



J2024-0040
PSP2024-0005
Original Submission
Received 3/4/24

City of Rochester
Hills Planning &
Economic
Development

SITE PLAN DRAWING PACKAGE FOR "GERALD PLAZA" AT: 1760 EAST AUBURN ROAD ROCHESTER HILLS, MI 48307 PIN #: 70-15-30-226-068

Site Plan Review
Reviewed for compliance with City Ordinance, Building and Fire Codes
Conditions and mark-ups noted throughout plan set must be addressed prior to final approval

Department	Reviewer	Approved
Assessing	Assessing	Yes
Building	Mark Artinian 248-841-2446 ArtinianM@RochesterHills.org	Yes
Engineering - Utilities	Jason Boughton 248-841-2490 BoughtonJ@RochesterHills.org	Yes
Engineering Legal	Jenny McGuckin 248-841-2494 mcguckinj@rochesterhills.org	YES Date: 03/21/2024
Fire	Capt. Ann Echols 248-841-2701 EcholsA@RochesterHills.org	No
Natural Resources	Matt Einheuser 248-841-2551 EinheuserM@RochesterHills.org	Yes
Planning	Chris McLeod 248-841-2572 mcleodc@RochesterHills.org	Yes
Traffic	Keith Depp 248-841-2503 DeppK@RochesterHills.org	Yes

Subject to items noted on plans being addressed and Planning Commission review of building materials.

OWNER / APPLICANT:

COMPANY : GERALD REAL ESTATE, LLC
CONTACT : MIKE CHAUDHARY
ADDRESS : 13500 FOLEY STREET
DETROIT, MI 48227
PHONE : 313-491-1815
E-MAIL : mike@dmcgroupusa.com

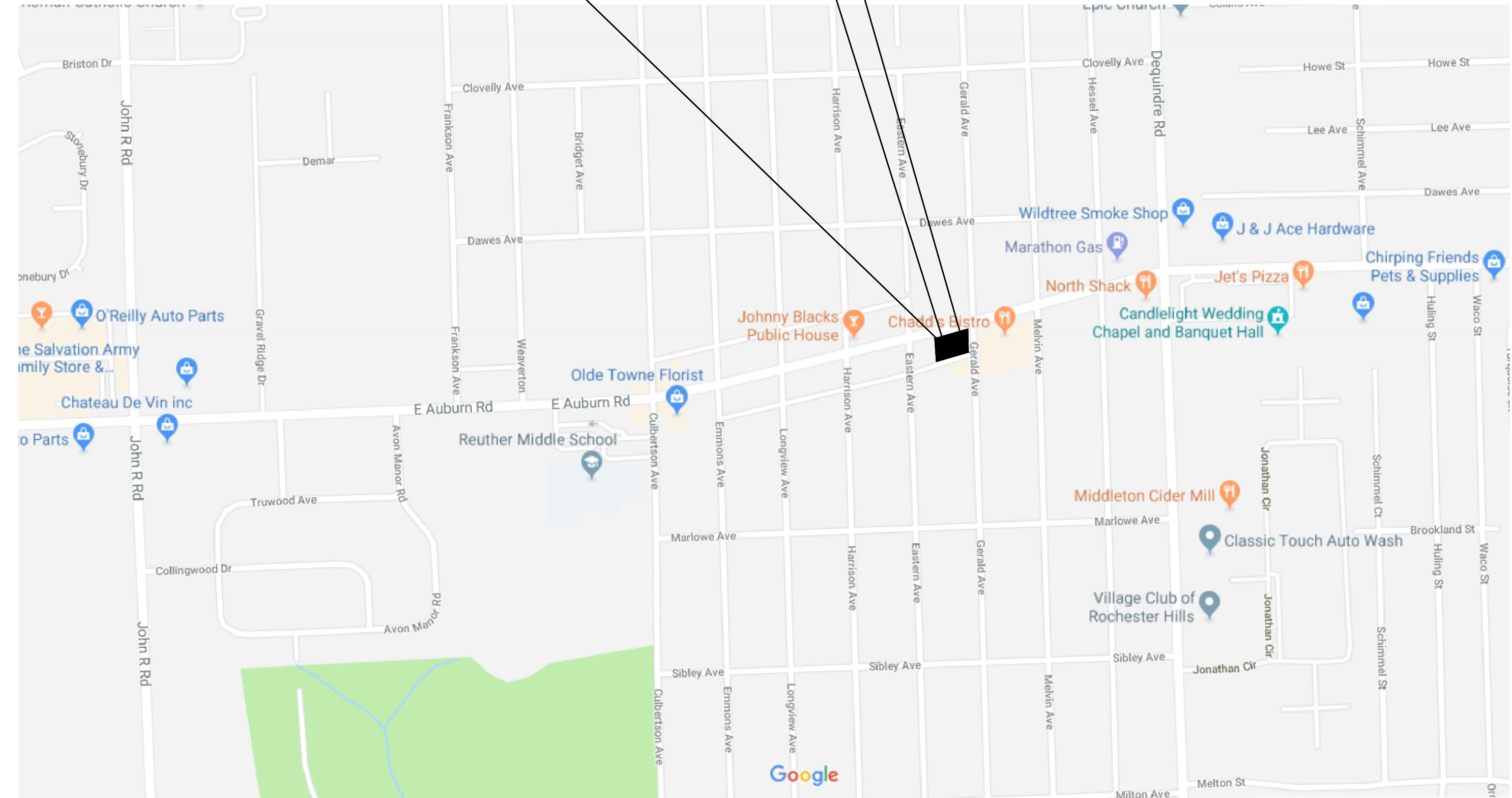
ARCHITECT:

COMPANY : TURK ARCHITECTS
CONTACT : HISHAM TURK, AIA, LEED AP
ADDRESS : 6340 PEACOCK DRIVE
TROY, MI 48085
PHONE : 248-291-5168 (OFFICE)
248-521-0961 (CELL)
E-MAIL : turkarchitects@gmail.com

DRAWING INDEX:

- CS-00 COVER SHEET
- SURVEY BOUNDARY AND TOPOGRAPHICAL SURVEY
- SP-01 SITE PLAN
- SP-02 SITE PLAN
- LP-01 LANDSCAPE PLANTING PLAN
- PH-01 EXTERIOR PHOTOMETRIC SITE PLAN
- A-01 FIRST FLOOR PLAN
- A-02 SECOND FLOOR PLAN
- A-03 THIRD FLOOR PLAN
- A-04 ROOF PLAN
- A-10 BUILDING ELEVATIONS
- A-06 SITE SECTION
- A-07 BUILDING ELEVATION MATERIAL BOARD

PROPERTY LOCATION



SITE PLAN REVIEW	02/19/2024
ISSUED FOR	DATE

COVER SHEET		CS-00
GERALD PLAZA 1760 EAST AUBURN ROAD ROCHESTER HILLS, MI 48307		
CONTACT :	MIKE CHAUDHARY	
OWNER :	GERALD REAL ESTATE LLC	
ADDRESS :	13500 FOLEY STREET, DETROIT, MI 48227	
PHONE :	313-491-1815	
E-MAIL :	mike@dmcgroupusa.com	24002

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Architects Planners Engineers

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248-521-0961 (C)
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STATE OF MICHIGAN
HISHAMAL TURK
ARCHITECT
No. 1301052206
02/19/2024

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The applicant needs to submit a Land Improvement Permit (LIP) application with engineer's estimate, fee and construction plans to proceed with the construction plan review process.

TOPOGRAPHICAL SURVEY

LEGAL DESCRIPTION:
 LOTS 1545 - 1548 OF "SUPERVISOR'S PLAT OF BROOKLANDS PARK NO.4" A SUBDIVISION OF PART OF THE EAST 1/2 OF NORTHEAST 1/4 OF SECTION 36, T.3N., R.11E., CITY OF ROCHESTER HILLS, OAKLAND COUNTY MICHIGAN AS RECORDED IN LIBER 28 OF PLATS, PAGE 49, OAKLAND COUNTY RECORDS.

ADDRESS:(COMMONLY KNOWN AS VACANT E. AUBURN ROAD)

SIDWELL: 15-36-226-003, 15-36-226-004 & 15-36-226-005

Include current Parcel ID: 15-36-226-008

3 FULL WORKING DAYS
BEFORE YOU DIG CALL

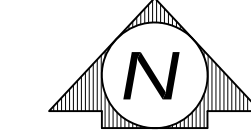
811

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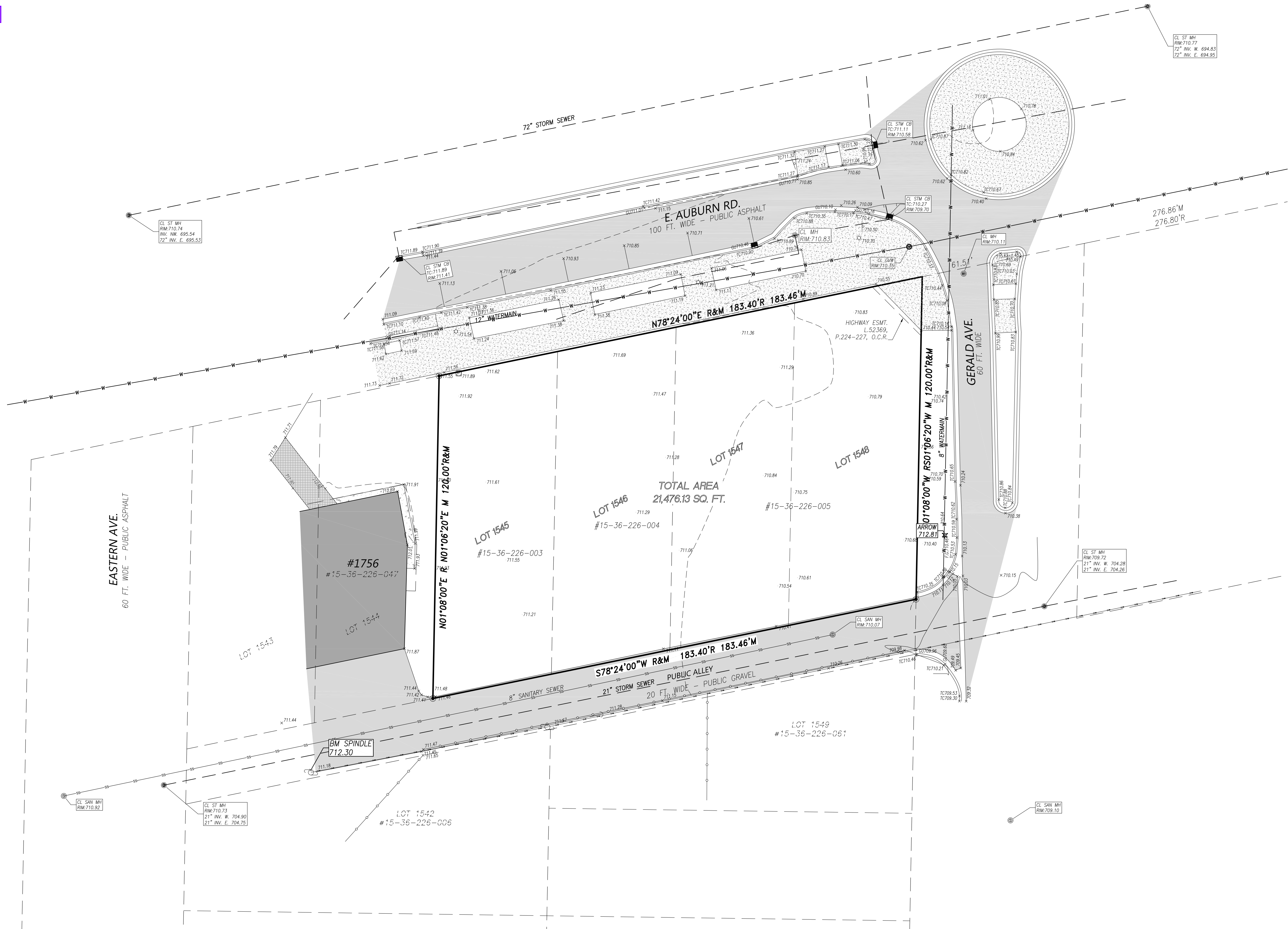
0 10 20 40
SCALE: 1" = 20'

THIS SURVEY WAS DONE WITHOUT THE BENEFIT OF A TITLE POLICY OR DEED THEREFORE, ALL EASEMENT OF RECORD AND OTHER FACTORS RELEVANT TO TITLE MAY NOT BE SHOWN. CLIENT PROVIDED DESCRIPTION FOR PROPERTY.

