORT TO THE PROJECT ENGINEER, WAYNE COUNTY AND/OR CITY OF WAYNE OFFICIAL ANY ILLEGAL DISCHARGES THEY MAY OBSERVE, IMPACTING WATER QUALITY.

CLIENT:	11/14/13
	11/14/13 DEMO/SOIL EROSION PERMIT
	12/18/13 CITY/COUNTY SUBMITAL
	1/15/14 SITE DEVELOPMENT PERMIT
	2/10/14 PER CITY OF WAYNE REVIEW
JACK DEMMER FORD 37300 MICHIGAN AVENUE WAYNE, MI 48184	

8495 N. TERRITORIAL RD.  
FLINT, MI 48917  
PHONE: (734) 416-9650  
FAX: (734) 416-9657  
www.glsurveyor.com

# GL SURVEYORS & ENGINEERS

### SOIL EROSION NOTES

JACK DEMMER FORD  
37410-37434 MICHIGAN AVENUE  
PART OF THE N.E. 1/4 SEC. 31 T. 2 S., R. 9 E.,  
CITY OF WAYNE, WAYNE COUNTY, MICHIGAN

START	END	
11/20/13	11/20/13	1. STONE TRACKING PAD ATOP GEOTEXTILE LINER (MUD-MAT).
11/20/13	11/20/13	2. INSTALL SILT FENCING AND PROTECTIVE FENCING.
11/21/13	12/5/13	3. DEMOLITION OF EXISTING BUILDINGS, GARAGE, DRIVEWAYS, PARKING LOT.
12/6/13	12/10/13	4. STRIP TOPSOIL AND REMOVE ALL ORGANICS.
12/11/13	12/20/13	5. BUILD RETAINING WALL ALONG THE WEST PROPERTY LINE
12/11/13	12/20/13	6. GRADE AND BALANCE SITE AS REQUIRED.
12/20/13	4/30/13	7. POUR BUILDING FOUNDATIONS AND START BUILDING CONSTRUCTION.
12/20/13	4/30/13	8. INSTALL UNDERGROUND UTILITIES (SANITARY, STORM, WATER, ELECTRICAL AND GAS).
12/20/13	4/30/13	9. PLACE INLET FILTERS ONCE STORM STRUCTURES HAVE BEEN INSTALLED.
4/15/13	4/30/13	10. INSTALL PAVEMENT COMPLETE.
4/15/12	4/30/13	11. ESTABLISH VEGETATION FOR ALL DISTURBED AREAS AND ROAD/ R.O.W.s
4/28/12	4/30/13	12. CLEAN OUT STORM SEWERS SYSTEM.
4/28/12	4/30/13	13. REMOVE SILT FENCE AND CATCH BASIN FILTERS FOLLOWING W.C.D.O.E. APPROVAL. (CALL FOR FINAL INSPECTION)

**Catch-All**  
Inlet Protector  
Custom fitted to virtually any inlet casting

Marathon Materials, Inc.  
2823 W. Gibraltar Street  
Franklin, IL 60424  
(815) 942-9493

**Catch-All JH** - is a manufacturer inlet filtration device designed to significantly reduce the ingress of pollutants into stormwater systems, and therefore, improve water quality. Designs are available for a custom fit in virtually any drainage structure casting.

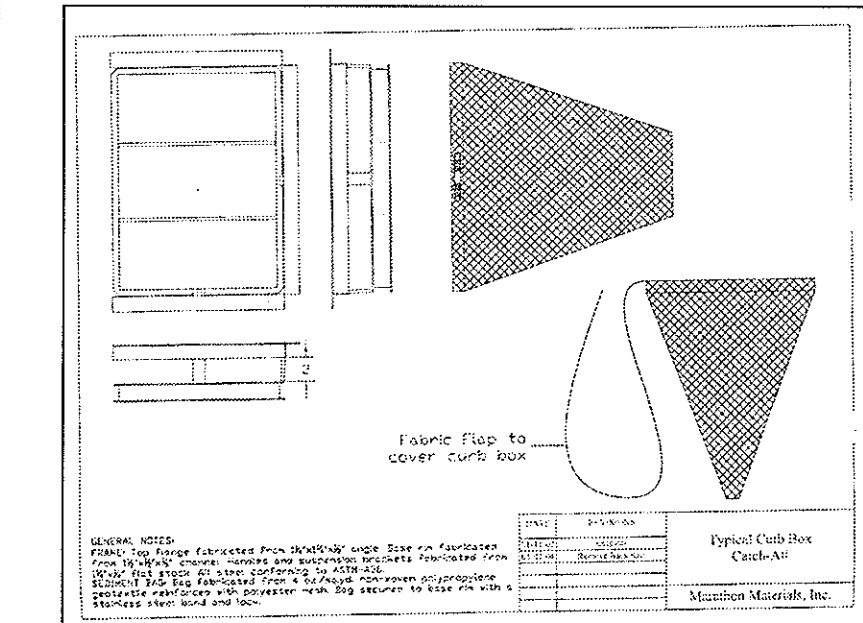
**Catch-All JH** is available to provide the added benefits of hydrocarbon removal.

**Design Benefits:**

- Pollution Control
- Retention Control
- Hydrocarbon (Cuts All BTL)
- Non-toxic/Non-flammable
- Fragrance
- Heavy Metals
- Oil/Water Separation

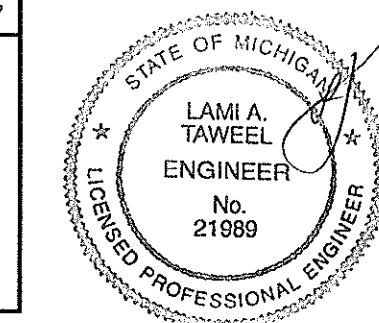
**Applications:**

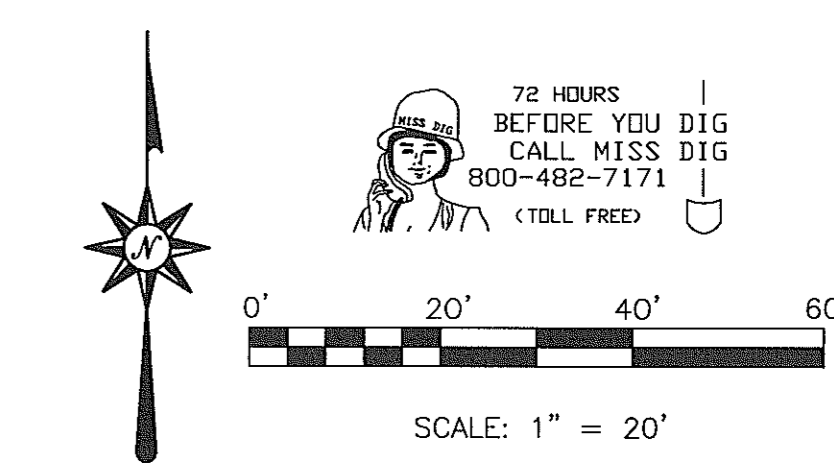
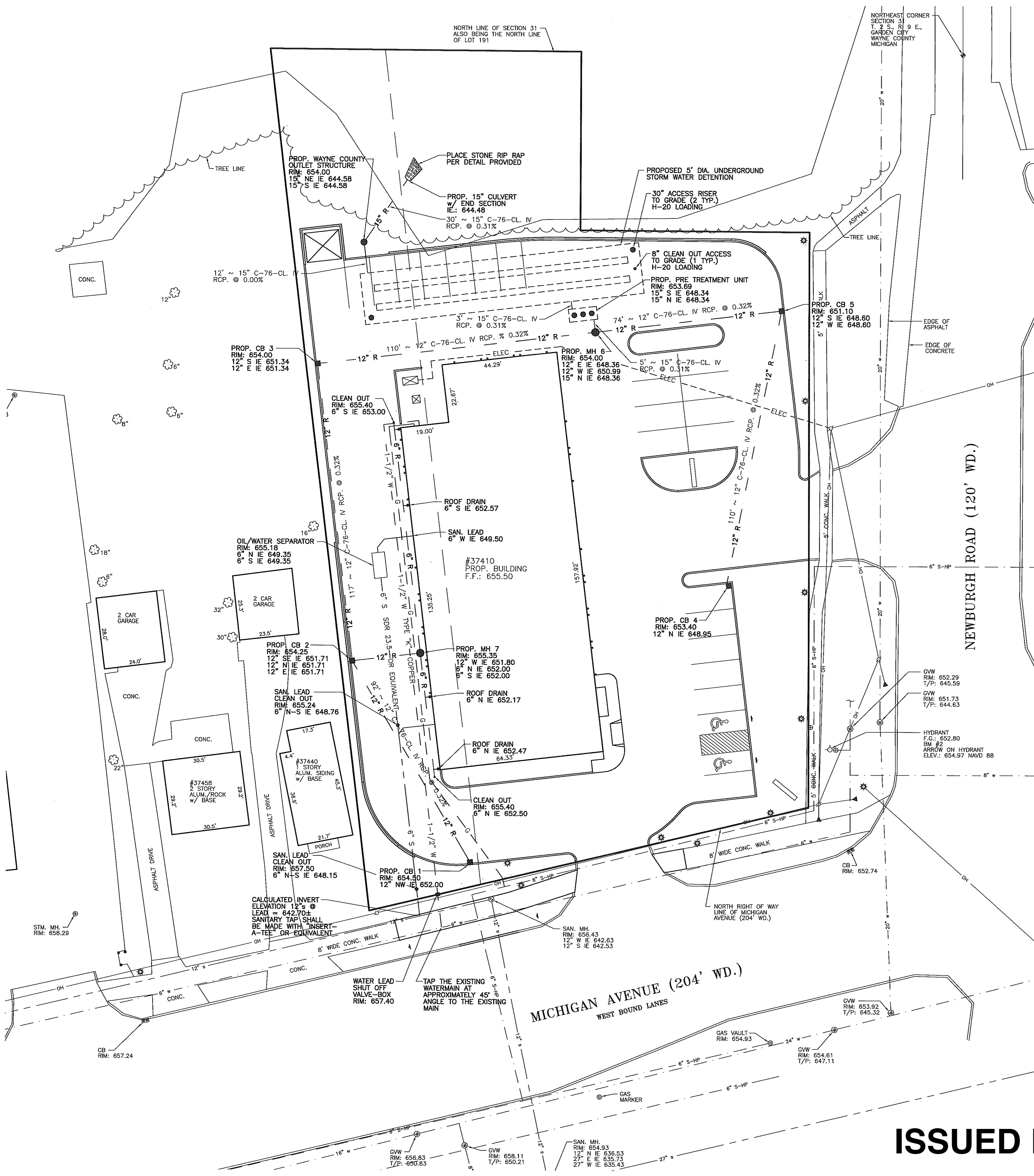
- Wet Development of Highways/Construction
- Fuel Production/Refinement Control
- Petroleum Ref.
- Maintenance Yard
- Wash Bay
- Parking Lot & Garage
- Airports - Terminals, Airline Gates, Roadway Runways
- Fuel/Pet Food Distribution
- Public Maintenance of Engineering/Design Offices
- Routine Maintenance of Unattended On-Voice Reporting



# ISSUED FOR REFERENCE ONLY

FILE NO.: 689-190	DWG. NO.: 689-190ENG
DESIGNED BY: S.A.S.	SHEET No.
DRAWN BY: S.A.S.	<b>C-7</b>
CHECKED BY: L.A.T.	
SCALE: 1" = 20'	





GLA Surveyors & Engineers

**STORM SEWER COMPUTATION SHEET**

10 YEAR STORM

LOCATION: City of Wayne, MI  
 Calc'd by: S. Schumacher  
 PROJECT: Jack Demmer - Quicklane

JOB NO. 689-190  
 Checked by: L.A.T.  
 STREET: Michigan Ave

Date: December 3, 2013  
 Rev.: N/A

Manning's 'n' for hydraulic slope: 0.013  
 Manning's 'n' for hydraulic slope: 0.013  
 Diameter for change in n, if desired: 12.0  
 min. acceptable cover (ft) 'N/CB: 2.00 2.00  
 Pipe thickness for cover cdc. (in): 2.75 RCP  
 2.75 RCP