LEGEND:

- FOUND IRON
- SET IRON
- RECORD DISTANCE
- MEASURED DISTANCE
- EXISTING GRAVEL
- EXISTING BUILDING
- EXISTING CONCRETE
- EXISTING ASPHALT
- EXISTING LANDSCAPED AREA
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER
- EXISTING WATERMAIN
- EXISTING OVERHEAD WIRES
- EXISTING FENCE
- EXISTING UTILITY POLE
- EXISTING WATER SHUT OFF
- EXISTING GATE VALVE
- EXISTING HYDRANT
- EXISTING WELL
- EXISTING GAS SHUT OFF
- EXISTING SANITARY STRUCTURE
- EXISTING STORM STRUCTURE
- EXISTING DOWN SPOUT
- EXISTING UTILITY PEDESTAL
- EXISTING GRADE

x 655.00

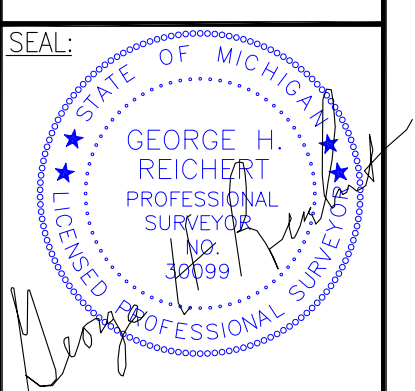


REICHERT SURVEYING INC.
 P 248.651.0592
 F 248.656.7099
 Mail@ReichertSurveying.com
 140 Flumerfelt Lane
 Rochester, MI 48306

TOPOGRAPHICAL SURVEY

LOTS 1545 - 1548 OF "SUPERVISOR'S PLAT OF BROOKLANDS PARK NO.4" A SUBDIVISION OF PART OF THE EAST 1/2 OF NORTHEAST 1/4 OF SECTION 36, T.3N., R.11E., CITY OF ROCHESTER HILLS, OAKLAND COUNTY MICHIGAN AS RECORDED IN LIBER 28 OF PLATS, PAGE 49, OAKLAND COUNTY RECORDS.
 ADDRESS:(COMMONLY KNOWN AS VACANT E. AUBURN ROAD)
 SIDWELL: 15-36-226-003, 15-36-226-004 & 15-36-226-005

PREPARED FOR:
IFTEQUAR FAZAL
 2780 STONEBURY DR.
 ROCHESTER HILLS, MI 48307
 (248) 875-3134



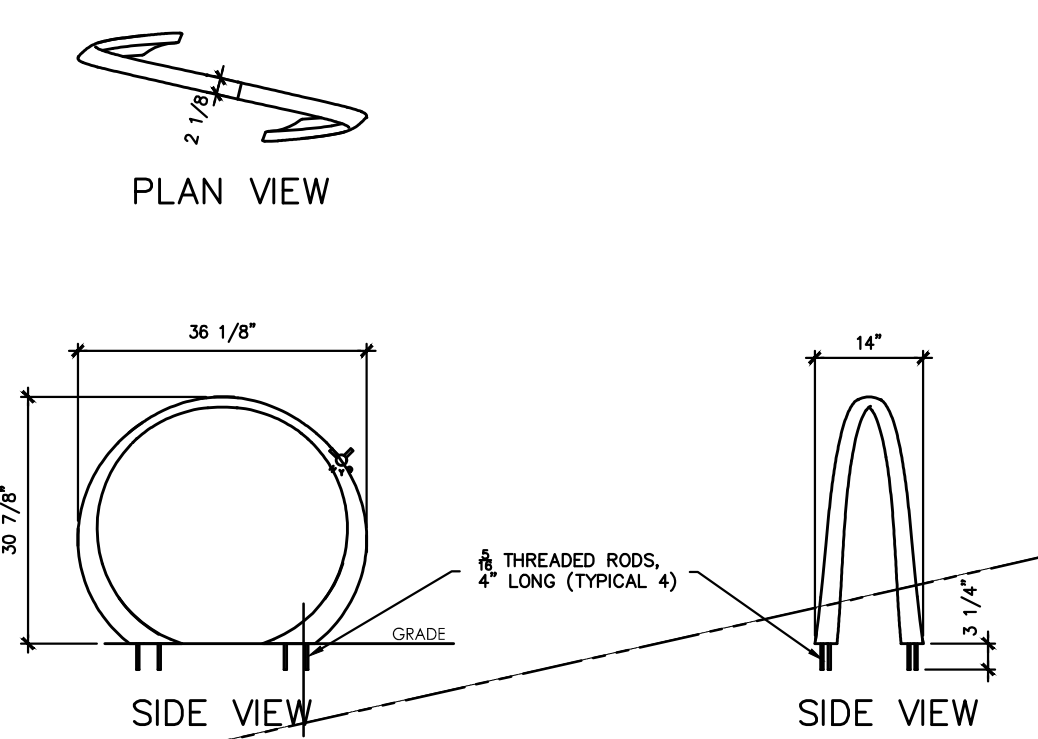
NO.	DATE	DESCRIPTION	BY
1	12/10/2024	REV ROW	BGR

SCALE: 1"=20' DRAWN: B.G.R.
 DATE: 11/10/18 CHECK: G.H.R.
 JOB # 14-090 SHEET: 1 OF 1

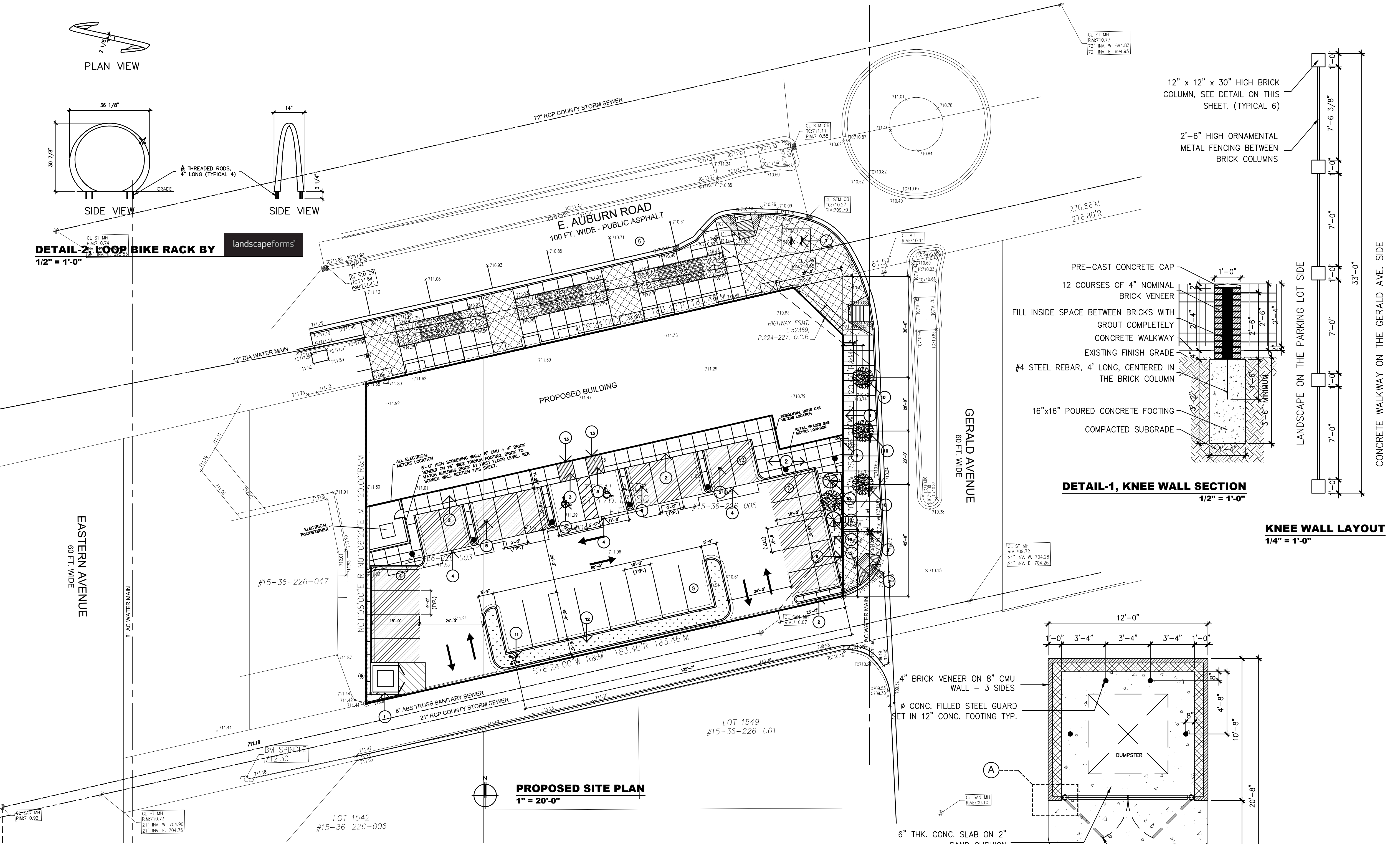
BENCHMARK:
 SITE BM: ARROW ON HYDRANT LOCATED AT THE SOUTHEAST CORNER OF SITE.
 ELEVATION: 712.81 NAVD 88 DATUM
 SITE BM: SPINDLE IN NORTH FACE OF UTILITY POLE; LOCATED AT THE SOUTHWEST CORNER OF SITE, SOUTH OF THE ALLEY.
 ELEVATION: 712.30 NAVD 88 DATUM
 JOB BM:
 NGS BRASS DISC SET IN CONCRETE MONUMENT (90648), 104' SOUTH OF C. OF JONATHON CIRCLE AND 27.4 FEET SOUTHWEST OF A FIRE HYDRANT.
 ELEV. 696.40 NAVD 88

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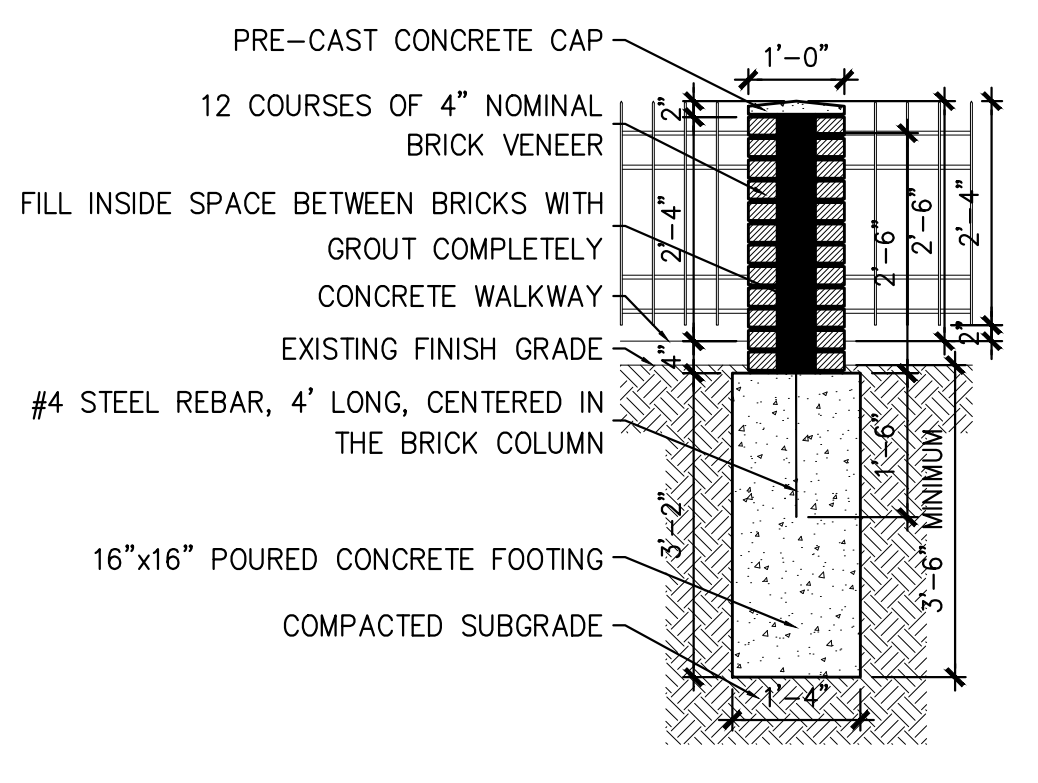
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DETAIL-2, LOOP BIKE RACK BY landscapeforms
1/2" = 1'-0"

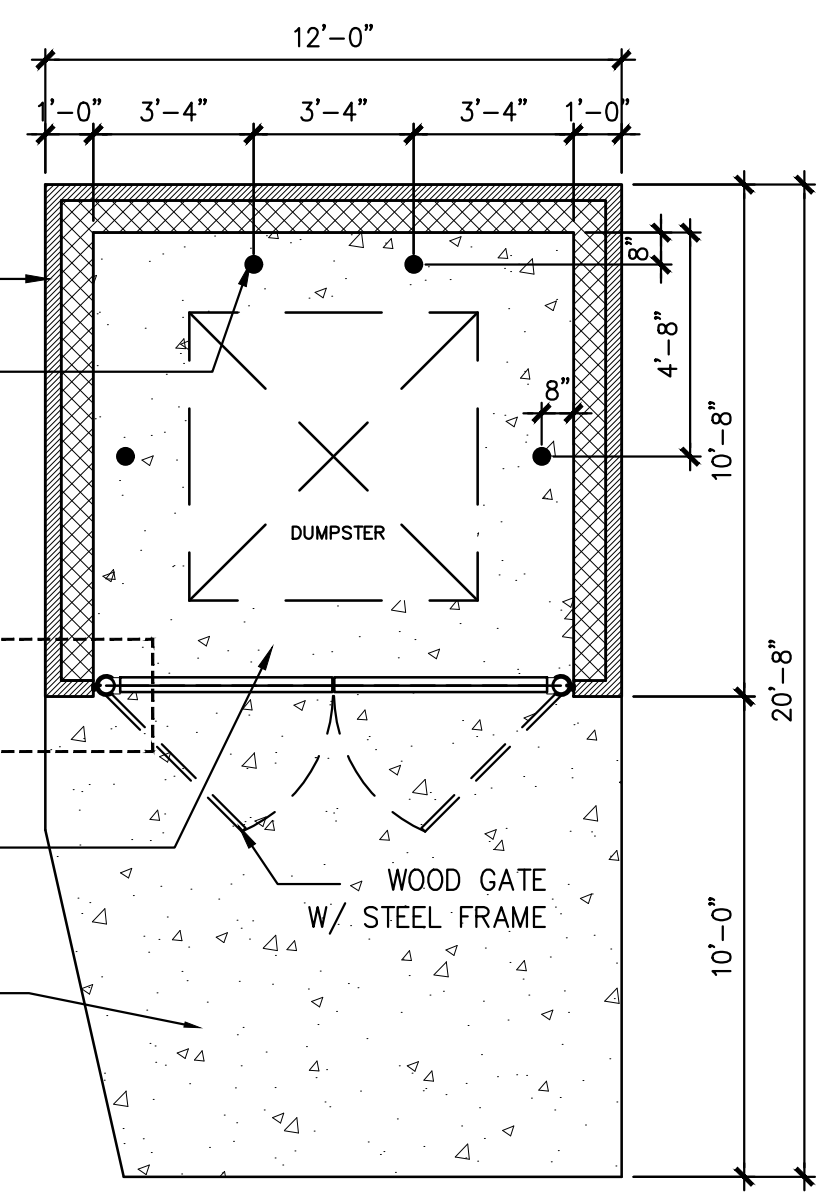


PROPOSED SITE PLAN
1" = 20'-0"

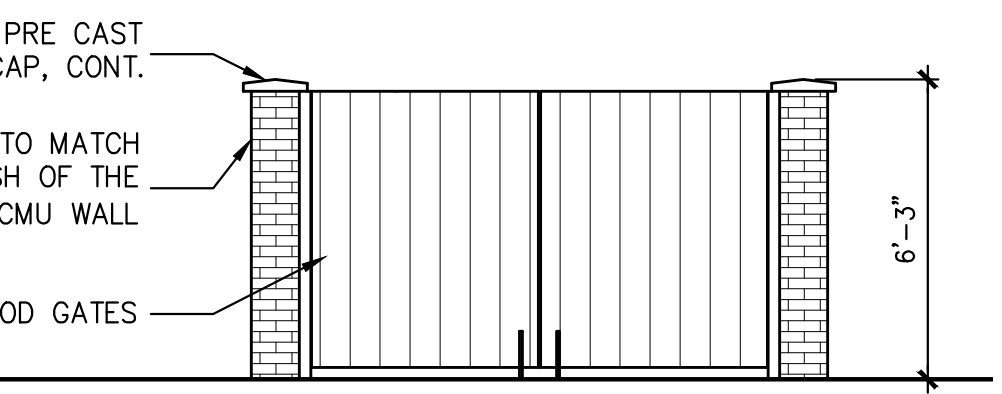


DETAIL-1, KNEE WALL SECTION
1/2" = 1'-0"