Struc. No.	RUN	Area No.	A	C	CA	Σ CA	Flow I	Time	I	O	Di	L	Pipe S	Hyd. S	V (ft)	CAP	IE	IE	Hyd.	H.G.	RIM UP	CVR	RIM LOW	CVR	HG
CB 1	1-2	A	0.09	0.08	0.08	0.08	min.	min.	10	YEAR	in.	ft.	%	%	ft/s	cfs	upper	lower	delta	ft	ft	CHK	ft	CHK	CHK
							0.6	15.0	4.35	0.36	12	32	0.32	0.01	2.57	2.01	651.80	651.71	0.00	652.72	654.50	OK	654.00	OK	OK
							0.2	15.2												652.71					
							0.6	16.2												652.56	654.00	OK	651.00	OK	OK
							0.8	17.0												652.34					
							0.8	17.7												652.28	654.00	OK	654.00	OK	OK
							0.7	16.5												651.99					
							0.7	17.2												649.60					
							0.5	18.2												649.57					

**BENCHMARKS**

BM #1  
 DISK STAMPED 82667 2006 SET IN A 16 INCH DIAMETER CONCRETE POST FLUSH WITH THE GROUND LOCATED 420' EAST OF THE CENTERLINE OF TREADWELL STREET, 53.5 FEET WEST OF THE EASTERLY MOST CENTER OF THE DRIVE INTO THE REPUBLIC WASTE SERVICES ADDRESS 36850, 32.6 FEET NORTH OF THE CENTERLINE OF VAN BORN ROAD, 26.0 FEET EAST OF THE TOP OF A FIRE HYDRANT AND 3.2 FEET NORTH OF A CARSONITE WITNESS POST.  
 ELEVATION: 663.88 NAVD 88

BM #2  
 ARROW ON THE HYDRANT LOCATED ON THE NORTHWEST CORNER OF MICHIGAN AVENUE AND NEWBURGH ROADS.  
 ELEVATION: 654.97 NAVD 88

**PROPOSED PRE-TREATMENT UNIT**

THE REQUIRED PRE-TREATMENT UNIT SHALL BE AN APPROVED WAYNE COUNTY PRE-TREATMENT UNIT DESIGNED TO HANDLE THE DESIGN PEAK FLOW OF 3.60 cfs.

VORTECHNICS..... 4000 MODEL  
 STORMCEPTOR..... 3600 MODEL  
 OR APPROVED EQUAL

**PROPOSED UNDERGROUND DETENTION**

THE REQUIRED UNDERGROUND DETENTION SHALL BE AN APPROVED WAYNE COUNTY PIPE MATERIAL.

**PROPOSED UTILITY SERVICE**

1. THE PROPOSED SANITARY LEAD MATERIAL SHALL BE (SDR 23.5) OR EQUIVALENT.
2. THE PROPOSED WATER SERVICE MATERIAL SHALL BE (TYPE "K" COPPER), TAP THE EXISTING WATERMAIN AT APPROXIMATELY 45° ANGLE TO THE EXISTING MAIN.

**UTILITY COMPANIES**

AT&T  
 31100 PLYMOUTH ROAD  
 ROOM 105  
 LYONIA, MI 48150  
 (734) 523-7584  
 (734) 523-7589 FAX

DETROIT EDISON  
 ONE ENERGY PLAZA  
 IGS GROUP, 518 5B  
 DETROIT, MI 48225  
 (313) 235-8811  
 (313) 235-9366 FAX

CONSUMERS ENERGY  
 GAS INFORMATION MANAGEMENT  
 530 WEST WILLOW STREET  
 P.O. BOX 30  
 LANSING, MI 48909  
 (877) 240-9802

COMCAST REGIONAL DESIGN CENTER  
 25626 TELEGRAPH ROAD  
 SOUTHFIELD, MI 48034  
 (248) 809-2749  
 (248) 809-2721 FAX

**UTILITY NOTE**

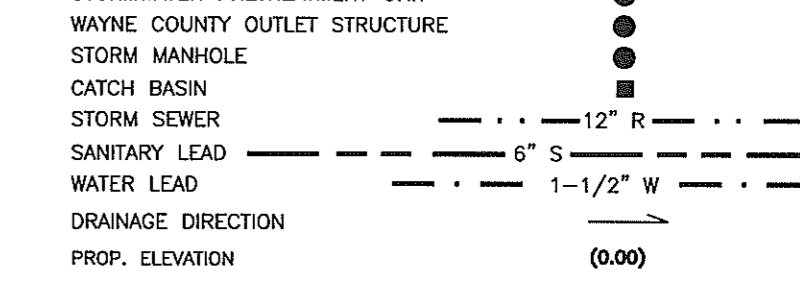
UNDERGROUND UTILITY LINES AND STRUCTURES SHOWN ARE PER RECORDS MADE AVAILABLE BY UTILITY OR MUNICIPALITY, AND BY FIELD OBSERVATION WHERE POSSIBLE. ALL MUNICIPALITIES AND UTILITY COMPANIES SHOULD BE NOTIFIED BY CONTRACTOR FOR FIELD LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION.

**MUNICIPALITY**

CITY OF WAYNE  
 3355 SOUTH WAYNE ROAD  
 WAYNE, MI 48184

MAIN: 734-722-2000  
 COMMUNITY DEVELOPMENT: 734-722-2002  
 BUILDING/ENGINEERING: 734-728-9100

**PROPOSED LEGEND**



**LEGEND**

BENCHMARK	B.M.	STORM MANHOLE
FINISHED FLOOR	F.F.	STORM CATCH BASIN
FINISHED GRADE	F.G.	SANITARY MANHOLE
INVERT ELEVATION	I.E.	GATE VALVE & WELL
GAS MAIN	—	DET. EDISON MANHOLE
WATERMAIN	—	WATER/GAS SHUT OFF
STORM SEWER	—	FIRE HYDRANT
SANITARY SEWER	—	UTILITY POLE
OVERHEAD WIRES	—	POLE OR POST
FENCE	—	SIGN
EX. SPOT ELEVATION	—	LIGHT
RECORDED DISTANCE	R.	DECIDUOUS TREE
MEASURED DISTANCE	M.	EVERGREEN TREE
SET IRON	S.I.	QUARRY
FOUND IRON	F.I.	GAS MARKER
FOUND CONC. MON.	F.C.M.	SECTION CORNER
POINT OF BEGINNING	P.O.B.	UTILITY PEDESTAL
TOP OF PIPE	T/P	GUTTER
TOP OF CURB	T/C	CLEAN OUT

FILE NO.: 689-190    DWG. NO.: 689-190ENG

DESIGNED BY: S.A.S.    SHEET No. C-8

DRAWN BY: S.A.S.

CHECKED BY: L.A.T.

SCALE: 1" = 20'

**ISSUED FOR REFERENCE ONLY**

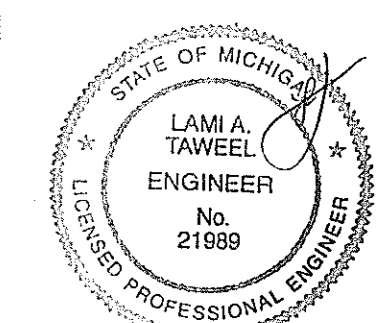
CLIENT: 12/18/13  
 12/18/13 CITY/COUNTY SUBMITTAL  
 1/15/14 SITE DEVELOPMENT PERMIT  
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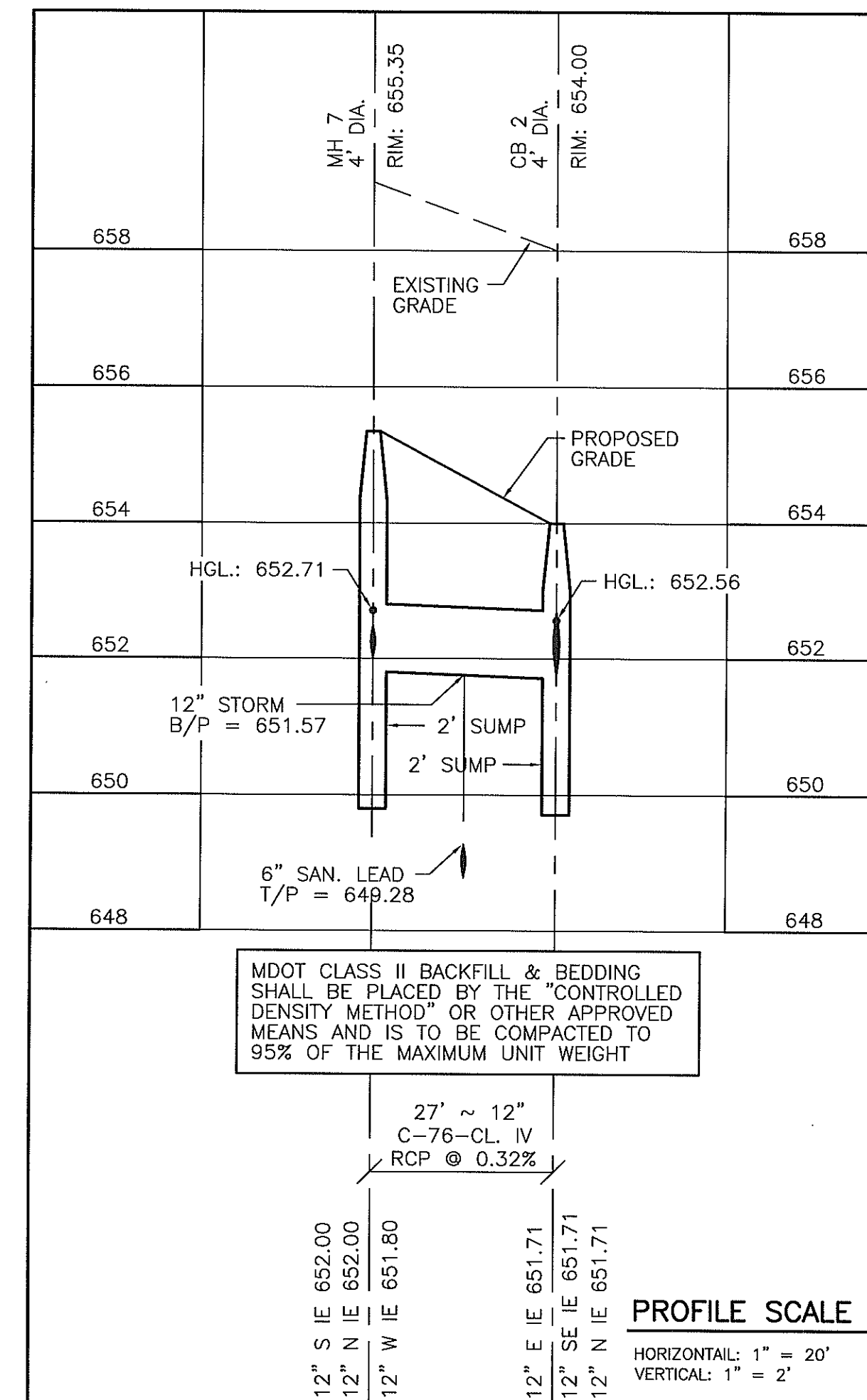
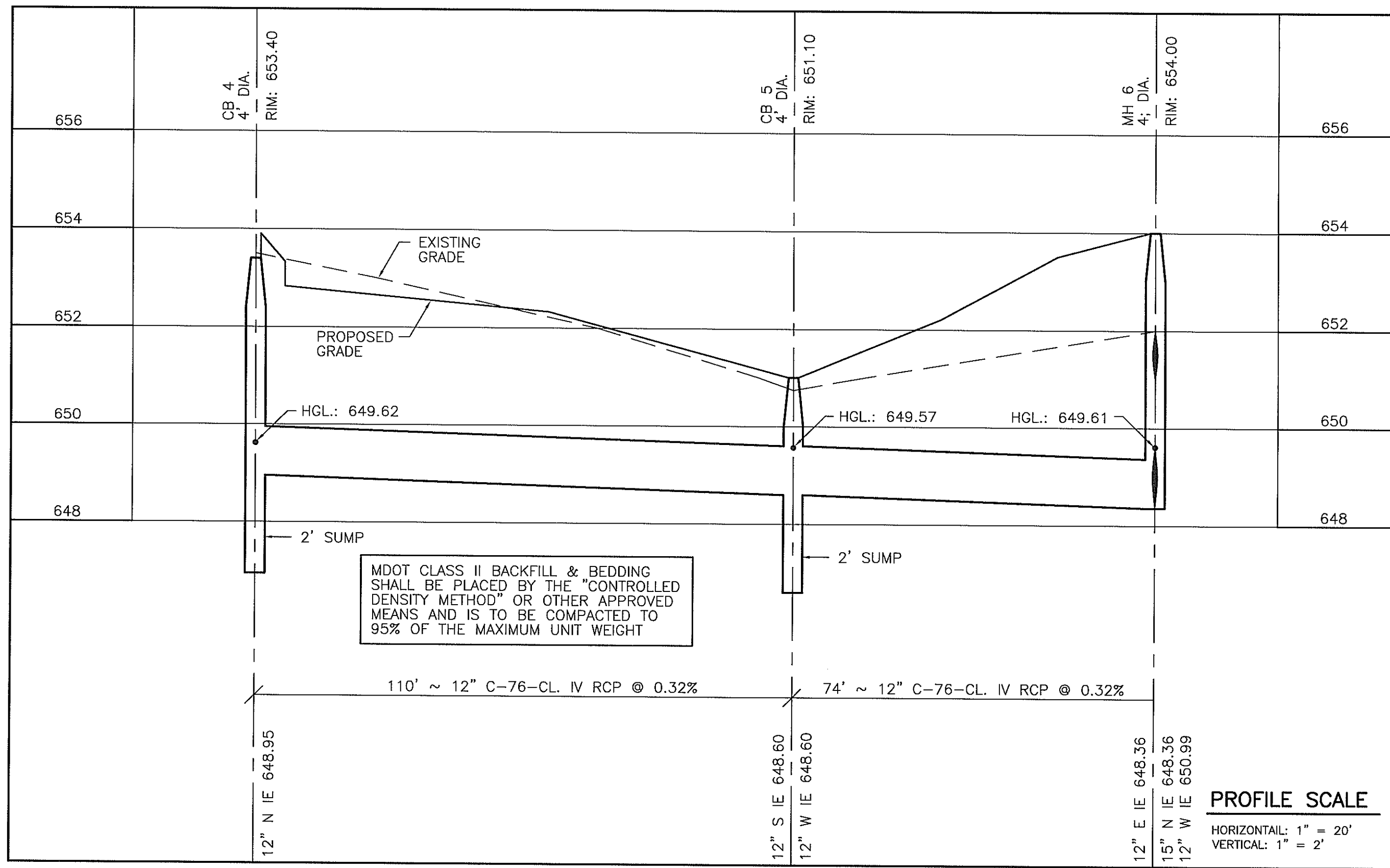
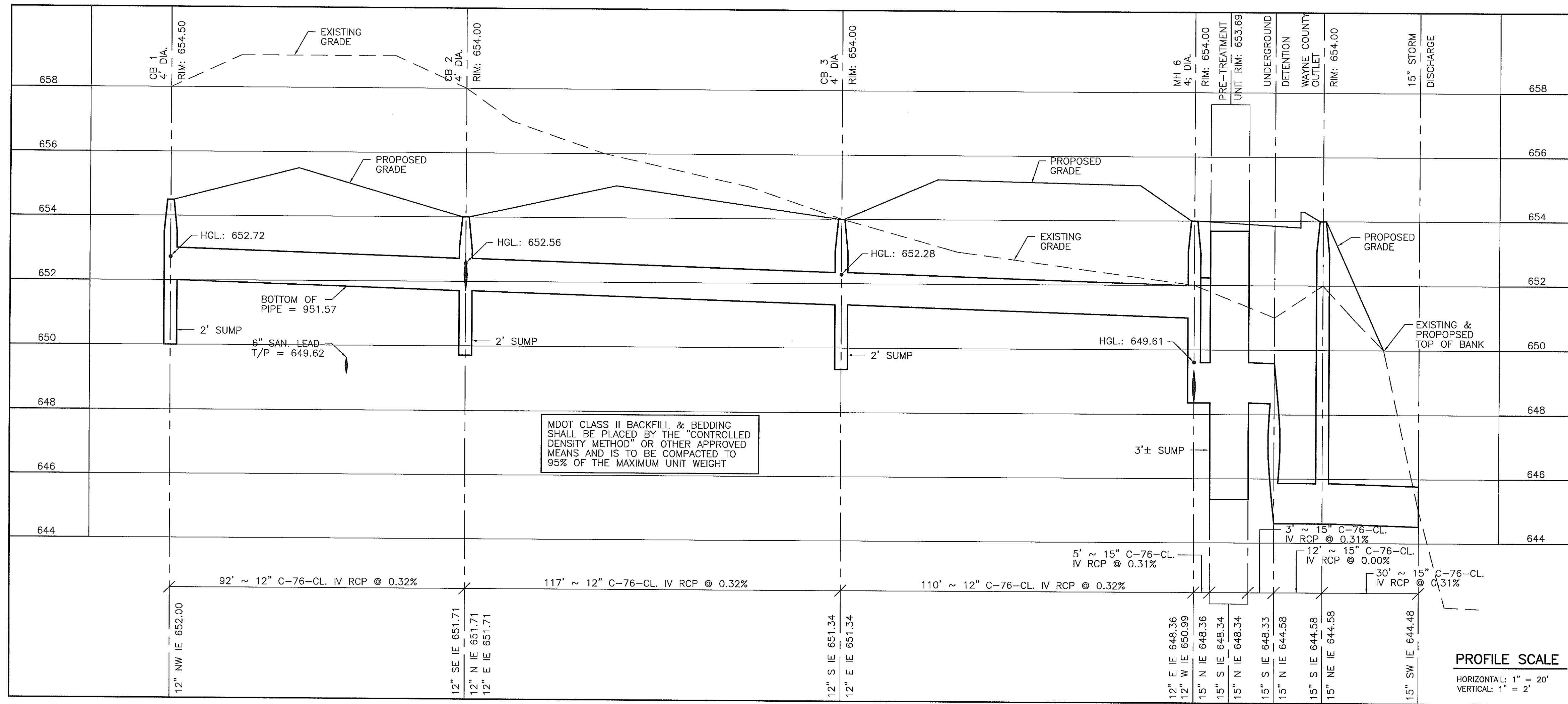
CLIENT: JACK DEMMER FORD  
 37300 MICHIGAN AVENUE  
 WAYNE, MI 48184

8495 N. TERRITORIAL RD.  
 PLYMOUTH, MI 48170  
 PHONE: (734) 416-9650  
 FAX: (734) 416-9657  
 www.glasurveyors.com

**GLA SURVEYORS & ENGINEERS**

**UTILITY PLAN**  
 JACK DEMMER FORD  
 37410-37434 MICHIGAN AVENUE  
 PART OF THE N.E. 1/4 SEC. 31 T. 2 S., R. 9 E.,  
 CITY OF WAYNE, WAYNE COUNTY, MICHIGAN





**ISSUED FOR REFERENCE ONLY**

CLIENT:  
 JACK DEMMER FORD  
 37300 MICHIGAN AVENUE  
 WAYNE, MI 48184

GLA SURVEYORS & ENGINEERS  
 8495 N. TERRITORIAL RD.  
 PLYMOUTH, MI 48170  
 PHONE: (734) 416-9650  
 FAX: (734) 416-9657  
 www.glasurveyor.com

**STORM SEWER PROFILE**  
 JACK DEMMER FORD  
 37410-37434 MICHIGAN AVENUE  
 PART OF THE N.E. 1/4 SEC. 31 T. 2 S., R. 9 E.,  
 CITY OF WAYNE, WAYNE COUNTY, MICHIGAN

**BACKFILL & BEDDING NOTE**

ALL TRENCHES UNDER AND WITHIN 3 FEET OF ANY PAVING SHALL BE BACKFILLED WITH MDOT CLASS II SAND. BACKFILL TO BE COMPACTED TO MINIMUM 95% OF MAXIMUM UNIT WEIGHT.

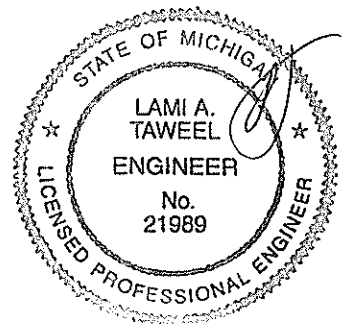
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 VORTECHNICS..... 4000 MODEL  
 STORMCEPTOR..... 3600 MODEL  
 OR APPROVED EQUAL

**PROPOSED UNDERGROUND DETENTION**

THE REQUIRED UNDERGROUND DETENTION SHALL BE AN APPROVED WAYNE COUNTY PIPE MATERIAL.

FILE NO.: 689-190	DWG. NO.: 689-190ENG
DESIGNED BY: S.A.S.	SHEET No.
DRAWN BY: S.A.S.	<b>C-9</b>
CHECKED BY: L.A.T.	
SCALE: 1" = 20'	



RUNOFF VOLUME DETERMINATION		
LAND USE	AREA (ACRES)	RUNOFF COEFFICIENT C
ROOF/ASPHALT SURFACE	0.91	0.95
LAWN SURFACE	0.03	0.25
C = (0.912)(0.95) + (0.031)(0.25) / 0.943 =		0.93
COMPOUND C:		0.93
TOTAL DRAINAGE AREA A:		0.94 acres
DRAINAGE AREA <= FIVE ACRES		
$Q_a = 0.15 \text{ cfs/acre} \times A$		0.14 cfs
$Q_o = \text{maximum outflow per acre imperviousness (cfs/acre imperviousness)}$		
$Q_o = Q_a / (A \times C)$		
$Q_o = 0.16 \text{ cfs/acre imperviousness}$		
$T_{10} = \text{Storage time defined as the instant storage begins until peak storage is attained}$		
$T_{10} = -19.9 + (4530/Q_o)^{0.2}$		
$T_{10} = 147.5 \text{ minutes}$		
$V_s = \text{Maximum volume of water stored in the detention basin per acre imperviousness (ft}^3\text{/acre imperviousness)}$		
$V_{s10} = ((9108 \times T_{10}) / (T_{10} + 19.9)) - 40 \times Q_o \times T_{10}$		
$V_{s10} = 7071 \text{ ft}^3\text{/acre imperviousness}$		
$V_{10} = \text{Maximum volume of water stored in the detention basin (ft}^3\text{)}$		
$V_{10} = V_{s10} \times A \times C$		
$V_{10} = 6166 \text{ ft}^3$		
<b>REQUIRED 10 YEAR DETENTION VOLUME =</b>		<b>6166 ft<sup>3</sup></b>
FIRST FLUSH VOLUME REQUIRED		
$V_{FF} = 1815 \times A \times C =$		<b>1583 ft<sup>3</sup></b>
BANKFULL FLOOD VOLUME REQUIRED		
$V_{BF} = 5160 \times A \times C =$		<b>4500 ft<sup>3</sup></b>
TOTAL DETENTION VOLUME PROVIDED		
DIAMETER PIPE = 54"		5 ft
CROSS-SECTIONAL AREA =		19.63495408 ft <sup>2</sup>
REQUIRED LINEAR FOOTAGE OF 5.0' DIA. PIPE =		315 ft
PROVIDED LINEAR FOOTAGE OF 5.0' DIA. PIPE =		325 ft
TOTAL DETENTION VOLUME PROVIDED =		6381 ft <sup>3</sup>
TOTAL DETENTION VOLUME ELEVATION =		649.48

**FIRST FLUSH ELEVATION DETERMINATION**

Required cross-sectional area A of the pipes in use during the first flush elevation can be determined by taking the required first flush volume and dividing it by the provided linear footage of pipe.

$A = V_{FF} / L_{PIPE} = 4.87 \text{ ft}^2$

According to drawing analysis performed in AutoCAD, this area results in a depth of Water Depth = 1.49 ft.

**BANKFULL ELEVATION DETERMINATION**

Required cross-sectional area A of the pipes in use during the bankfull flood elevation can be determined by taking the required bankfull volume and dividing it by the provided linear footage of pipe.