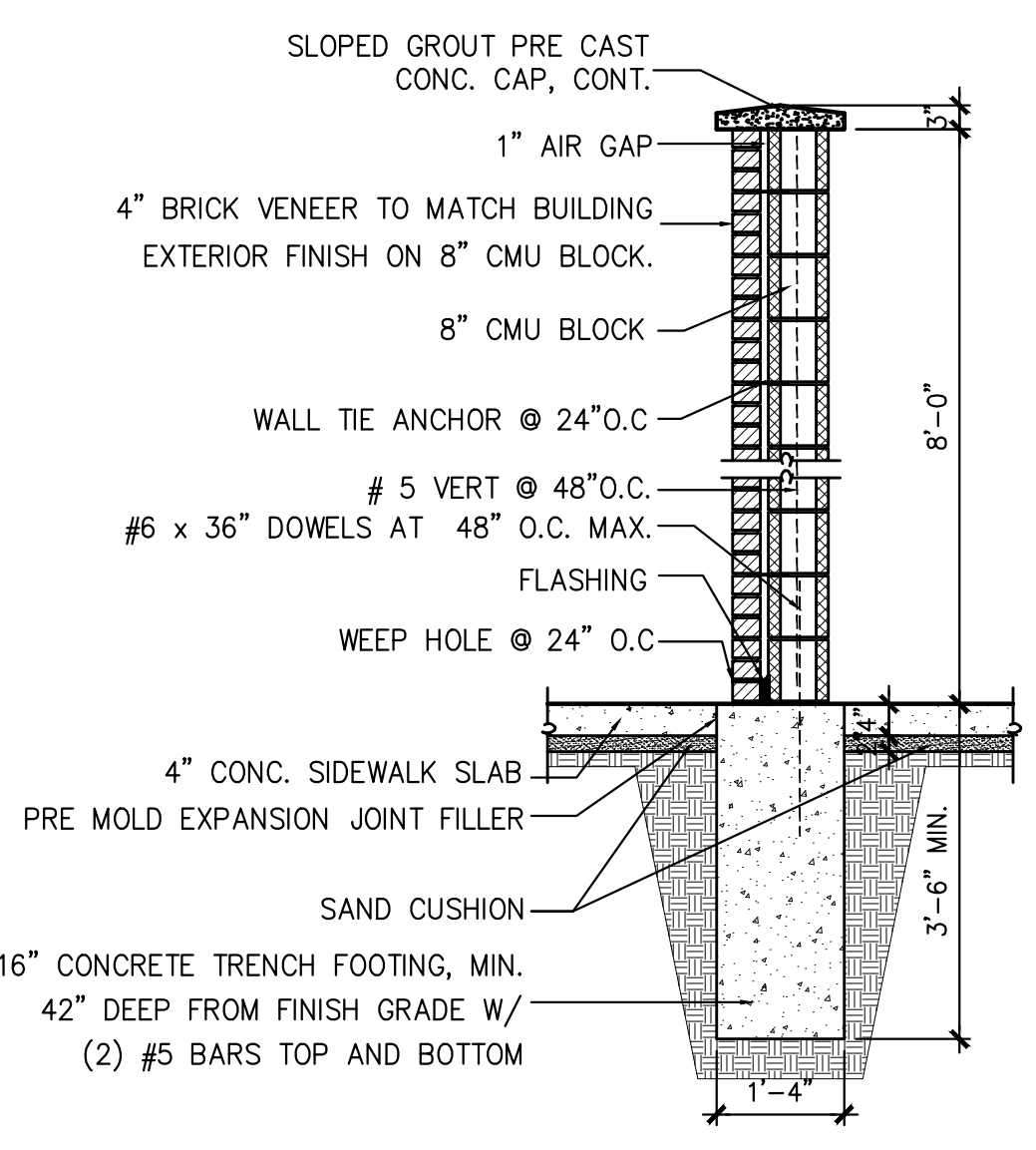
KNEE WALL LAYOUT
1/4" = 1'-0"



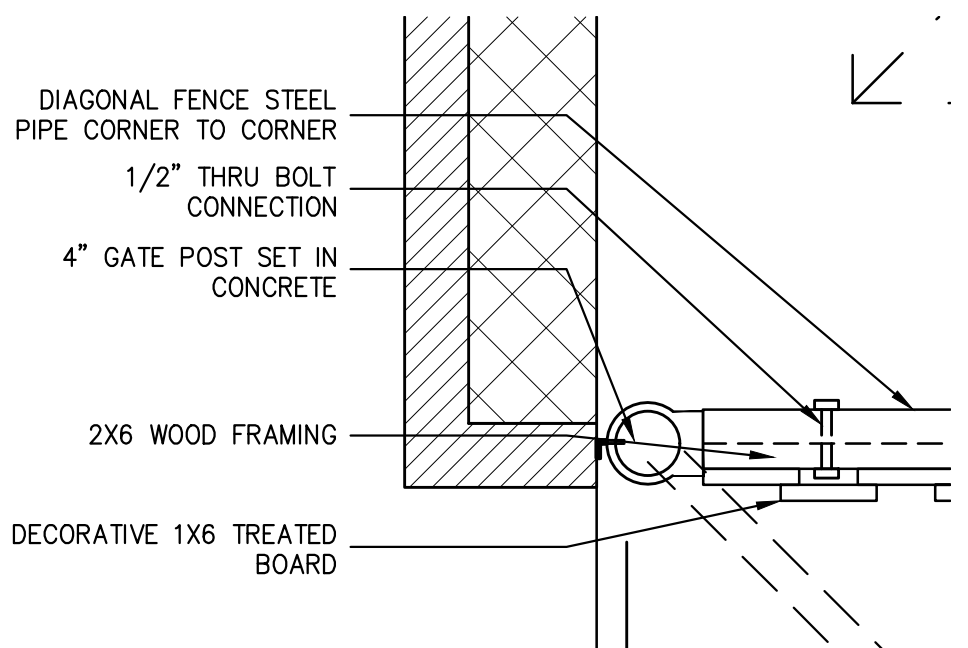
DUMPSTER ENCLOSURE PLAN
1/4" = 1'-0"



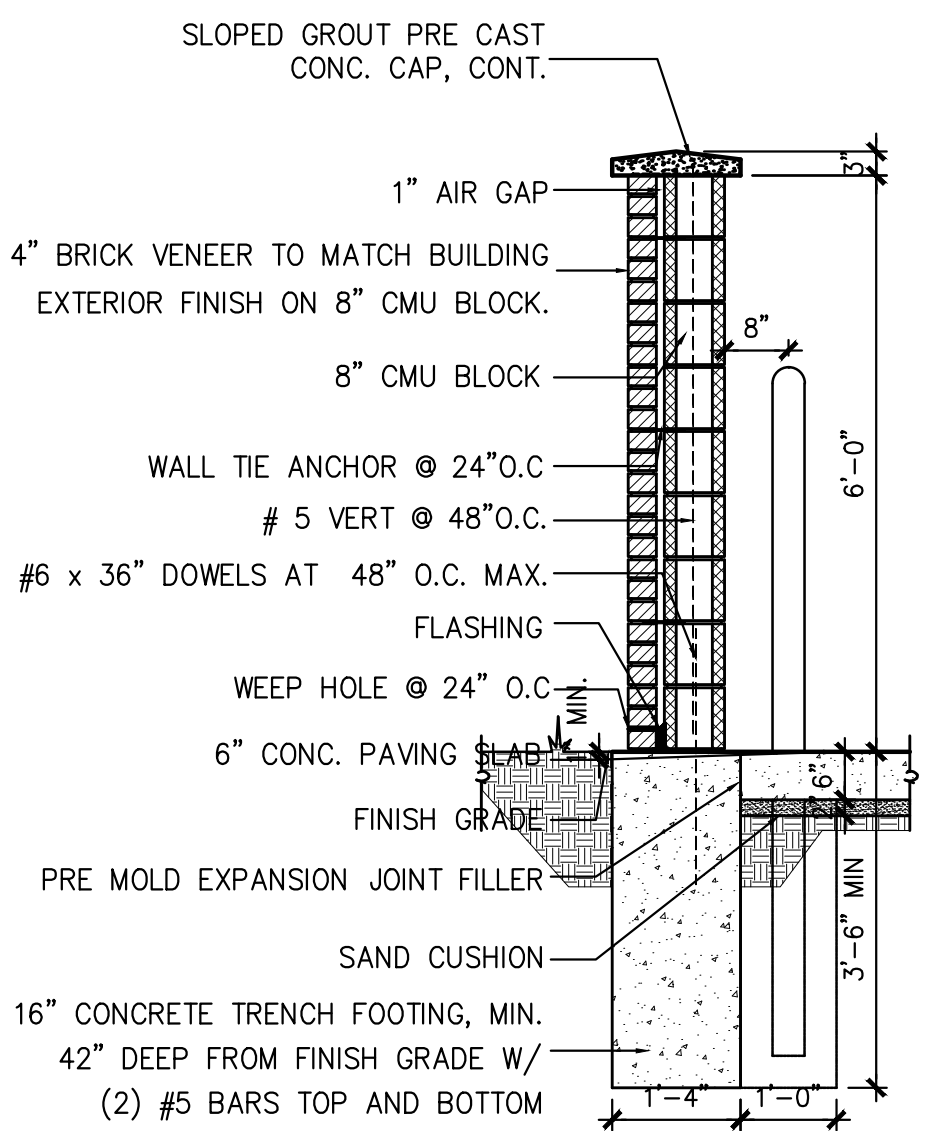
DUMPSTER ENCLOSURE ELEVATION
1/4" = 1'-0"



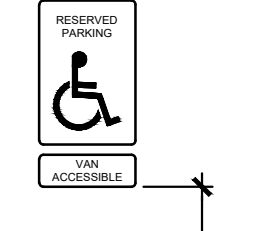
SCREEN WALL SECTION
1/2" = 1'-0"



DUMPSTER GATE DETAIL-A
1" = 1'-0"



DUMPSTER ENCLOSURE SECTION
1/2" = 1'-0"



WALL MOUNTED ACCESSIBLE PARKING SPACE SIGN
1/2" = 1'-0"

SITE DATA		
ZONING & PROPERTY AREA:		
ZONING	C-1 (COMMERCIAL IMPROVEMENT) DISTRICT AS AMENDED WITH THE NEW BD (BROOKLANDS) DISTRICT.	
TOTAL SITE AREA	= 21476 S.F. (0.493 ACRES)	
BUILDING DATA REFERENCE MICHIGAN BUILDING CODE - 2015 (MBC-2015)		
USE GROUP	MIXED USE, NON-SEPARATED	
TYPE OF CONSTRUCTION	V-B	
FIRE SUPPRESSION SYSTEM	ALL FLOORS SHALL BE EQUIPPED THROUGHOUT WITH AN NFPA 13 AUTOMATIC SPRINKLER SYSTEM INSTALLED IN ACCORDANCE WITH SECTION 903.1.1, MBC 2015	
	ALLOWED	PROPOSED
FIRST FLOOR AREA (BUSINESS USE GROUP)	27,000 S.F. (MAXIMUM)	GROSS FLOOR AREA = 8395 S.F. (BUSINESS USE GROSS FLOOR AREA = 7,552 S.F.)
+ S2 (STORAGE USE GROUP - OPEN PARKING)	40,000 S.F. (MAXIMUM)	GROSS FLOOR AREA = 3,876 S.F.
TOTAL FIRST FLOOR AREA	27,000 S.F. (MAXIMUM)	TOTAL GROSS FLOOR AREA = 12,271 S.F.
SECOND FLOOR AREA (R-2 RESIDENTIAL) 6 UNITS: 5 (2 BEDROOM), 1 (3 BEDROOM)	21,000 S.F. (MAXIMUM)	TOTAL GROSS FLOOR AREA = 12,680 S.F.
THIRD FLOOR AREA (R-2 RESIDENTIAL) 4 UNITS: 4 (3 BEDROOM)	21,000 S.F. (MAXIMUM)	TOTAL GROSS FLOOR AREA = 8,800 S.F.
BUILDING HEIGHT	3 STORIES (MAXIMUM) 60 FEET (MAXIMUM)	3 STORIES 45 FEET
		TOTAL GROSS FLOOR AREA = 33,692 S.F.

BUILDING AREA, PLACEMENT, HEIGHT AND TYPOLOGY (REQUIREMENTS BY CITY OF ROCHESTER HILLS ZONING ORDINANCE)		
STANDARD	REQUIREMENT (ZONING)	PROPOSED
BUILDING HEIGHT	3 STORIES (MAXIMUM) / 45 FEET (MAXIMUM)	3 STORIES / 45 FEET THIRD STORY STEPPED BACK 10 FEET ON THE FRONT AND REAR FACADE
LOT COVERAGE	80% OF THE LOT (MAXIMUM)	60% OF THE LOT
FRONT SETBACK	0 FEET (MIN.) / 10 FEET (MAX.)	0 FEET
MIN. SIDE SETBACK	0 FEET	0 FEET
REAR SETBACK, (ABUTTING AN ALLEY)	10 FEET (MINIMUM)	49 FEET
PRIMARY STREET FACADE ABUTTING BUILD-TO-LINE	SHALL OCCUPY MIN. 80% OF PARCEL WIDTH	OCCUPY 100% OF PARCEL WIDTH
SIDE STREET FACADE ABUTTING BUILD-TO-LINE	SHALL OCCUPY MIN. 50% OF PARCEL DEPTH	OCCUPY 57% OF PARCEL DEPTH
BUILDING DEPTH ALONG REQUIRED BUILD-TO-LINE	20 FEET (MINIMUM)	45.75 FEET
BALCONIES AND BAY WINDOWS:		
ENCROACHMENT OVER BUILD-TO-LINE	4 FEET (MAXIMUM)	4 FEET
VERTICAL CLEARANCE ABOVE THE SIDE WALK	15 FEET (MINIMUM)	15 FEET
MIN. FACADE TRANSPARENCY:		
FIRST FLOOR, NON-RESIDENTIAL USE	70%	85.7% (SEE SHEET A-10 FOR DETAILS)
UPPER FLOOR, RESIDENTIAL USE	20%	SECOND FLOOR = 34% THIRD FLOOR = 27% (SEE SHEET A-05 FOR DETAILS)
BUILDING MATERIALS:		
PRIMARY MATERIALS	60% MIN.	65% (SEE SHEET A-10 FOR DETAILS)
ACCENT MATERIALS	40% MAX.	35% (SEE SHEET A-10 FOR DETAILS)
FIRST FLOOR CEILING HEIGHTS	14 FEET MINIMUM	14 FEET

PROPOSED BUILDING IS DESIGNED IN ACCORDANCE WITH "SHOP-FRONT" DESIGN TYPE AS OUTLINED IN THE "BD BROOKLANDS" DISTRICT STANDARDS. ALL NEW SIGNAGE MUST MEET CHAPTER 134 OF THE CITY CODE OF ORDINANCES AND BE APPROVED UNDER A SEPARATE PERMIT ISSUED BY THE BUILDING DEPARTMENT.