$A = V_{BF} / L_{PIPE} = 13.84 \text{ ft}^2$

According to drawing analysis performed in AutoCAD, this area results in a depth of Water Depth = 3.33 ft.

**FIRST FLUSH ORIFICE CALCULATIONS**

$Q_{FF} = V_{FF} / (24 \times 3600) = 0.0183 \text{ cfs}$

$H_{FF} = 0.5 \times (Z_{if} - Z_o) + (Z_o - Z_{out}) = 0.75 \text{ ft}$

$A = Q_{FF} / (0.62 \times (2g \times H_{FF})^{0.5}) = 0.0043 \text{ ft}^2$

Diameter of Holes = 1.00 in

Area of One Hole Specified Size  $A_o = 0.0055 \text{ ft}^2$

No. of Holes Required N = 1.0 holes

**FIRST FLUSH ORIFICE USE**  
1.0000" IN AT ELEVATION = 646.07

**FIRST FLUSH ACTUAL DISCHARGE CALCULATION**

$Q_{FF(ACT)} = 0.62 \times N \times A_o \times (2g \times H_{FF})^{0.5} = 0.0234 \text{ cfs}$

$T_{FF} = V_{FF} / Q_{FF(ACT)} / 3600 = 18.7694 \text{ hours}$

**BANKFULL ORIFICE CALCULATIONS**

$Q_{BF} = V_{BF} / (40 \times 3600) = 0.0312 \text{ cfs}$

$H_{BF} = 0.5 \times (Z_{if} - Z_o) + (Z_o - Z_{out}) = 1.67 \text{ ft}$

$A = Q_{BF} / (0.62 \times (2g \times H_{BF})^{0.5}) = 0.0049 \text{ ft}^2$

Diameter of Holes = 1.00 in

Area of One Hole Specified Size  $A_o = 0.0055 \text{ ft}^2$

No. of Holes Required N = 1.0 holes

**BANKFULL ORIFICE USE**  
1.0000" IN AT ELEVATION = 647.91

**BANKFULL ACTUAL DISCHARGE CALCULATION**

$Q_{BF(ACT)} = 0.62 \times N \times A_o \times (2g \times H_{BF})^{0.5} = 0.0350 \text{ cfs}$

$T_{BF} = V_{BF} / Q_{BF(ACT)} / 3600 = 35.6939 \text{ hours}$

**10 - YEAR ORIFICE CALCULATIONS**

$Q_a = 0.14 \text{ cfs}$

$Q_{BF(MAX WATER)} = 0.62 \times N \times A_o \times (2g \times H_1)^{0.5}$   
where H1 is the top of the 10-year storm storage elevation minus the bankfull flood elevation and  $Q_{BF(MAX WATER)}$  is the  $Q_{BF}$  value with water at design elevation

Since this is an underground storage system, H1 is equivalent to the total detention volume elevation minus the first flush elevation divided by 2.

Therefore,  $Q_{BF(MAX WATER)} = 0.0240 \text{ cfs}$

$Q_{FF(MAX WATER)} = 0.62 \times N \times A_o \times (2g \times H_2)^{0.5}$   
where H2 is the top of the 10-year storm storage elevation minus the first flush elevation and  $Q_{FF(MAX WATER)}$  is the  $Q_{FF}$  value with water at design elevation

Since this is an underground storage system, H2 is equivalent to the total detention volume elevation minus the detention outlet elevation divided by 2.

Therefore,  $Q_{FF(MAX WATER)} = 0.0429 \text{ cfs}$

$Q_{DESIGN} = Q_a - Q_{BF(MAX WATER)} - Q_{FF(MAX WATER)} = 0.0740 \text{ cfs}$

$H_{DESIGN} = (Z_{10} - Z_{BF}) = 1.67 \text{ ft}$

$A_{DESIGN} = Q_{DESIGN} / (0.62 \times (2g \times (H_{DESIGN} / 2))^{0.5}) = 0.0163 \text{ ft}^2$

Diameter of Holes = 1.00 in

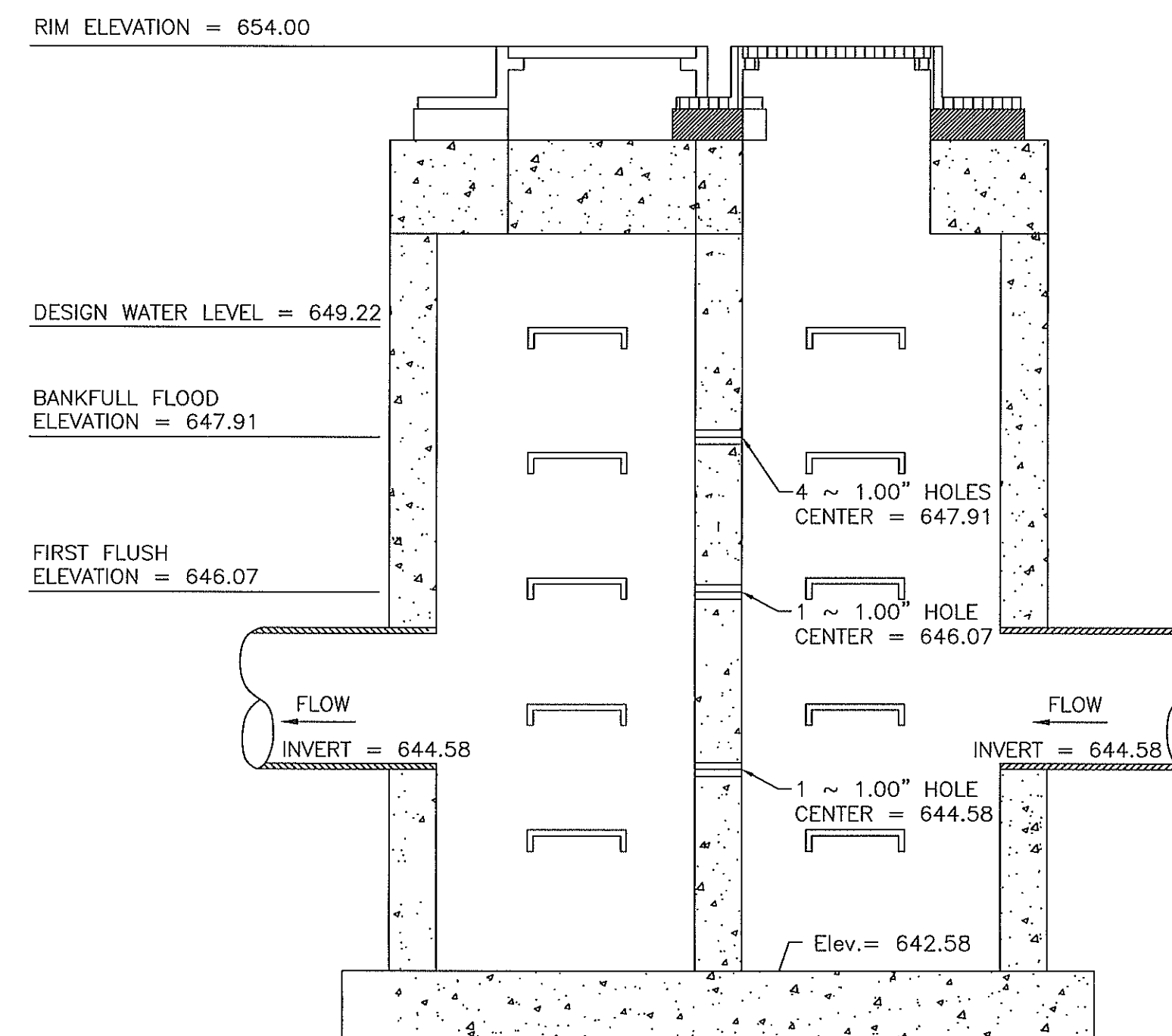
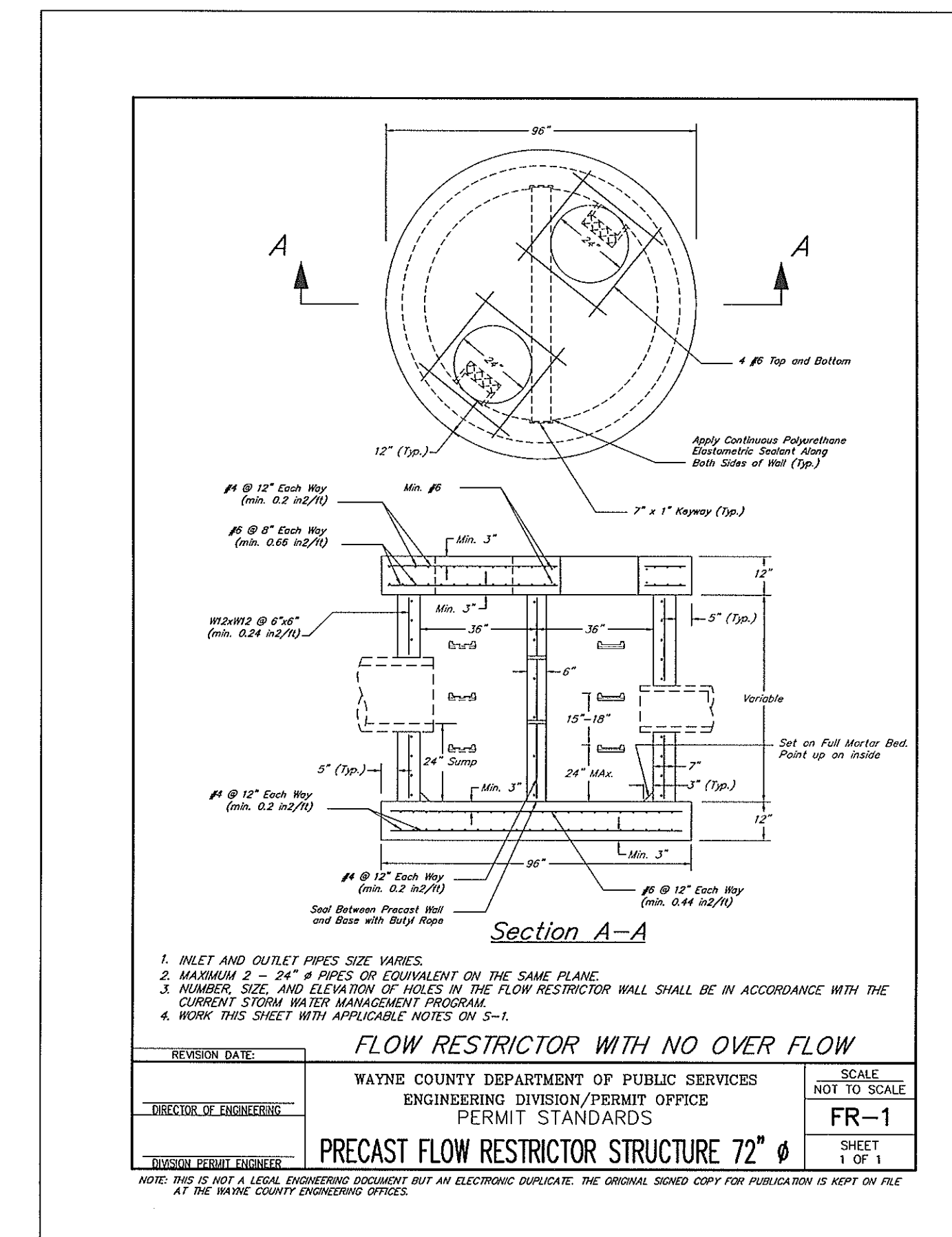
Area of One Hole Specified Size  $A_o = 0.0055 \text{ ft}^2$

No. of Holes Required N = 3.0 holes

**10-YEAR ORIFICE USE**  
1.00 IN DIAMETER AT ELEVATION 647.91

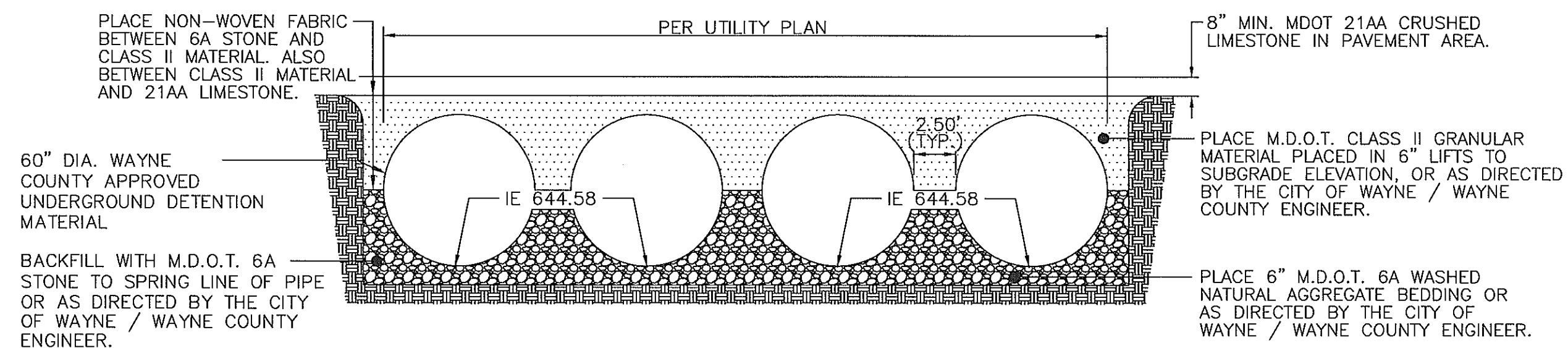
**MAXIMUM ACTUAL DISCHARGE QMAX CALCULATIONS**

$Q_{MAX(ACT WATER)} = Q_{BF(MAX)} + Q_{FF(MAX WATER)} + 0.62 \times N \times A_o \times (2g \times H_{DES})^{0.5} = 0.1722 \text{ CFS}$



CONSTRUCT THE OUTLET CONTROL STRUCTURE PER THE ATTACHED WAYNE COUNTY FR-1 DETAIL FOR FLOW RESTRICTOR WITH NO OVER FLOW LOCATED ON SHEET C-14

**OUTLET CONTROL STRUCTURE**  
NO SCALE



**DETENTION BARREL CROSS-SECTION**  
NOT TO SCALE

**PROPOSED PRE-TREATMENT UNIT**

THE REQUIRED PRE-TREATMENT UNIT SHALL BE AN APPROVED WAYNE COUNTY PRE-TREATMENT UNIT DESIGNED TO HANDLE THE DESIGN PEAK FLOW OF 3.60 cfs.

VORTECHNICS..... 4000 MODEL

STORMCEPTOR..... 3600 MODEL

OR APPROVED EQUAL

**PROPOSED UNDERGROUND DETENTION**

THE REQUIRED UNDERGROUND DETENTION SHALL BE AN APPROVED WAYNE COUNTY PIPE MATERIAL.

FILE NO.: 689-190	DWG. NO.: 689-190ENG
DESIGNED BY: S.A.S.	SHEET No.
DRAWN BY: S.A.S.	<b>C-10</b>
CHECKED BY: L.A.T.	
SCALE: 1" = 20'	

CLIENT:  
12/19/13  
12/19/13 CITY/COUNTY SUBMITAL  
1/15/15 SITE DEVELOPMENT PERMIT

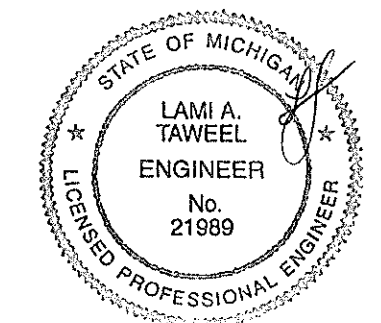
JACK DEMMER FORD  
37300 MICHIGAN AVENUE  
WAYNE, MI 48184

8465 N. TERRITORIAL RD.  
PLYMOUTH, MI 48170  
PHONE: (734) 476-9650  
FAX: (734) 476-9657  
www.glsurveyor.com

**GLA SURVEYORS & ENGINEERS**

**DETENTION CALCULATIONS**

JACK DEMMER FORD  
37410-37434 MICHIGAN AVENUE  
PART OF THE N.E. 1/4 SEC. 31 T. 2 S., R. 9 E.,  
CITY OF WAYNE, WAYNE COUNTY, MICHIGAN



**ISSUED FOR REFERENCE ONLY**

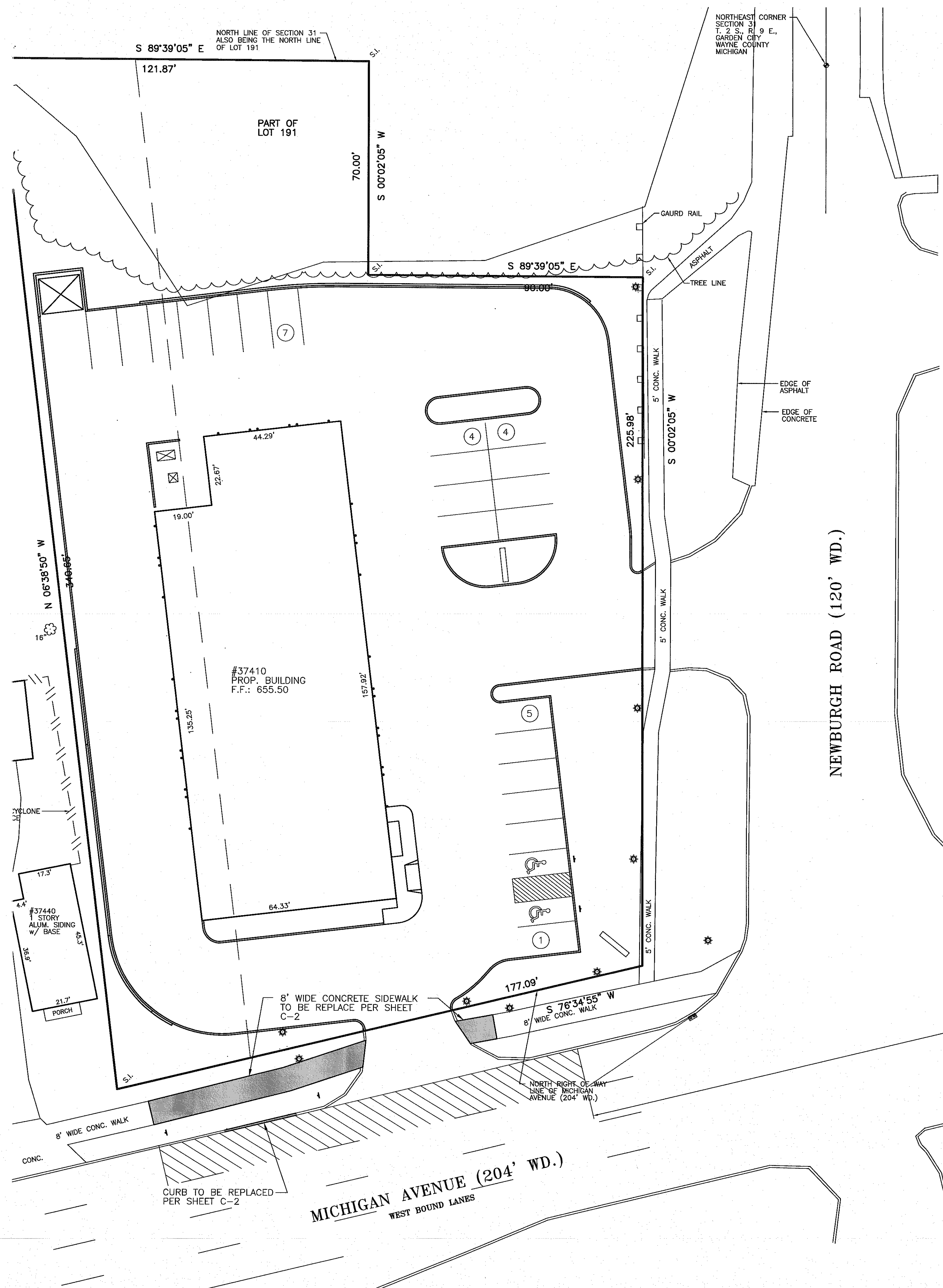


TABLE 6-1  
DISTANCE BETWEEN TRAFFIC CONTROL DEVICES \*10'

SPACING	MINIMUM DISTANCE	MAXIMUM DISTANCE
100	100	100
150	150	150
200	200	200
250	250	250
300	300	300
350	350	350
400	400	400
450	450	450
500	500	500
550	550	550
600	600	600
650	650	650
700	700	700
750	750	750
800	800	800
850	850	850
900	900	900
950	950	950
1000	1000	1000

TABLE 6-2  
GUIDELINES FOR LENGTH OF LONGITUDINAL BUFFER SPACE \*10'