PARKING CALCULATIONS	
REQUIRED PARKING FOR RETAIL:	TOTAL RETAIL SPACE AREA / 400 = 7103 / 400 = 17.76 = 18 (PS)
REQUIRED PARKING AFTER 20% REDUCTION FOR NEARBY PUBLIC PARKING = 18 x 0.8 = 14.4 = 15 (PS)	
REQUIRED PARKING FOR 10 RES. UNITS (2 OR MORE BEDROOMS): (NUMBER OF UNITS x 1.5) + (NUMBER OF UNITS / 3) = (10x1.5) + (10/3) = 19 (PS)	
PARKING RESERVED FOR RESIDENTS ONLY.	
REQUIRED TOTAL PARKING SPACES = 34 (PS)	
NUMBER OF PARALLEL PARKING PROVIDED ON AUBURN ROAD = 5 (PS)	
REQUIRED TOTAL OFF STREET PARKING SPACES = 34 - 5 = 29 (PS)	
PROVIDED TOTAL OFF STREET PARKING SPACES = 29 (PS) INCLUDING 2 ADA ACCESSIBLE PARKING SPACES	

- DRAWING NOTES:**
- NEW DUMPSTER ENCLOSURE SHALL BE AT LEAST 6' HIGH OR EQUAL TO THE HEIGHT OF THE RECEPTACLE ENCLOSED, WHICHEVER IS GREATER. SEE DUMPSTER ENCLOSURE DRAWINGS ON SHEET SP-01
 - CONCRETE WALK WAY.
 - ACCESSIBLE CURB RAMP.
 - WALL MOUNTED LIGHT FIXTURE LOCATIONS MOUNTED AT HEIGHT OF 15 FEET.
 - CEILING MOUNTED LIGHT FIXTURE LOCATIONS MOUNTED AT HEIGHT OF 14 FEET.
 - 2.5 FEET HIGH KNEE WALL BRICK COLUMNS WITH ORNAMENTAL METAL FENCING ADJACENT TO GERALD AVE. SEE DETAIL-1 DRAWING THIS SHEET.
 - LOOP BIKE RACK BY LANDSCAPE FORMS TO BE INSTALLED PER MANUFACTURERS INSTALLATION GUIDE (TYP. 2). MATCH EXISTING LOOP BIKE RACKS INSTALLED BY CITY OF ROCHESTER HILLS AT AUBURN ROAD CORRIDOR. SEE DETAIL -2 ON SHEET SP-01.
 - FIRE DEPARTMENT CONNECTION.
 - EXISTING FIRE HYDRANT.
 - NEW TREE, REFER TO LP-1: LANDSCAPE PLANTING PLAN.
 - PROPOSED NEW FIRE HYDRANT WITH GUARD POSTS PER CITY DETAILS.
 - LANDSCAPE AREA, REFER TO SHEET LP-1: LANDSCAPE PLANTING PLAN.
 - WALL MOUNTED ACCESSIBLE PARKING SPACE SIGN COMPLYING WITH A117.1 SECTION 502.7. SEE DETAIL THIS SHEET AND LOCATION ON REAR BUILDING ELEVATION (SHEET A-10).

PROPOSED SITE PLAN	
SITE PLAN REVIEW	02/19/2024
ISSUED FOR	DATE

PROPOSED SITE PLAN SP-01

GERALD PLAZA
1780 EAST AUBURN ROAD
ROCHESTER HILLS, MI 48307

CONTACT: MIKE CHAUDHARY
OWNER: GERALD REAL ESTATE LLC
ADDRESS: 13500 FOLEY STREET, DETROIT, MI 48227
PHONE: 313-491-8115
E-MAIL: mike@dmgroupusa.com 24002

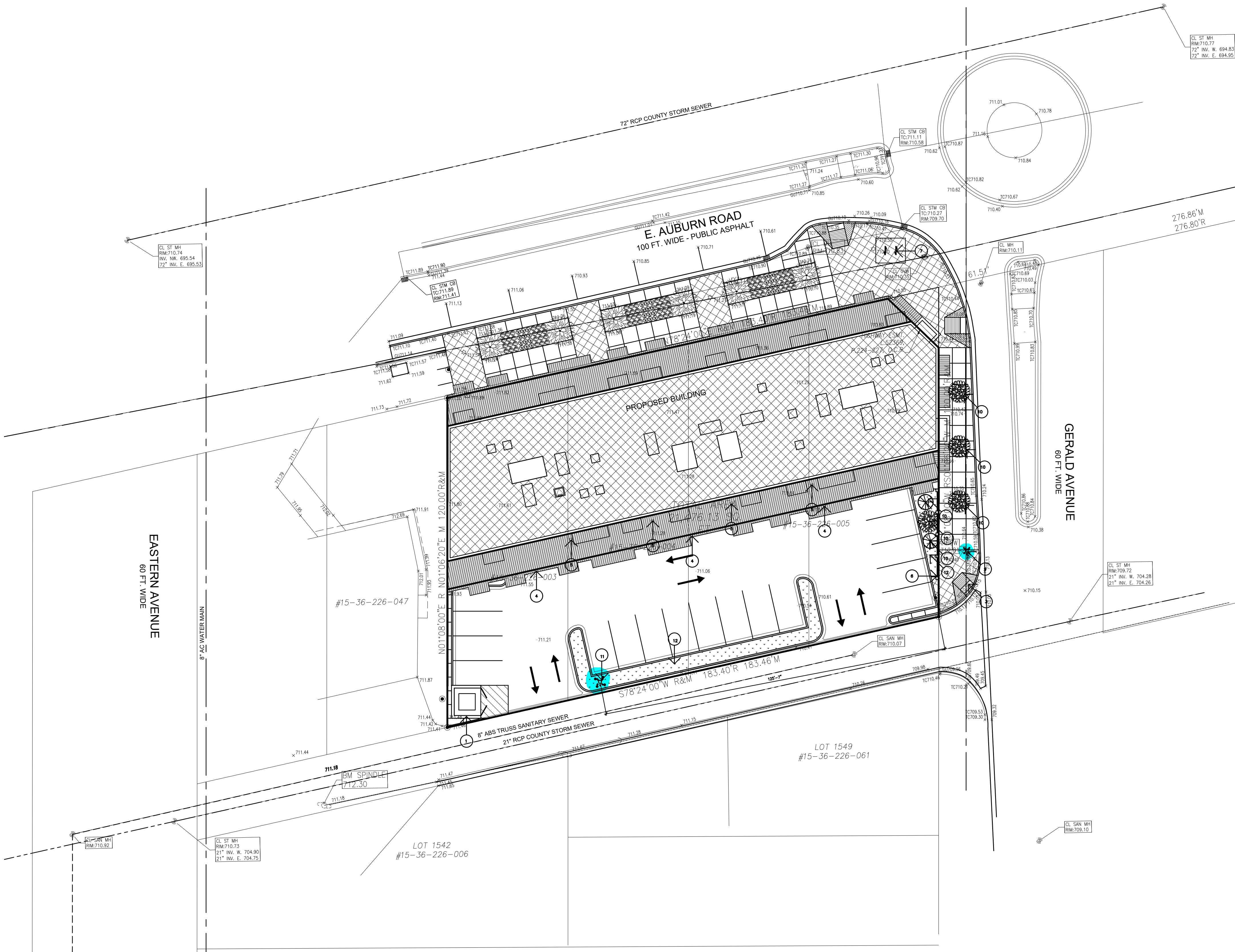
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STATE OF MICHIGAN
HISHAM AL TURK
ARCHITECT
No. 1301952206
02/19/2024

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PROPOSED SITE PLAN
1" = 20'-0"

BUILDING DATA		REFERENCE MICHIGAN BUILDING CODE - 2015 (MBC-2015)	
USE GROUP	:	MIXED USE, NON-SEPARATED	
TYPE OF CONSTRUCTION	:	V-B	
FIRE SUPRATON SYSTEM	:	ALL FLOORS SHALL BE EQUIPPED THROUGHOUT WITH AN NFPA 13 AUTOMATIC SPRINKLER SYSTEM INSTALLED IN ACCORDANCE WITH SECTION 903.1.1, MBC 2015	
		ALLOWED	PROPOSED
FIRST FLOOR AREA B (BUSINESS USE GROUP)		27,000 S.F. (MAXIMUM)	GROSS FLOOR AREA = 8395 S.F. (BUSINESS USE GROSS FLOOR AREA = 7,552 S.F.)
+ S2 (STORAGE USE GROUP - OPEN PARKING)		40,000 S.F. (MAXIMUM)	GROSS FLOOR AREA = 3,876 S.F.
TOTAL FIRST FLOOR AREA		27,000 S.F. (MAXIMUM)	TOTAL GROSS FLOOR AREA = 12,271 S.F.
SECOND FLOOR AREA R-2 (RESIDENTIAL) 6 UNITS: 5 (2 BEDROOM), 1 (3 BEDROOM)		21,000 S.F. (MAXIMUM)	TOTAL GROSS FLOOR AREA = 12,680 S.F.
THIRD FLOOR AREA R-2 (RESIDENTIAL) 4 UNITS: 4 (3 BEDROOM)		21,000 S.F. (MAXIMUM)	TOTAL GROSS FLOOR AREA = 8,800 S.F.
BUILDING HEIGHT		3 STORIES (MAXIMUM) 60 FEET (MAXIMUM)	3 STORIES 45 FEET TOTAL GROSS FLOOR AREA = 33,692 S.F.

ADDITIONAL CODE ANALYSIS:

1. ACCESSIBLE RESIDENTIAL UNITS SHALL BE PROVIDED PER SECTION 1107, MBC-2015, AND SHALL COMPLY WITH A117.1.2009, SECTION 1004 FOR TYPE B UNITS.
2. BALCONY PROJECTIONS SHALL COMPLY WITH SECTION 705.2, 3202.3.3, MBC-2015.

DRAWING NOTES:

1. NEW DUMPSTER ENCLOSURE SHALL BE AT LEAST 6' HIGH OR EQUAL TO THE HEIGHT OF THE RECEPTACLE ENCLOSED, WHICHEVER IS GREATER. SEE DUMPSTER ENCLOSURE DRAWINGS ON SHEET SP-01
2. CONCRETE WALK WAY.
3. ACCESSIBLE CURB RAMP.
4. WALL MOUNTED LIGHT FIXTURE LOCATIONS MOUNTED AT HEIGHT OF 15 FEET.
5. CEILING MOUNTED LIGHT FIXTURE LOCATIONS MOUNTED AT HEIGHT OF 14 FEET.
6. 2.5 FEET HIGH KNEE WALL BRICK COLUMNS WITH ORNAMENTAL METAL FENCING ADJACENT TO GERALD AVE. SEE DETAIL-1 DRAWING THIS SHEET.
7. LOOP BIKE RACK BY LANDSCAPE FORMS TO BE INSTALLED PER MANUFACTURERS INSTALLATION GUIDE (TYP. 2). MATCH EXISTING LOOP BIKE RACKS - INSTALLED BY CITY OF ROCHESTER HILLS AT AUBURN ROAD CORRIDOR. SEE DETAIL -2 ON SHEET SP-01.
8. FIRE DEPARTMENT CONNECTION.
9. EXISTING FIRE HYDRANT.
10. NEW TREE, REFER TO LP-1: LANDSCAPE PLANTING PLAN.
11. PROPOSED NEW FIRE HYDRANT WITH GUARD POSTS PER CITY DETAILS.
12. LANDSCAPE AREA, REFER TO SHEET LP-1: LANDSCAPE PLANTING PLAN

A type VB building with 33,692 sq.ft. requires a fire flow of 5,000 GPM and a minimum of 5 on site hydrants, spaced no more than 300 feet apart.

Prior approval provided for a 50% reduction in fire flow per ordinance. A 2,500 GPM fire flow requires 3 on site hydrants spaced no more than 400 feet apart.

Provide an additional hydrant on the north east corner of the site.

In order to gain site plan approval a flow test is required to evaluate the capabilities of the water supply. The previous flow test is more than a year old and will need to be redone.

Contact the Rochester Hills DPS Engineering Department at 248-56-4640 to schedule a new test.