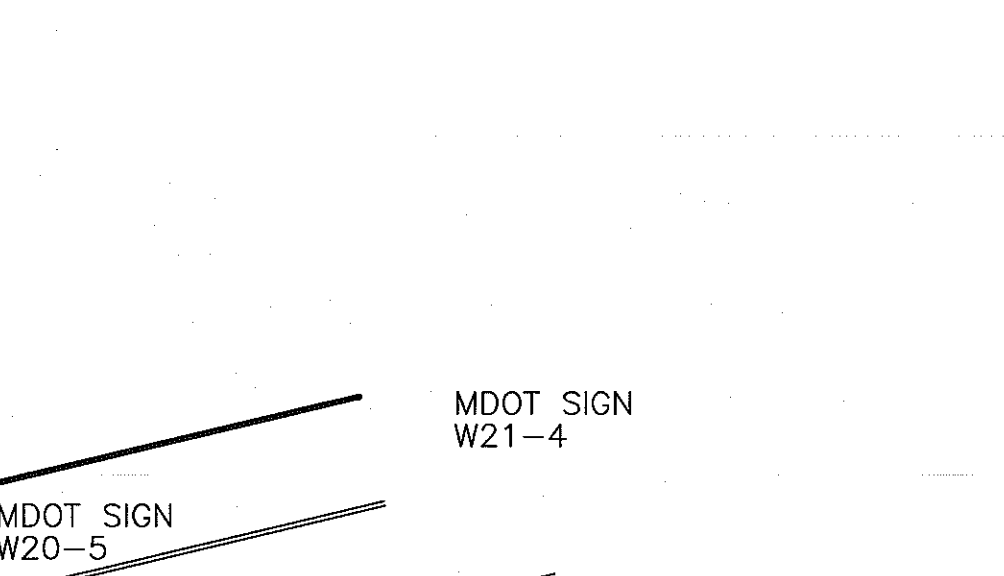
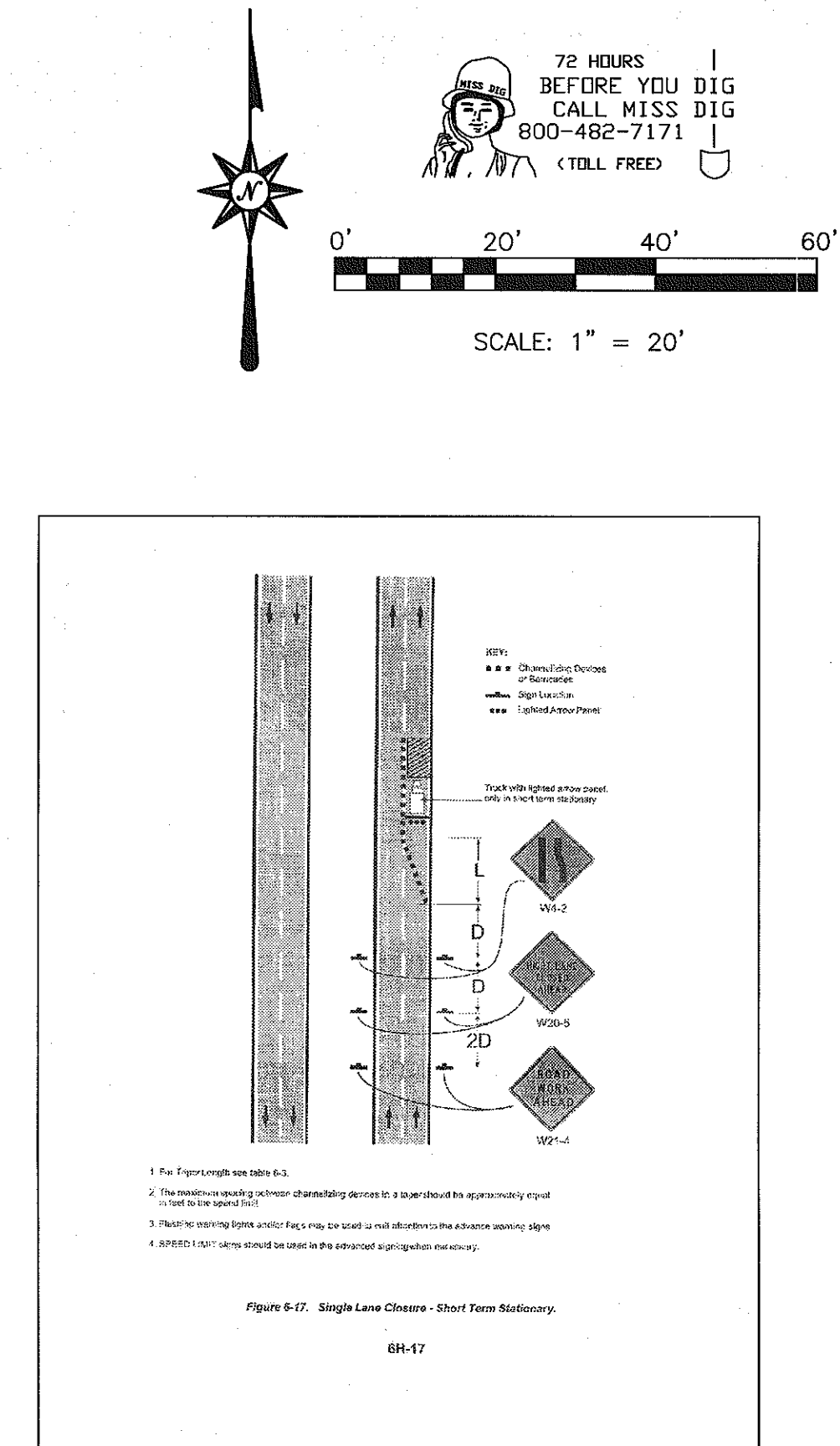
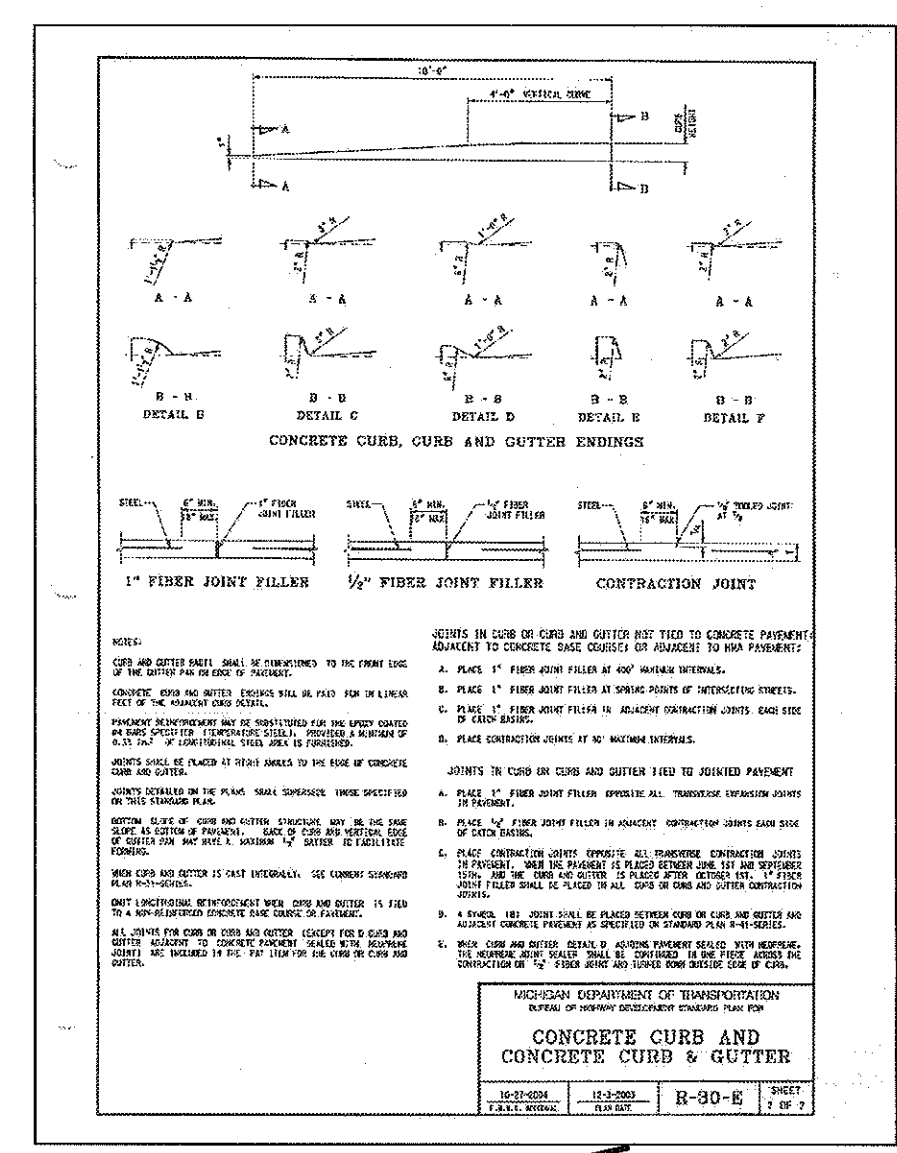
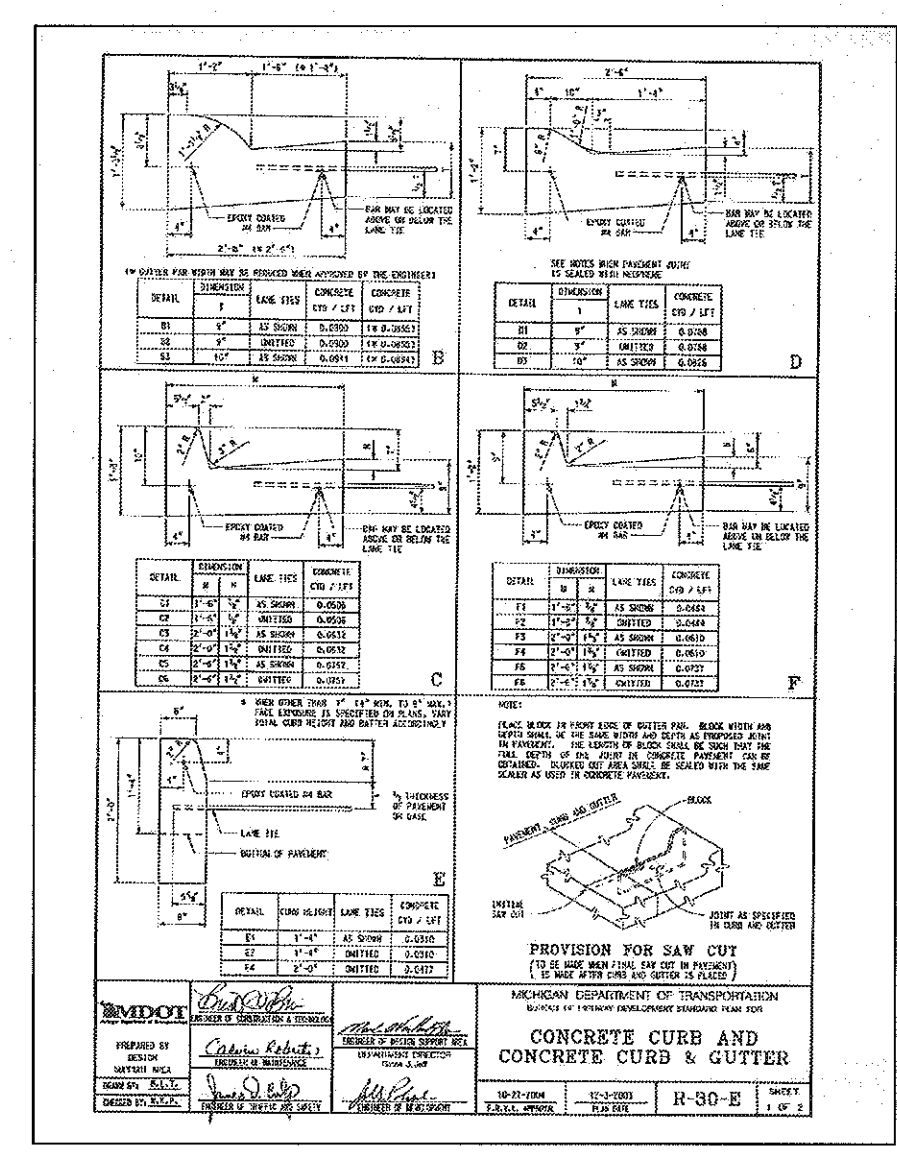
SPACING	MINIMUM LENGTH	MAXIMUM LENGTH
100	100	100
150	150	150
200	200	200
250	250	250
300	300	300
350	350	350
400	400	400
450	450	450
500	500	500
550	550	550
600	600	600
650	650	650
700	700	700
750	750	750
800	800	800
850	850	850
900	900	900
950	950	950
1000	1000	1000

TABLE 6-3  
MINIMUM MENDING TAP LENGTH \*1' (100%)

SPACING	MINIMUM MENDING TAP LENGTH
100	100
150	150
200	200
250	250
300	300
350	350
400	400
450	450
500	500
550	550
600	600
650	650
700	700
750	750
800	800
850	850
900	900
950	950
1000	1000

TABLE 6-4  
MINIMUM MENDING TAP LENGTH \*1' (100%)

SPACING	MINIMUM MENDING TAP LENGTH
100	100
150	150
200	200
250	250
300	300
350	350
400	400
450	450
500	500
550	550
600	600
650	650
700	700
750	750
800	800
850	850
900	900
950	950
1000	1000