FIRE DEPARTMENT NOTES:

1. AN AUTOMATIC SPRINKLER SYSTEM INSTALLED IN ACCORDANCE WITH SECTION 903.3, MICHIGAN BUILDING CODE - 2015, SHALL BE PROVIDED THROUGHOUT THE BUILDING.
2. A KNOX KEY SYSTEM SHALL BE INSTALLED IN A LOCATION APPROVED BY THE FIRE CODE OFFICIAL. ORDERING INFORMATION IS AVAILABLE FROM THE KNOX COMPANY AT knoxbox.com.
3. FIRE LANES SHALL BE DESIGNED BY THE FIRE CODE OFFICIAL, AND SHALL BE CONSPICUOUSLY POSTED ON BOTH SIDES OF THE FIRE LANE, WITH FIRE LANE SIGNS, SPACED NOT MORE THAN 100 FEET APART. FIRE LANE SIGNS SHALL READ "NO STOPPING, STANDING, PARKING, FIRE LANE", AND SHALL CONFORM TO THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. FIRE PREVENTION ORDINANCE CHAPTER 58, SEC. 503.
4. CONSTRUCTION SITES SHALL BE SAFEGUARDED IN ACCORDANCE WITH IFC 2006 CHAPTER 14
5. OPEN BURNING IS NOT PERMITTED, INCLUDING THE BURNING OF TRASH, DEBRIS OR LAND CLEARING MATERIALS. OPEN BURNING FOR WARMING OF SAND AND/OR WATER FOR PREPARATION OF MORTAR SHALL BE WITHIN CITY OF ROCHESTER HILLS BURN PERMIT GUIDELINES. CONTACT ROCHESTER HILLS FIRE DEPARTMENT FOR PERMIT INFORMATION. FIRE PREVENTION ORDINANCE CHAPTER 58, SECTION 307.6.2 & 307.6.2.3
6. FIRE DEPARTMENT CONNECTIONS SHALL NOT BE OBSCURED OR OBSTRUCTED BY LANDSCAPING, PARKING OR BY ANY OTHER PERMANENT OR TEMPORARY MATERIALS OR DEVICE.
7. IF FIRE DEPARTMENT CONNECTION IS NOT LOCATED ON THE STREET FRONT OF THE BUILDING, A WHITE/CLEAR STROBE LIGHT SHALL BE TIED INTO THE FIRE ALARM SYSTEM AND INSTALLED OVER THE FIRE DEPARTMENT CONNECTION.
8. PROVIDE A "NO PARKING FIRE DEPARTMENT CONNECTION" SIGN OVER THE FIRE DEPARTMENT CONNECTION.
9. CLASS I STANDPIPE SYSTEM SHALL BE INSTALLED IN THE STAIRWELLS OF THE PROPOSED BUILDING IN LIEU OF FIRE APPARATUS ACCESS.
10. A NEW FIRE HYDRANT SHALL BE INSTALLED AT THE SOUTH WEST SIDE OF THE PROPERTY. (REFER TO DRAWING NOTE 11 FOR LOCATION OF THE NEW FIRE HYDRANT)

SITE PLAN REVIEW	02/19/2024
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PROPOSED SITE PLAN SP-02

GERALD PLAZA
1760 EAST AUBURN ROAD
ROCHESTER HILLS, MI 48307

CONTACT : MIKE CHAUDHARY
OWNER : GERALD REAL ESTATE LLC
ADDRESS : 13500 FOLEY STREET, DETROIT, MI 48227
PHONE : 313-491-1818
E-MAIL : mike@dmgroupusa.com 24002

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STATE OF MICHIGAN
HISHAMAL TURK
ARCHITECT
No. 1301052206
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GENERAL NOTES

- THE CONTRACTOR SHALL VISIT THE SITE TO VERIFY ALL SITE CONDITIONS ILLUSTRATED TO BE DEMOLISHED AND IF THERE ARE QUESTIONS OR PERCEIVED & REAL CONFLICTS REGARDING CONSTRUCTION DOCUMENTS COMPARED TO ACTUAL FIELD CONDITIONS, SAID CONTRACTOR SHALL NOTIFY THE ENGINEER OF RECORD OR OWNER PRIOR TO BIDDING.
- THE CONTRACTOR SHALL NOT INTERRUPT EXISTING UTILITIES DURING THE DEMOLITION. IF A UTILITY INTERRUPTION IS REQUIRED, THE CONTRACTOR SHALL COORDINATE THE INTERRUPTION WITH THE OWNER AND PROPER NOTIFICATIONS WILL BE ISSUED TO THE JURISDICTIONAL AGENCY. NOTIFICATIONS ARE THE RESPONSIBILITY OF THE CONTRACTOR.
- THE CONTRACTOR SHALL RESTORE ANY STRUCTURES, UTILITY, PAVEMENT, CURBS, SIDEWALKS, LANDSCAPED AREAS, ETC. WITHIN ADJOINING PROPERTIES DISTURBED OR DAMAGED DURING CONSTRUCTION ACTIVITIES.
- THE CONTRACTOR SHALL BE RESPONSIBLE TO INSTALL AND MAINTAIN TRAFFIC CONTROL DEVICES FOR PROTECTION OF PEDESTRIANS AND VEHICULAR TRAFFIC. CONTROLS MAY CONSIST OF, BUT NOT BE LIMITED TO, FLAGGERS, DRUMS, BARRIERS, SIGNS, LIGHTS, AND FENCING. COST OF TRAFFIC CONTROL SHALL BE BORNE BY THE CONTRACTOR.
- SITE UTILITIES ILLUSTRATED ON THE CONTRACT DRAWINGS ARE APPROXIMATE AND SHALL NOT BE CONSIDERED AS 100% ACCURATE. THE ENGINEER SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OF THE INFORMATION SHOWN THEREON. THE CONTRACTOR SHALL FIELD LOCATE DEPTH AND LOCATION OF ALL UTILITIES LOCATED WITHIN THE LIMITS OF SITE EXCAVATION. CONTRACTOR SHALL CALL MISS-DIG PRIOR TO EXCAVATING AND LOCAL UTILITIES SHALL BE MARKED OR CLEARED BY UTILITY OWNER PRIOR TO EXCAVATING.
- THE MUNICIPALITY AND/OR JURISDICTIONAL AGENCY STANDARD DETAIL SHEETS ARE INCORPORATED AND MADE A PART OF THESE PLANS. ALL UTILITY LINE, STRUCTURES, AND TRENCHES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THESE STANDARDS AND ALL OTHER RELATED REQUIREMENTS.
- NO PHYSICAL CONNECTION TO THE EXISTING UTILITIES SHALL BE MADE UNTIL ALL NEW UTILITIES ARE TESTED AND ACCEPTED BY THE MUNICIPALITY AND/OR JURISDICTIONAL AGENCY.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL JURISDICTIONAL AGENCIES PERMIT COSTS.
- MAINTAIN 10' MIN HORIZONTAL SEPARATION BETWEEN UTILITIES AND 18" CLEARANCE AT CROSSINGS.
- MAINTAIN 5.5' MIN COVER OVER ALL EXISTING & PROPOSED WATER MAIN.
- MAINTAIN 4' MIN COVER OVER ALL EXISTING & PROPOSED SANITARY SEWER.
- MAINTAIN 3' MIN COVER OVER ALL EXISTING & PROPOSED STORM SEWER.
- IF REQUIRED, A STORM WATER MAINTENANCE AGREEMENT SHALL BE PROVIDED TO THE MUNICIPALITY PRIOR TO FINAL ACCEPTANCE.

CITY NOTES

- PROVIDE 1 MASTER CITY METER FOR RETAIL 1ST FLOOR AND 1 MASTER METER FOR RESIDENTIAL 2ND & 3RD FLOORS.
- PROVIDE PRIVATE SUB METERS FOR EACH INDIVIDUAL RESIDENTIAL & RETAIL UNIT.
- THE EXISTING SANITARY LEAD SHALL BE VIDEOTAPE PRIOR TO CONNECTION TO VERIFY IT IS IN GOOD WORKING CONDITION.
- A CITY RIGHT-OF-WAY (ROW) USE PERMIT IS REQUIRED & MUST BE APPROVED PRIOR TO CONSTRUCTION.
- SIDEWALK ALONG GERALD AVE WILL BE THE LANDOWNERS RESPONSIBILITY TO MAINTAIN.
- A STORM SYSTEM MAINTENANCE AGREEMENT IS REQUIRED.

PROPOSED LEGEND

- TC 000.00 TOP OF CURB ELEVATION
- G 000.00 GUTTER ELEVATION
- TP 000.00 TOP OF PAVEMENT ELEVATION
- TW 000.00 TOP OF WALK ELEVATION
- FG 000.00 FINISH GRADE ELEVATION
- FLOW DIRECTION
- CONCRETE
- GRAVEL
- COMPACTED SAND BACKFILL
- WATERMAIN
- SANITARY SEWER
- STORM SEWER
- GAS MAIN
- ELECTRIC LINE
- HYDRANT
- GATE VALVE & WELL
- TAPPING SLEEVE VALVE & WELL
- REAR YARD CATCH BASIN
- STORM MANHOLE
- CATCH BASIN
- INLET
- END SECTION
- SANITARY MANHOLE
- STRUCTURE TYPE
- STRUCTURE ID NO

Detention Basin
(OKLAND COUNTY FORMULA - 100-YEAR STORM)
Job Name: Zeenat Plaza
Job No.: TA20001

Designed by: FH
Checked by: SS

Total Area Tributary (At) = 0.49

Area Label	A (sf)	C	A*C
Lawn Area	333	0.20	67
Hard Surface	12,552	0.95	11,924
Roof Area	8,387	0.95	7,968
Sum	21,272	2.10	19,959

Overall site average C factor: **0.94**

Enter Standard Allowable Discharge (q): **0.20**

Overall site C factor: **0.94**

Overall site acreage contributing to the basin (A): **0.49** Ac.

Maximum allowable outflow, Qa (q * A): **0.10** CFS

VOLUME CALCULATIONS
Qo = [(allowable outflow, Qa) / (runoff coefficient)]
= **0.217 CFS(acre*imperviousness)**

Storage time calculation:
T = -25 + sqrt(10312.5 / Qo) (100 year storm)
T = **192.94 min.**

Maximum volume of storage per acre imperviousness:
Vs = (16,500 (T) / (T + 25)) - 40(Qo)(T) (100 year storm)
Vs = **12931.72 CF(acre*imperviousness)**

Total volume of storage REQUIRED for the entire site:
Vt = (Vs)(site acreage)(runoff coefficient)
Vt = **5,956.35 CF (VOLUME REQUIRED)**

ORIFICE SIZING CALCULATIONS
Enter design depth of storage for the basin: **1** feet

ORIFICE AREA ("A") = Qa / (0.62*SQRT(2GH)) = 0.020 square feet
2.89 square inches

AREA = Pi * R squared, SOLVE FOR R = 0.96 in. (radius)
RESTRICTOR SIZE REQUIRED = 2 in.
RESTRICTOR SIZE PROVIDED = 4 in.

SANITARY BASIS OF DESIGN

Job Name: Zeenat Plaza
Job No: TA20001
Date: 07/05/21
Prepared by: SS
Checked by: SS

District	Name	Usage	Approx. Area (SF)	Area Per 1,000 FT ²	REU Unit Factor	REU's Units	Popl. REU	Pop. / Ac.	UIL
Onsite	First Floor	Retail (ret)	7,050	7.05	0.26 / 1,000 SF	1.83	5	2.44	4
Onsite	Second Floor (2 bed)	Residential Homes	10,308				5	2.44	12
Onsite	Second Floor (3 bed)	Residential Homes	2,108				1	2.44	2
Onsite	Third Floor (3 bed)	Residential Homes	6,776				4	2.44	10
			Total Area	26,212					Total Calculated Population Equivalents
									29

DESIGN ULTIMATE POPULATION (Ultimate Conditions)
REU Unit Factors based on OCMRC Schedule of Unit Assignment Factors effective July 1, 2018

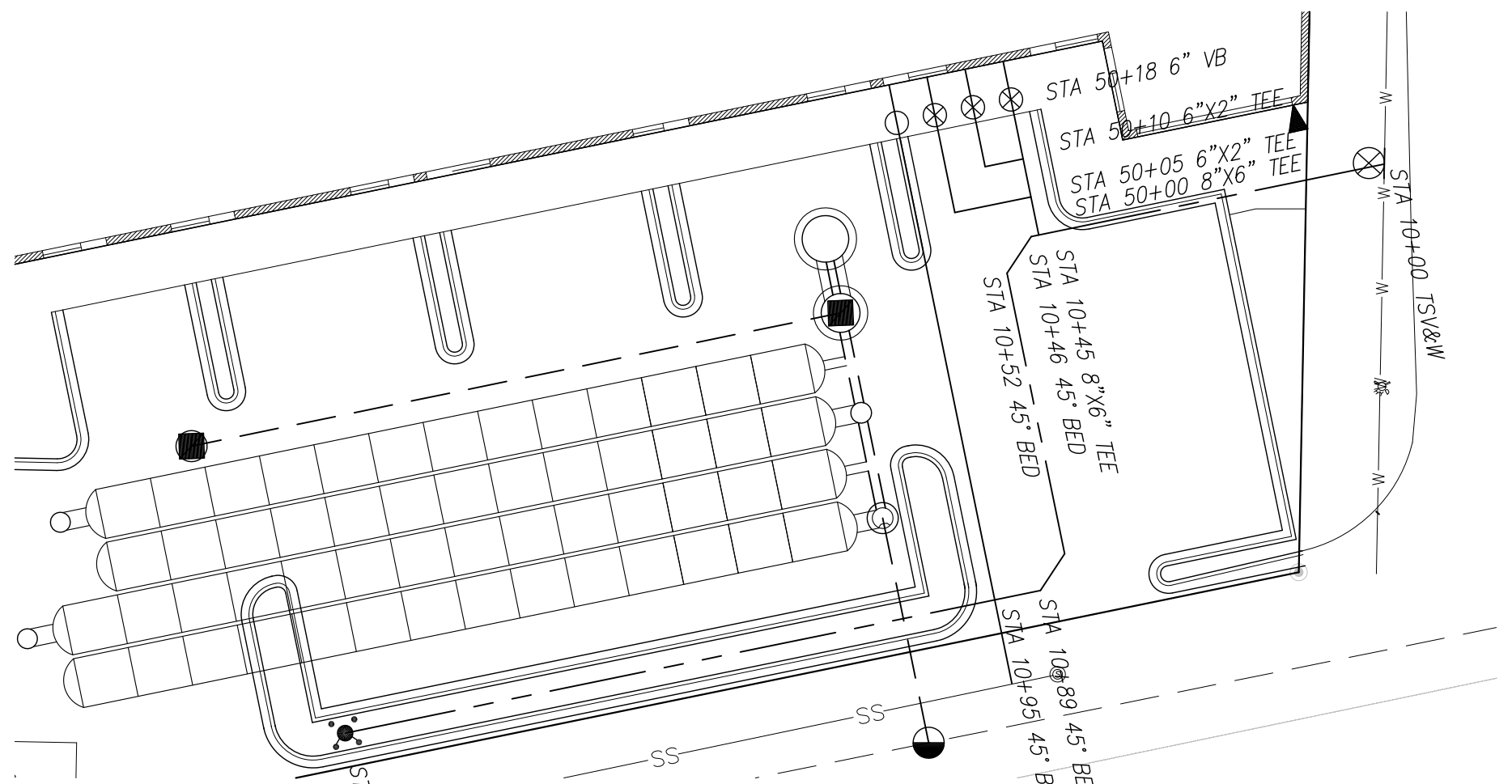
Pop. Equivalents (P)	=	29	=	0.029	Thousands
Density = Population / Area	=	29	=	68.924	Pop. / Ac.