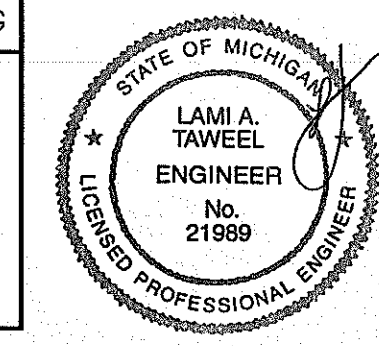


CLIENT: 11/14/13  
2/10/14 PER CITY OF WAYNE REVIEW  
JACK DEMMER FORD  
37500 MICHIGAN AVENUE  
WAYNE, MI 48184

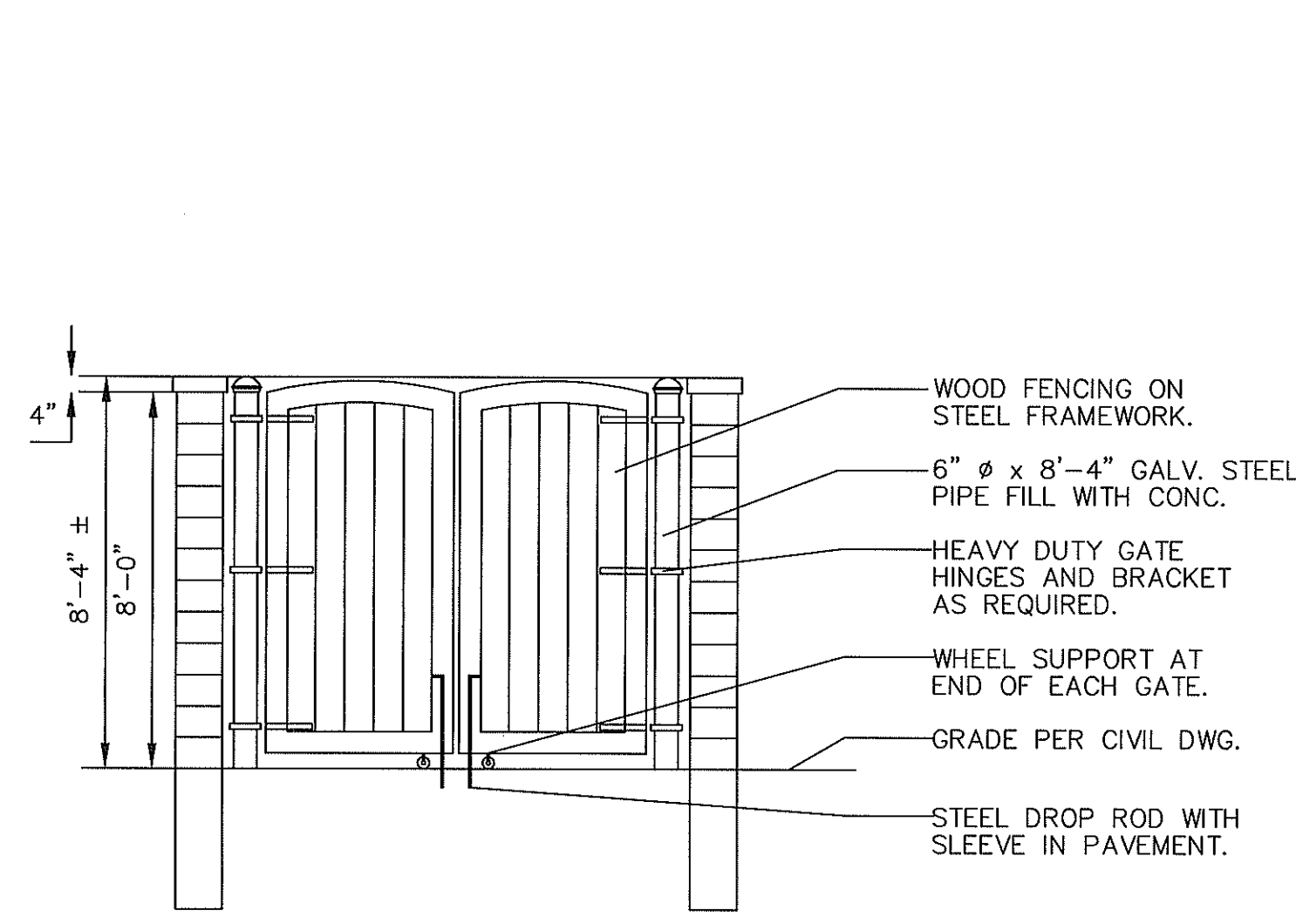
8495 N. TERRITORIAL RD.  
PLYMOUTH, MI 48170  
SURVEYORS & ENGINEERS  
GLA  
PHONE: (734) 416-9650  
FAX: (734) 416-9657  
www.glasurveyor.com

MDOT PLAN  
JACK DEMMER FORD  
37410-37434 MICHIGAN AVENUE  
PART OF THE N.E. 1/4 SEC. 31  
CITY OF WAYNE, WAYNE COUNTY, MICHIGAN  
T. 2 S., R. 9 E.,

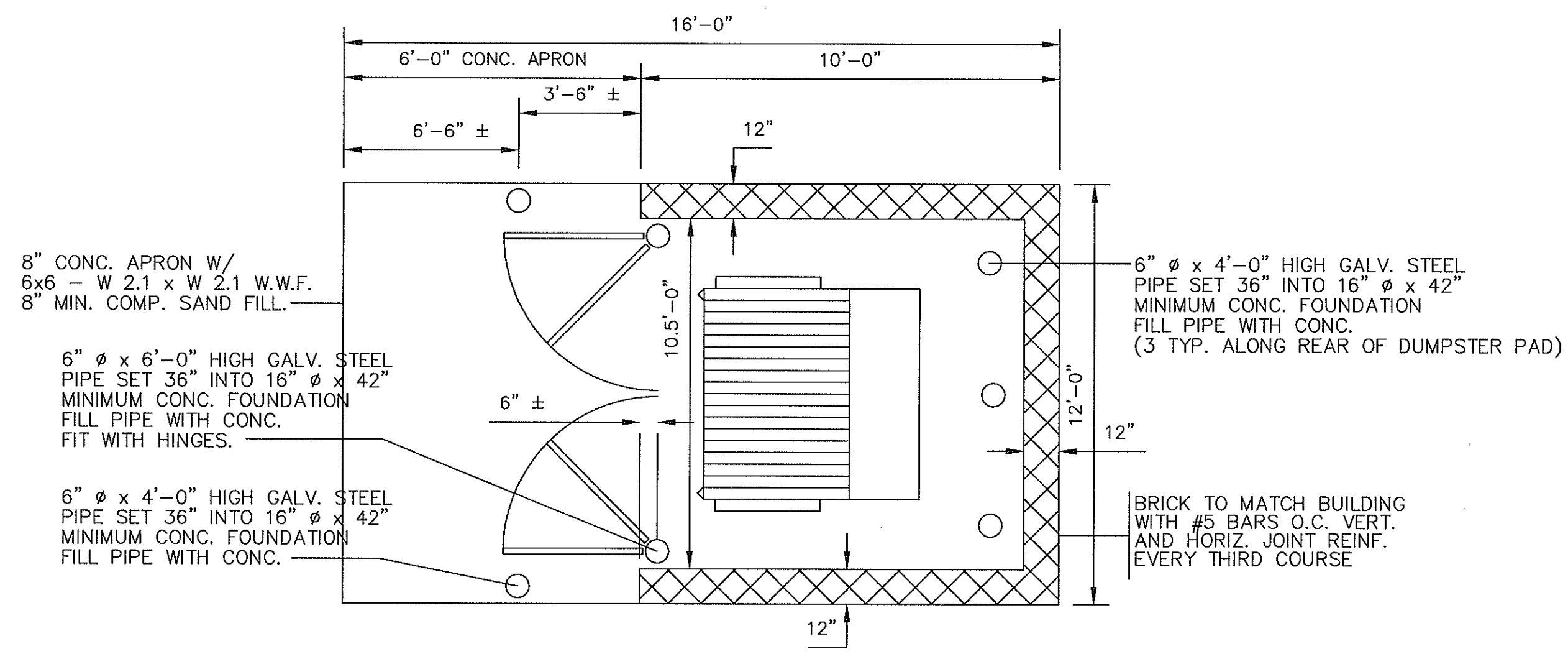
FILE NO.: 689-190	DWG. NO.: 689-19CENG
DESIGNED BY: S.A.S.	SHEET No.
DRAWN BY: S.A.S.	C-11
CHECKED BY: L.A.T.	
SCALE: 1" = 20'	



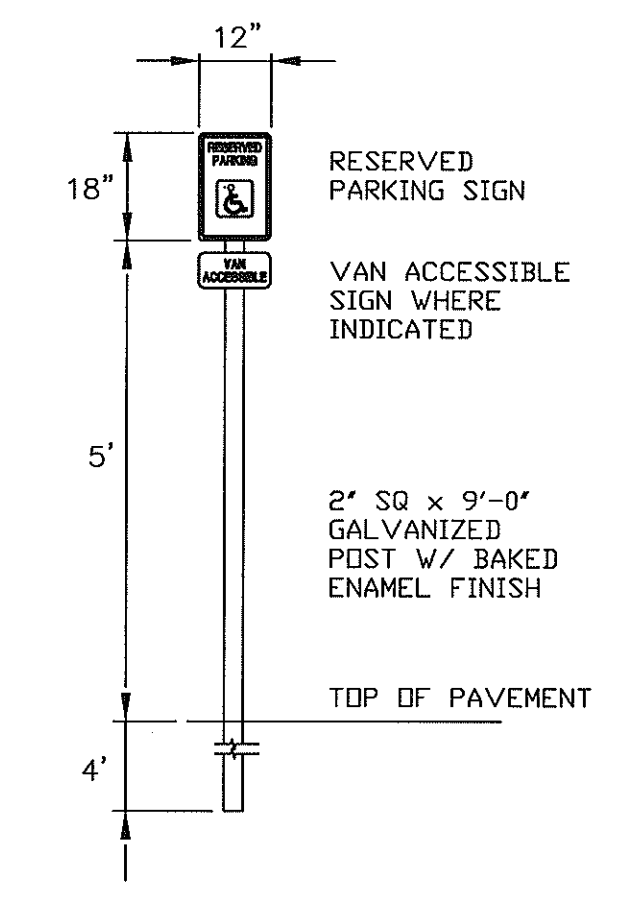
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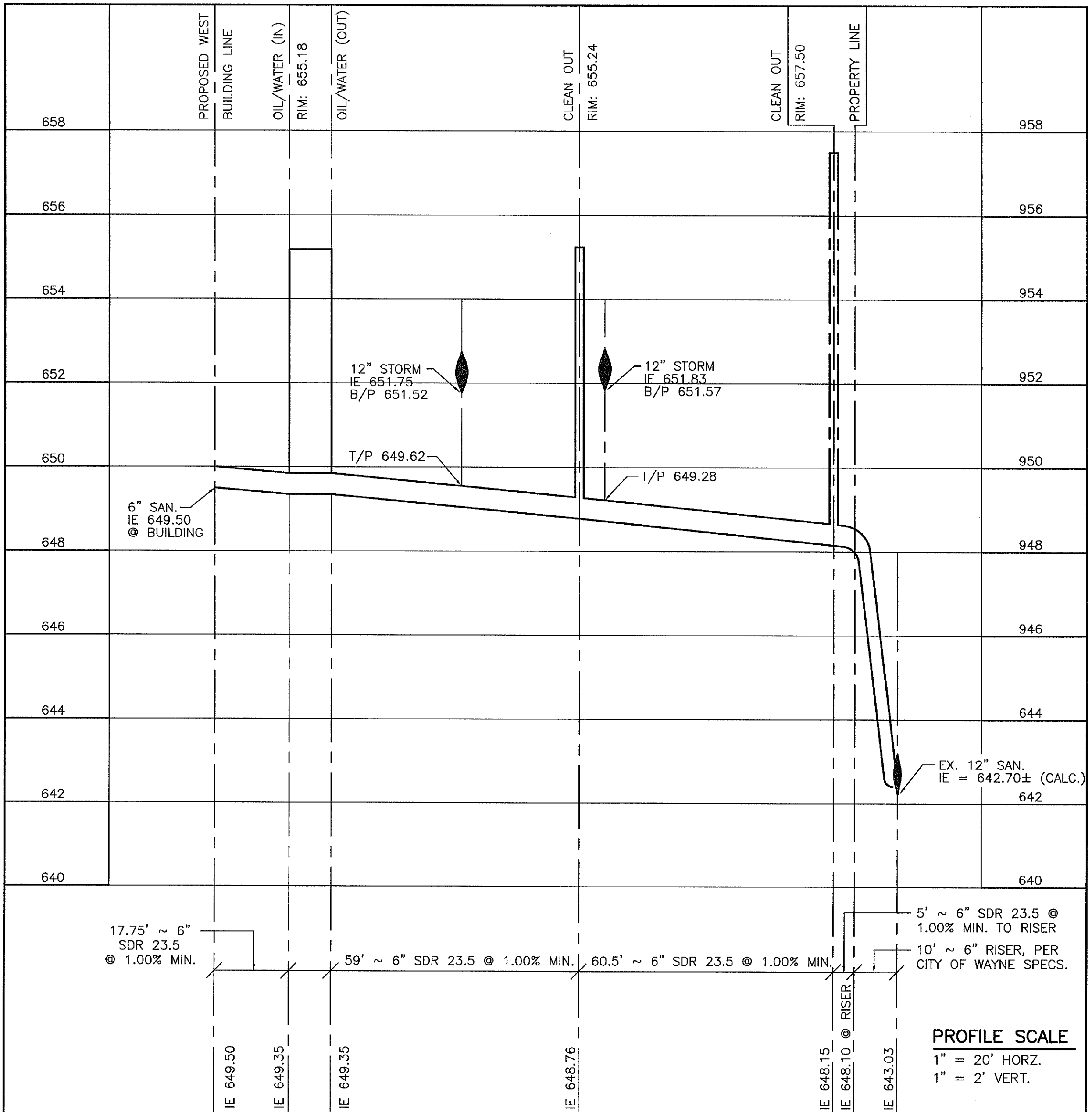
**DUMPSTER ENCLOSURE ELEVATION**  
NO SCALE