Peak Flow
Average Flow (Q_{avg}) = (100 GPCD) 29 = 7.48 GPM (0.0024)
Average Flow (Q_{avg}) = 0.004 CFS
Peaking Factor (PF) = 18 + (P / 4.1) = 18 + (0.029 / 4.1) = 18.007
Peak Flow (Q_{peak}) = (Q_{avg})(PF) = 0.019 CFS

Gravity Sewer Pipe Capacity

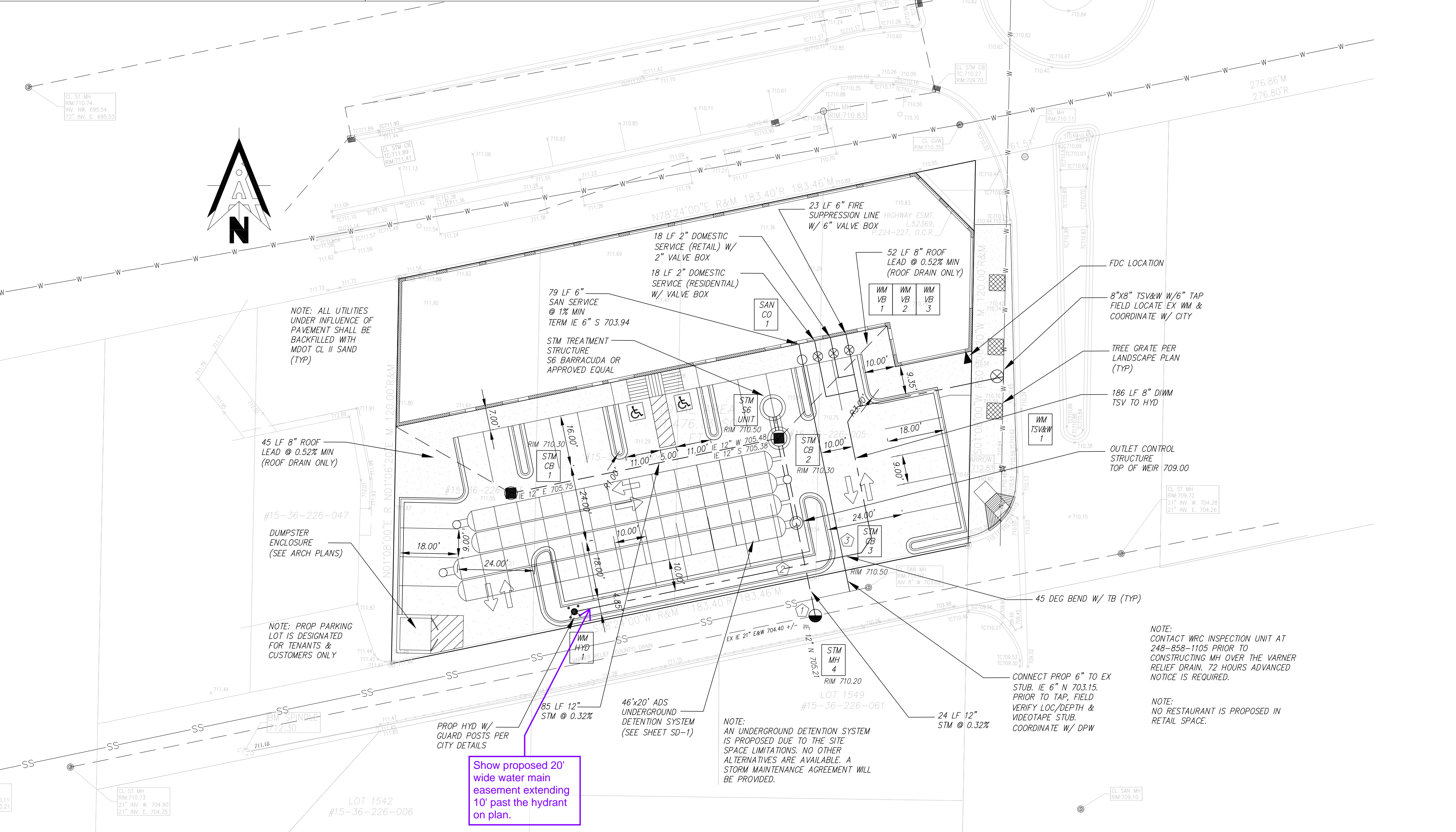
# inch Diameter Pipe (d)	1,000%	f	1,000%		
A	=	(3.14)(D ² /4)	=	0.196	FT ²
f	=	(D ⁵)	=	0.015	FT
s	=	(1.49)(C ^{1.49})	=	1.096	
V	=	(1.49)(C ^{1.49})(f ^{0.047})	=	2.865	FPS
(Provided) C	=	140	=	0.910	CFS
(Required) C	=	0.910	=	0.910	CFS

Total volume of storage REQUIRED for the entire site:
Vt = (Vs)(site acreage)(runoff coefficient)
Vt = **5,956.35 CF (VOLUME REQUIRED)**



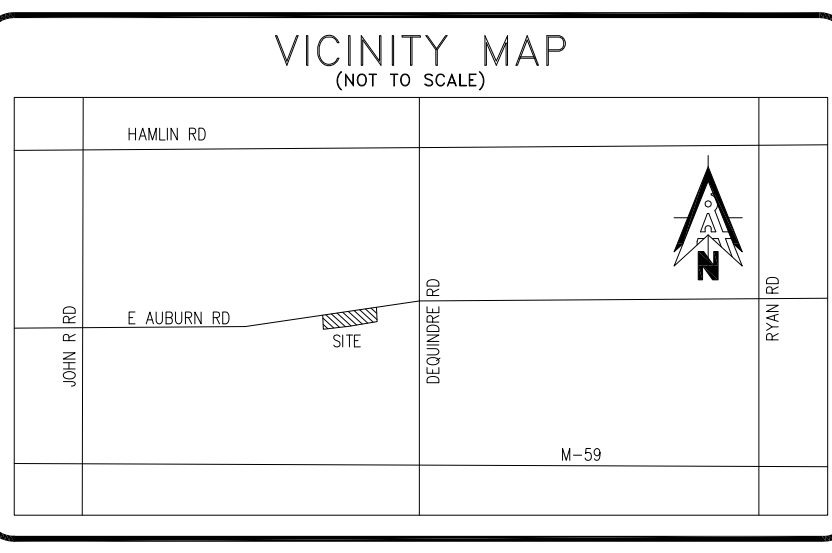
WATER MAIN STATIONING

SCALE 1:20



UTILITY & GEOMETRY PLAN

SCALE 1:20



LEGAL DESCRIPTION

LOTS 1545 - 1548 OF "SUPERVISOR'S PLAT OF BROOKLANDS PARK NO. 4" A SUBDIVISION OF PART OF THE EAST 1/2 OF THE NORTHEAST 1/4 OF SECTION 36, T.3N., R.11E., CITY OF ROCHESTER HILLS, OKLAHOMA COUNTY MICHIGAN AS RECORDED IN LIBER 28 OF PLATS, PAGE 49, OKLAHOMA COUNTY RECORDS.

ADDRESS: (COMMONLY KNOWN AS VACANT E. AUBURN ROAD)
SIDWELL: 15-36-226-003, 15-36-226-004, 15-36-226-005

Note: All survey info shown herein was obtain from topographical survey by Reichert Surveying Inc. job number 14-090 dated 07/23/20 as supplied by the developer. TCEC has not performed a survey of this parcel.

BENCH MARK INFORMATION

Site Bench Mark:
Arrow on hydrant located at the southeast corner of site.
Elevation: 712.81 NAVD 88 Datum.

Site Bench Mark:
Spindle in the north face of utility pole; located at the southwest corner of the site, south of the alley.
Elevation: 712.30 NAVD 88 Datum.

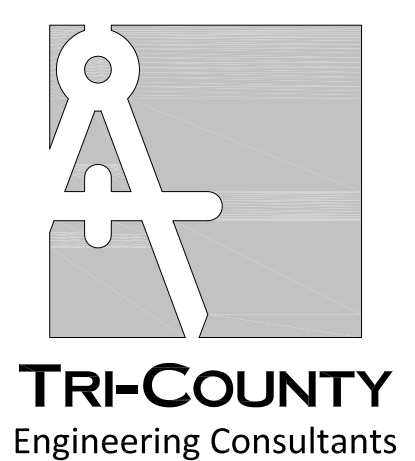
Job Bench Mark:
NGS brass disc set in concrete monument (50648), 104' south of CL of Jonathan Circle and 27.4 feet southwest of a fire hydrant.
Elevation: 696.40 NAVD 88 Datum.

ESTIMATED QUANTITIES THIS SHEET

ITEM	UNIT	QUANTITY
6" SAN LEAD (PVC SCHD 40)	LF	79
8" WM DIP CL54	LF	186
6" WM DIP CL54	LF	23
2" WM SERVICE (TYPE K COPPER)	LF	46
8"X8" TAPPING SLEEVE VALVE & WELL	EA	1
HYDRANT ASSEMBLY	EA	1
8" ROOF LEAD (PVC SCHD 40)	LF	90
12" STM PIPE (RCP C76 CLIV)	LF	115
4' DIA STORM CATCH BASIN	EA	1
6' DIA STORM CATCH BASIN	EA	1
6' DIA STORM MANHOLE	EA	1
6' DIA STM TREATMENT STRUCTURE	EA	1
ADS UNDERGROUND DETENTION SYSTEM	LS	1
MDOT CL II SAND BACKFILL	LF	505
6" SAN CLEAN-OUT	EA	1

Storm sewer maintenance agreement and water main easement will be needed during construction plan review.

- UTILITY CROSSINGS**
- BOT 12" STM 705.23 (1.71' CLEAR)
TOP 10" SAN 703.52
 - BOT 12" STM 705.27 (3.27' CLEAR)
TOP 8" WM 702.00
 - BOT 6" SAN 703.26 (1.50' CLEAR)
TOP 8" WM 701.76



48701 Hayes Road
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PRIOR TO CONSTRUCTION, ALL EXISTING UTILITIES LOCATION AND DEPTH WITHIN THE PROJECT AREA SHALL BE FIELD VERIFIED. CALL MISS DIG SYSTEM 3 WORKING DAYS PRIOR TO CONSTRUCTION.

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PROJECT NAME:
GERALD PLAZA
Site Development
1760 E Auburn Rd
(Lots 1545-1548)
Rochester Hills, MI 48307
UTILITY & GEOMETRY PLAN

PROJECT LOCATION:
SEC 36, T03N, R11E
CITY OF ROCHESTER HILLS
OKLAHOMA COUNTY

Drawn By: FH
Checked By: SS
Approved By: SS

REVISIONS:
1. AGENCY SUBMITTALS 02/28/24



SCALE VERIFICATION:
0.5
BAR IS ONE-INCH
ADJUST SCALES ACCORDINGLY IF NOT

SCALE:
1" = 20'