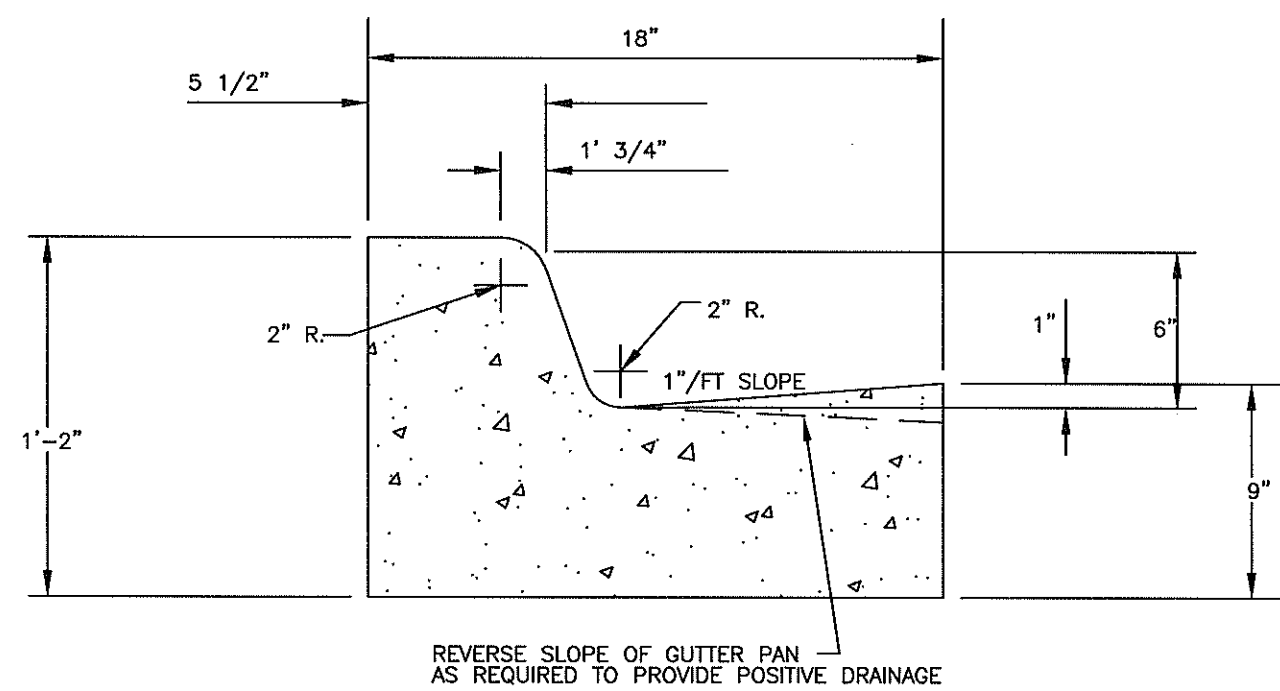
**DUMPSTER ENCLOSURE PLAN**  
NO SCALE



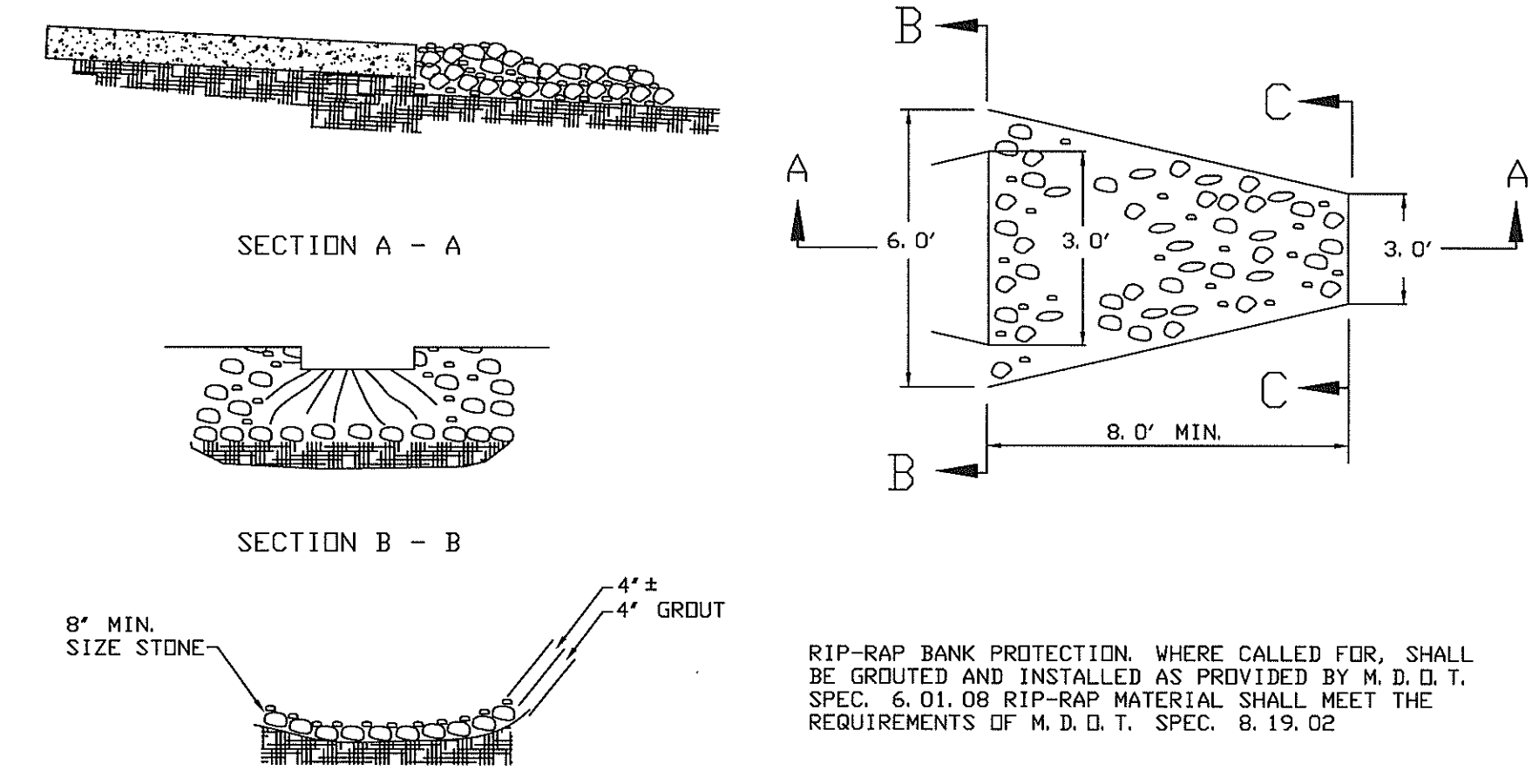
**BARRIER FREE PARKING SIGN**  
NO SCALE



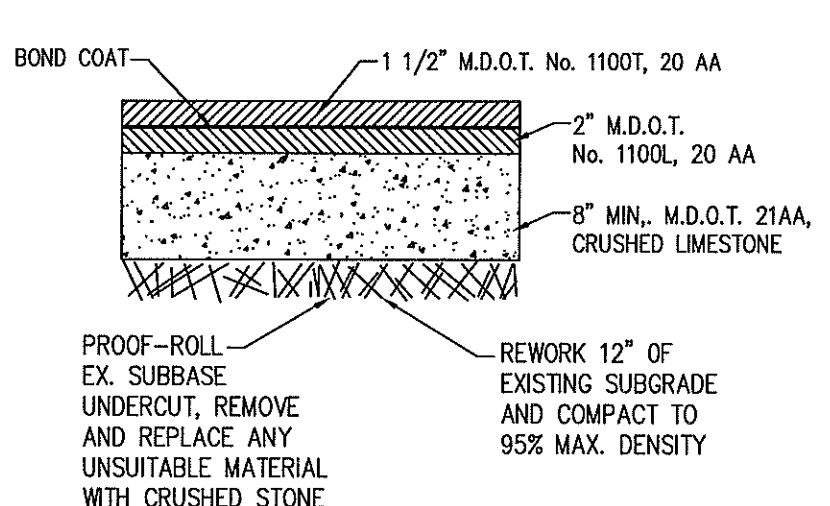
**SANITARY LEAD PROFILE**  
NO SCALE



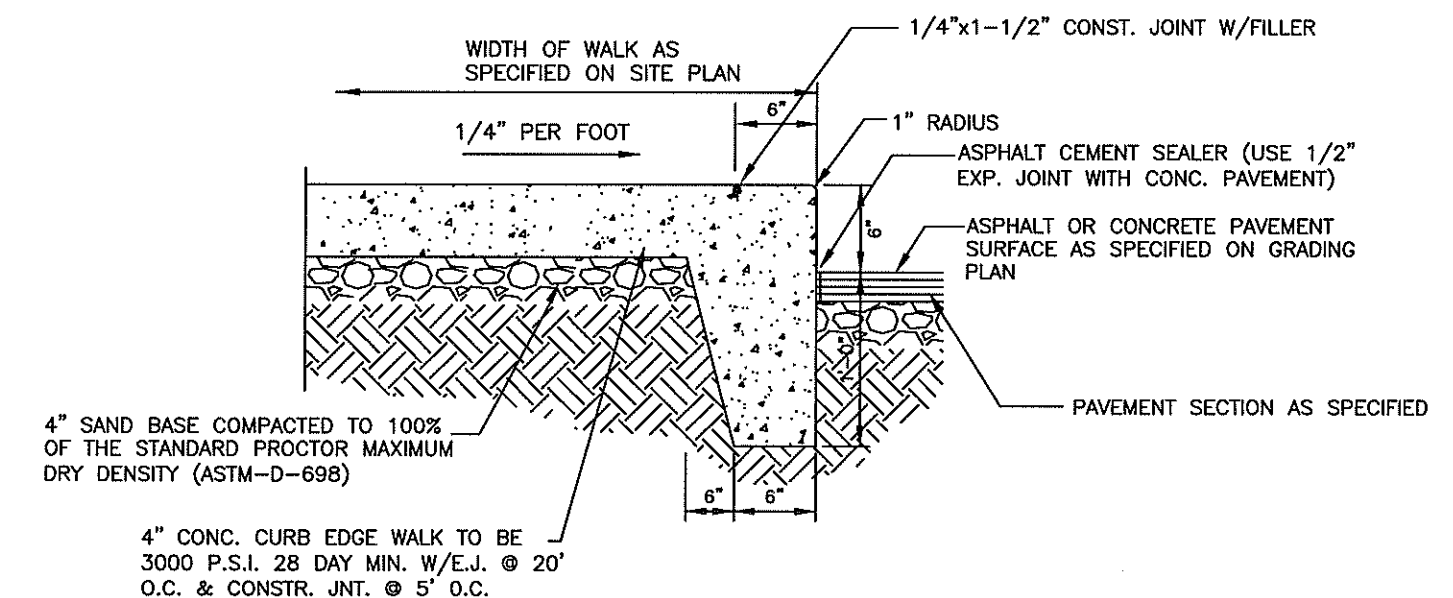
**MDOT TYPE "F" CURB**  
NO SCALE



**STONE RIP-RAP**  
NO SCALE



**ASPHALT PAVEMENT SECTION**  
NO SCALE



**INTEGRAL CURB AND SIDEWALK**  
NO SCALE

FILE NO.: 689-190	DWG. NO.: 689-190ENG
DESIGNED BY: S.A.S.	SHEET No. <b>C-12</b>
DRAWN BY: S.A.S.	
CHECKED BY: L.A.T.	
SCALE: 1" = 20'	

**ISSUED FOR REFERENCE ONLY**

CLIENT: 12/18/13  
12/18/13 CITY/COUNTY SUBMITTAL  
1/15/15 SITE DEVELOPMENT PERMIT

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**GLA SURVEYORS & ENGINEERS**

**SITE DETAILS**  
JACK DEMMER FORD  
37410-37434 MICHIGAN AVENUE  
PART OF THE N.E. 1/4 SEC. 31  
CITY OF WAYNE, WAYNE COUNTY, MICHIGAN

T. 2 S., R. 9 E.,