PROJECT NO:
TA20001

DRAWING NO:
TA20001UT

3 OF 7



PAVING AND GRADING NOTES

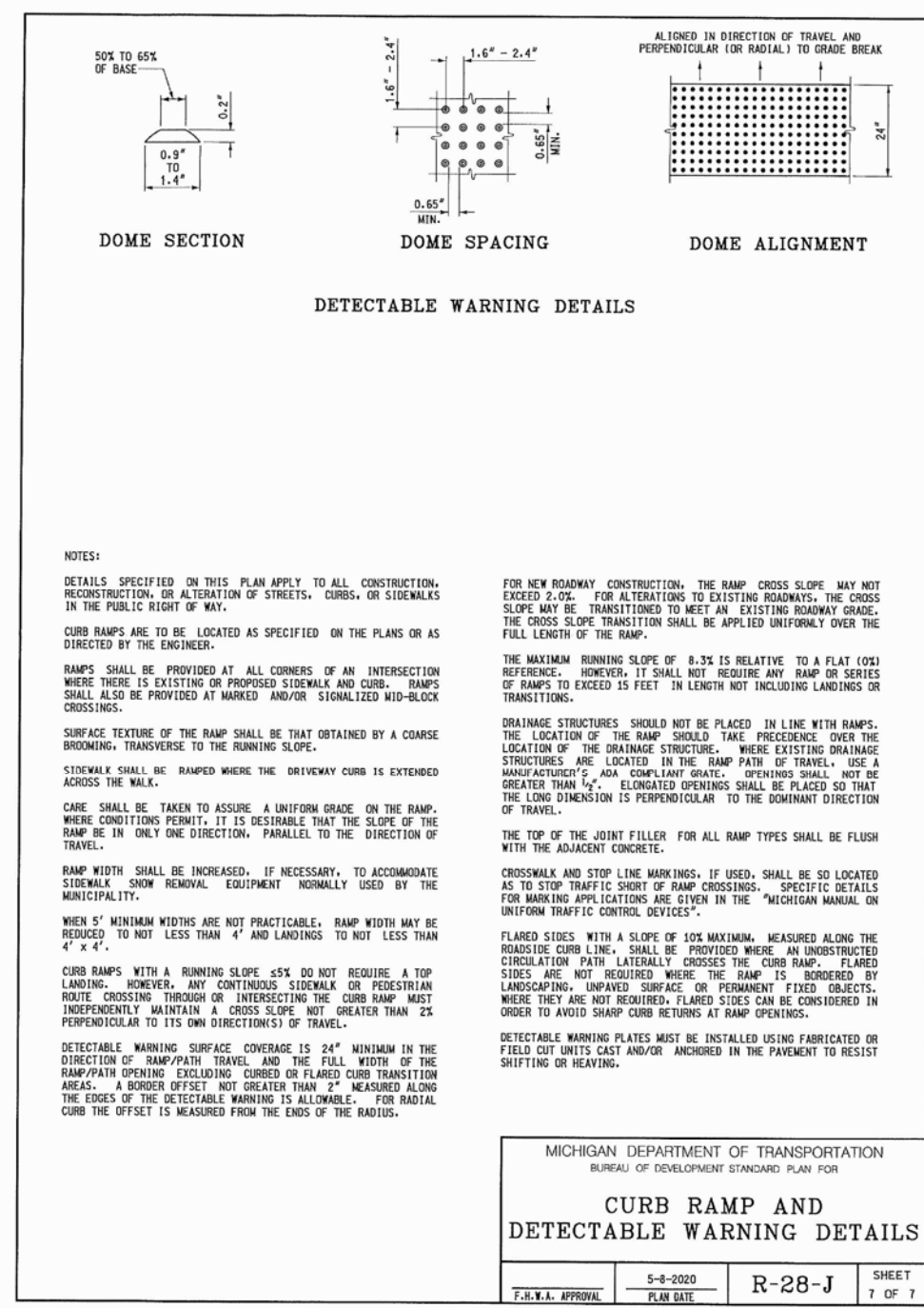
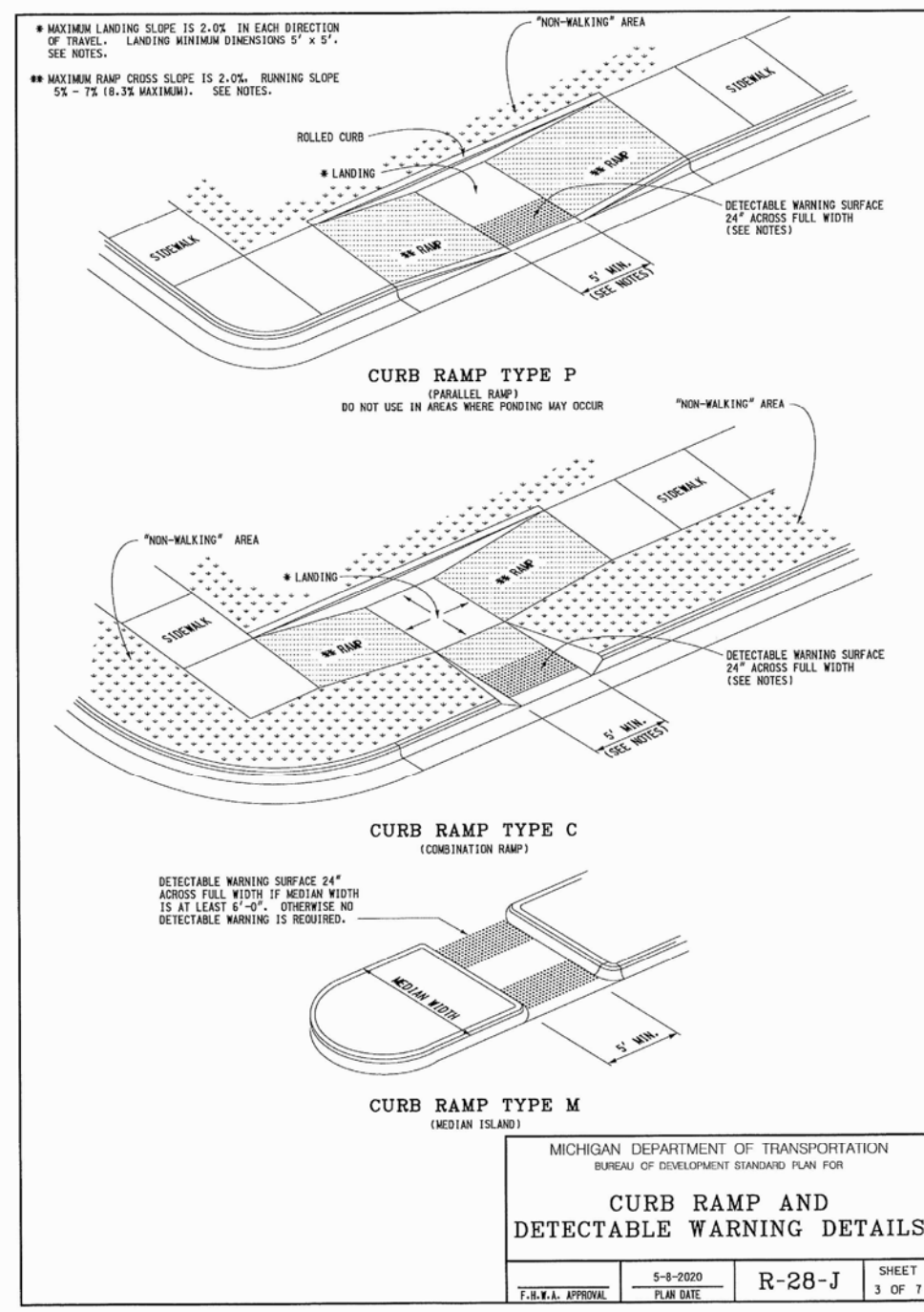
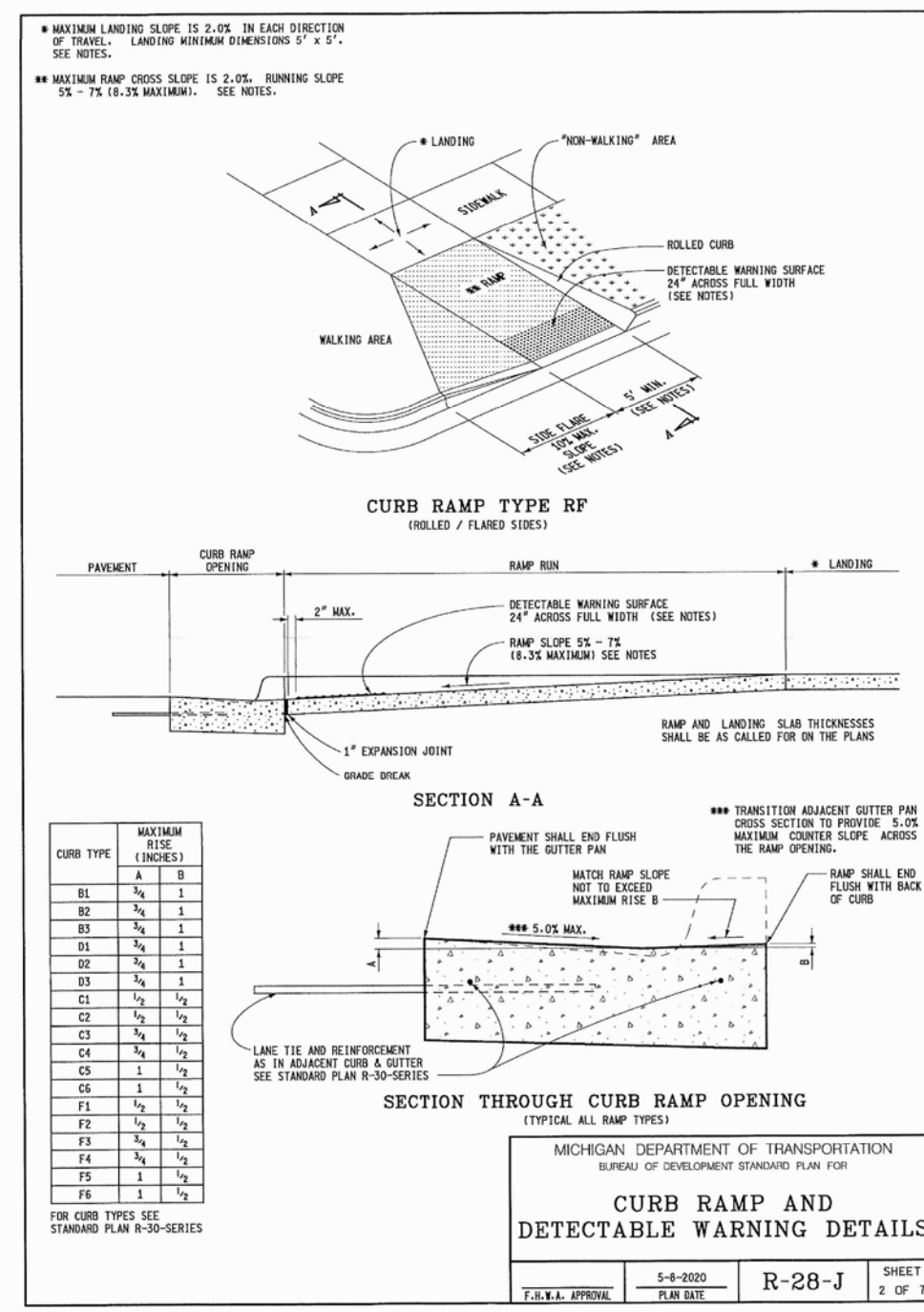
- EARTHWORK AND PAVEMENT CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH CURRENT MDT STANDARD SPECIFICATIONS FOR CONSTRUCTION UNLESS OTHERWISE NOTED IN THE FOLLOWING ITEMS.
- REMOVE ANY EXISTING TOPSOIL, VEGETATION, TREES AND OTHER DELETERIOUS MATERIALS TO EXPOSE THE SUBGRADE SOIL. TREE ROOTS SHALL BE COMPLETELY REMOVED.
- EXCAVATE TO THE DEPTH OF THE FINAL SUBGRADE ELEVATION TO ALLOW FOR GRADE CHANGES AND THE PLACEMENT OF THE RECOMMENDED PAVEMENT SYSTEM.
- THE TOP 12 INCHES OF THE EXPOSED SUBGRADE SHALL BE COMPACTED TO ACHIEVE A 95 PERCENT COMPACTION LEVEL (MODIFIED PROCTOR - ASTM D 1557-91).
- SUBGRADE SHALL BE THOROUGHLY PROOFOILED UNDER THE OBSERVATION OF THE JURISDICTIONAL AGENCY AND/OR GEOTECHNICAL ENGINEER. SUBGRADE UNDERCUTTING TO BE PERFORMED AS NECESSARY TO REMOVE AND REPLACE UNSUITABLE GROUND, ON AN "AS NEEDED" BASIS AND AS DIRECTED IN ACCORDANCE WITH CURRENT MDT STANDARD SPECIFICATIONS.
- THE AGGREGATE BASE SHALL BE COMPACTED TO ACHIEVE A 95 PERCENT COMPACTION LEVEL (MODIFIED PROCTOR - ASTM D 1557-91). THE BASE SHALL EXTEND A MINIMUM OF 1 FOOT BEYOND THE PAVED EDGE.
- ON SITE FILL MATERIAL CAN BE USED IF THE SPECIFIED COMPACTION REQUIREMENTS CAN BE ACHIEVED. IF ON SITE MATERIAL IS USED, SHOULD BE CLEAN AND FREE OF FROZEN SOIL, ORGANIC, OR OTHER DELETERIOUS MATERIALS.
- CONSTRUCTION ACCESS SHALL BE KEPT CLEAN AND MAINTAINED IN GOOD CONDITION THROUGHOUT THE CONSTRUCTION PERIOD.
- THE CONTRACTOR SHALL GRADE THE SITE TO THE SUB-GRADE BASED ON THE GRADES AND CROSS-SECTIONS SHOWN ON THESE PLANS AND ANY OTHER ACCOMPANYING PLANS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO GRADE THE SITE SO THAT THE BUILDING PAD REMAINS DRY AND FREE FROM OBSTRUCTION AT ALL TIMES.
- SITE SHALL FIRST BE ROUGH-GRADED, THEN CONTRACTOR SHALL RETURN UPON COMPLETION OF UTILITIES TO FINE GRADE THE SITE FOR PAVEMENT CONSTRUCTION.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE EARTHWORK QUANTITIES FOR THE PROJECT. THE CONTRACTOR'S BID SHALL INCLUDE ANY REQUIRED IMPORT OR EXPORT OF MATERIALS TO OR FROM THE SITE.
- STRIPING AND MARKINGS SHALL BE FURNISHED USING GUIDE LINES, FORMS STENCILS AND TEMPLATES PER CURRENT MDT STANDARDS. FREE HAND PAINTING NOT ALLOWED.
- REMOVE PAVEMENT, DRIVEWAYS, CURB, GUTTERS, SIDEWALK, TO AN EXISTING JOINT OR SAVED JOINT. BITUMINOUS AND CONCRETE SHALL BE SAWED FULL DEPTH. ADJACENT CUT SOLS OR BASE MATERIALS REMOVED. WHEN REMOVING CONCRETE SHALL BE REPLACED WITH IN-KIND ACCEPTABLE MATERIAL.

CITY NOTES

1.

PROPOSED LEGEND

- TC 000.00 TOP OF CURB ELEVATION
- G 000.00 GUTTER ELEVATION
- TP 000.00 TOP OF PAVEMENT ELEVATION
- TW 000.00 TOP OF WALK ELEVATION
- FG 000.00 FINISH GRADE ELEVATION
- Flow Direction Symbol
- CONCRETE
- ASPHALT
- COMPACTED SAND BACKFILL
- WATER MAIN
- SANITARY SEWER
- STORM SEWER
- GAS MAIN
- ELECTRIC LINE
- HYDRANT
- GATE VALVE & WELL
- TAPPING SLEEVE VALVE & WELL
- REAR YARD CATCH BASIN
- STORM MANHOLE
- CATCH BASIN
- INLET
- END SECTION
- SANITARY MANHOLE
- STM MH 48 STRUCTURE TYPE
- STRUCTURE ID NO

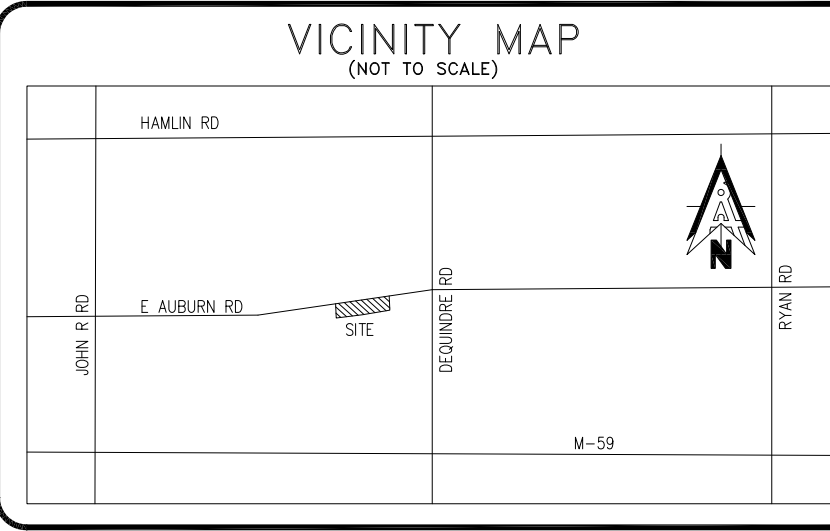


ESTIMATED QUANTITIES THIS SHEET (ONSITE)

ITEM	UNIT	QUANTITY
8" CONCRETE PAVEMENT (PARKING)	SY	978
8" CONCRETE PAVEMENT (DUMPSTER)	SY	22
6" 21AA AGGREGATE BASE	SY	1000
6" INTEGRAL CONCRETE SIDEWALK	SY	245
4" SAND BASE (MDOT CLIJ)	SY	245
6" CURB & GUTTER	LF	766
PAVEMENT MARKINGS	LS	1
ADA RAMPS	EA	2

ESTIMATED QUANTITIES THIS SHEET (ROW)

ITEM	UNIT	QUANTITY
DRIVEWAY OPENING (MDOT TYPE M)	EA	2
4" CONCRETE SIDEWALK	SY	100
4" SAND BASE (MDOT CLIJ)	SY	100
ADA RAMPS	EA	1

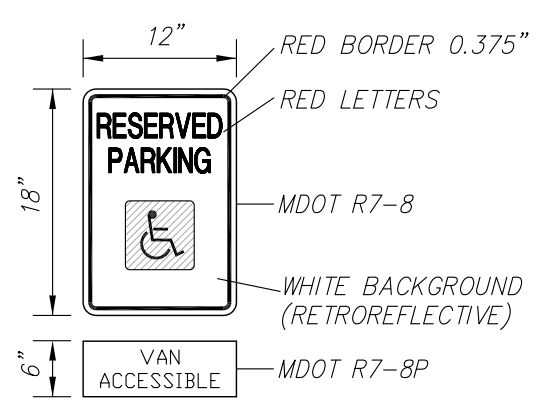


LEGAL DESCRIPTION

LOTS 1545 - 1548 OF "SUPERVISOR'S PLAT OF BROOKLANDS PARK NO. 4" A SUBDIVISION OF PART OF THE EAST 1/2 OF THE NORTHWEST 1/4 OF SECTION 36, T.3N., R.11E., CITY OF ROCHESTER HILLS, OAKLAND COUNTY MICHIGAN AS RECORDED IN LIBER 28 OF PLATS, PAGE 49, OAKLAND COUNTY RECORDS.

ADDRESS: (COMMONLY KNOWN AS VACANT E. AUBURN ROAD)
SIDWELL: 15-36-226-003, 15-36-226-004, 15-36-226-005

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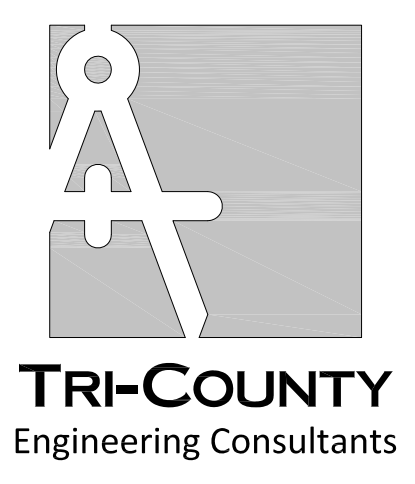


BENCH MARK INFORMATION

Site Bench Marks:
Arrow on hydrant located at the southeast corner of site. Elevation: 712.81 NAVD 88 Datum.

Site Bench Marks:
Spindle in the north face of utility pole; located at the southwest corner of the site, south of the alley. Elevation: 712.50 NAVD 88 Datum.

Job Bench Marks:
NCS brass disc set in concrete monument (50648), 104' south of CL of Jonathan Circle and 27.4 feet southwest of a fire hydrant. Elevation: 696.40 NAVD 88 Datum.



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CLIENT NAME:
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13500 Foley Street
Detroit, MI 48227
313-491-1815

3 WORKING DAYS
800-482-7171

811

Know what's below.
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PROJECT NAME:
GERALD PLAZA
Site Development
1760 E Auburn Rd
(Lots 1545-1548)
Rochester Hills, MI 48307
PAVING & GRADING PLAN

PROJECT LOCATION:
SEC 36, T03N, R11E
CITY OF ROCHESTER HILLS
OAKLAND COUNTY

Drawn By: FH
Checked By: SS
Approved By: SS

REVISIONS:
1. AGENCY SUBMITTALS 02/28/24

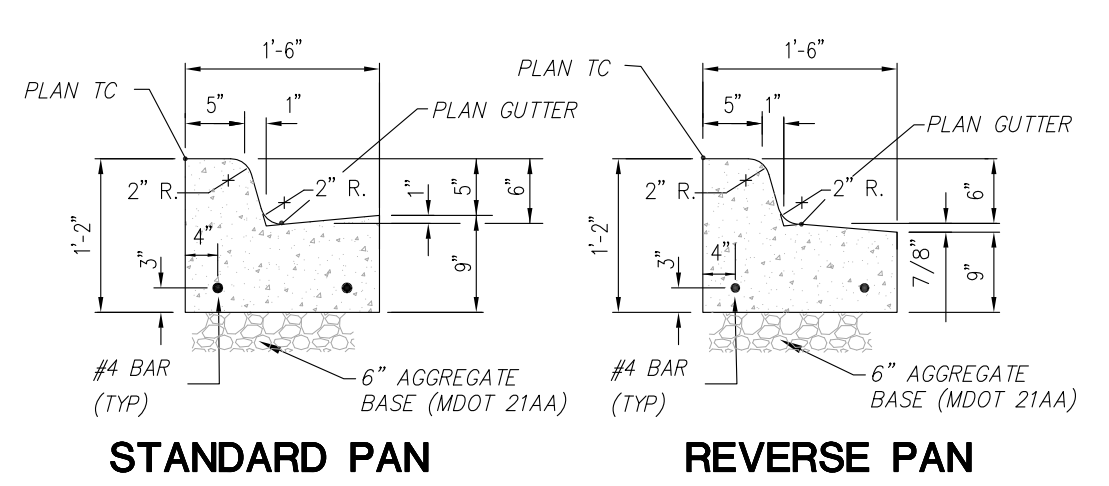
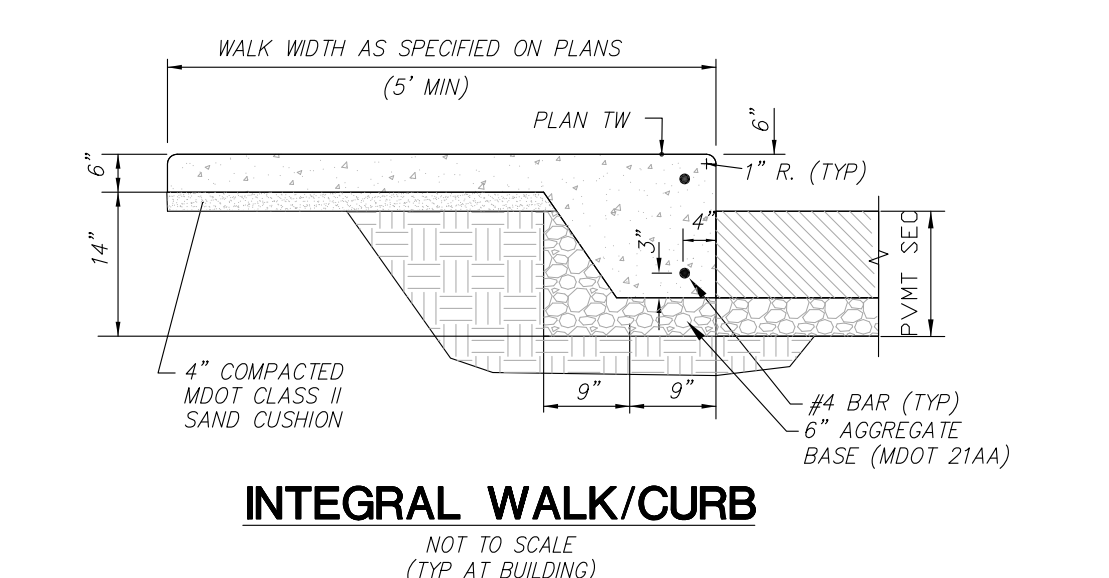
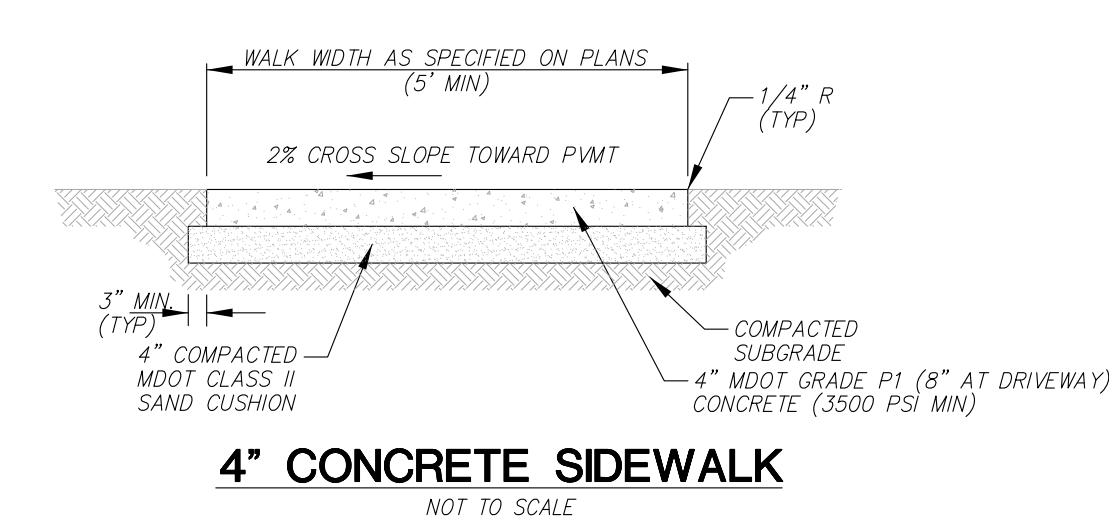
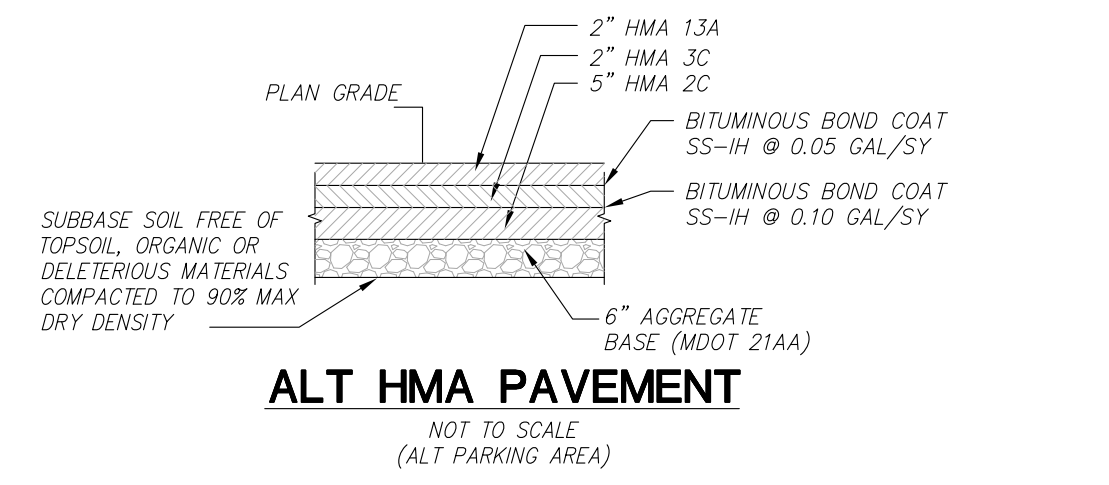
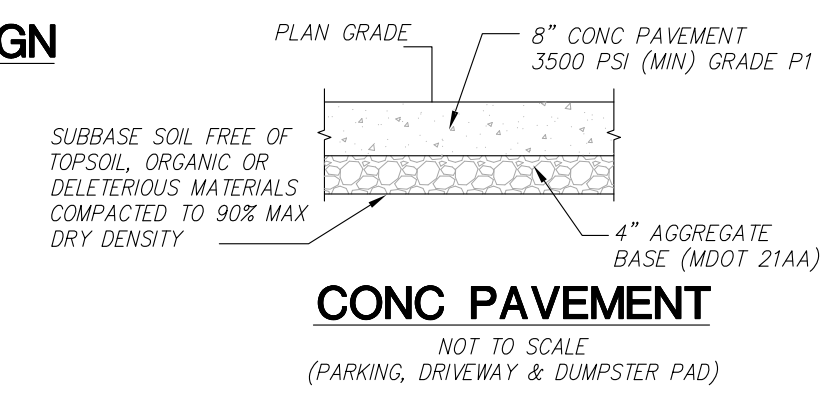
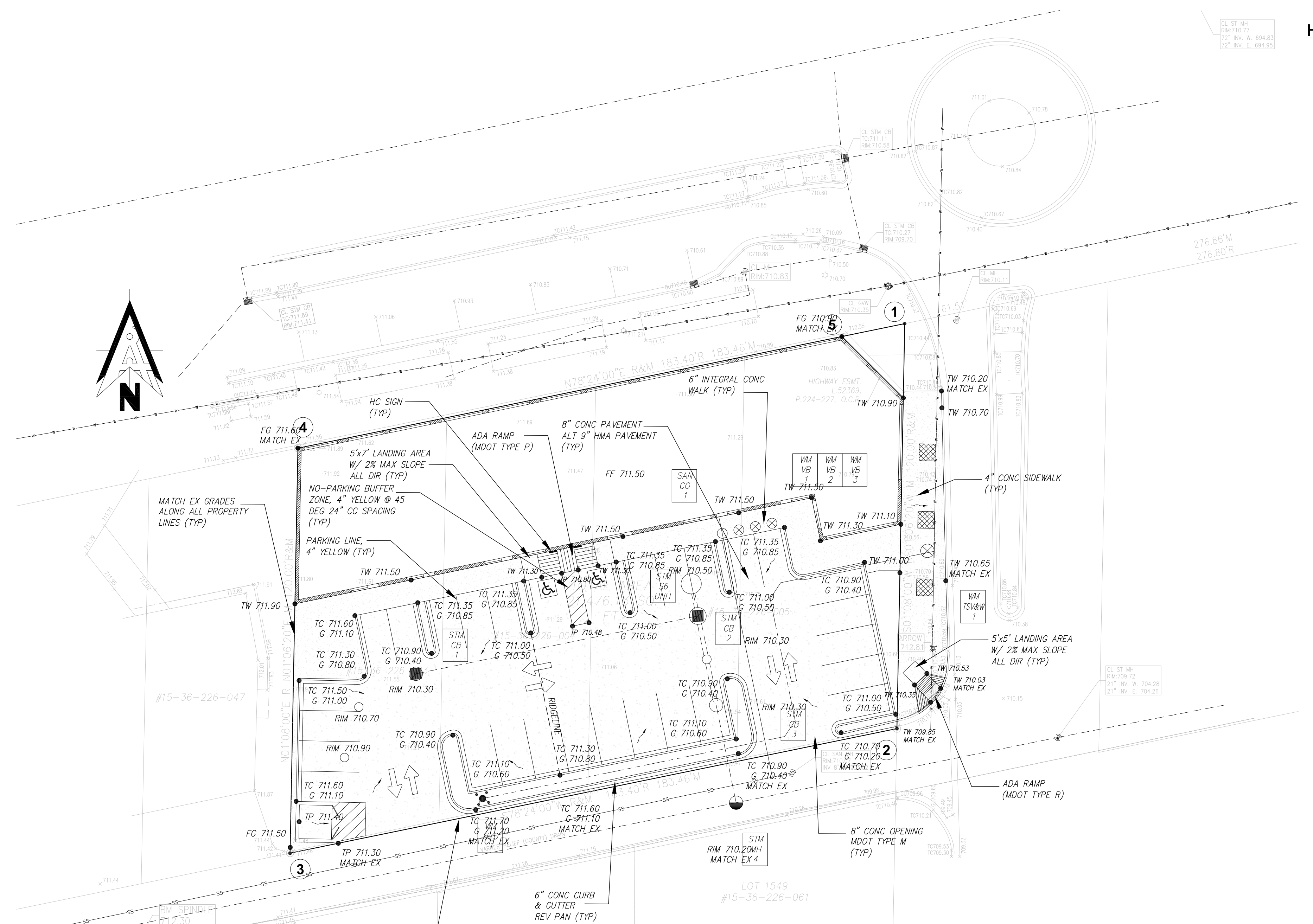


SCALE VERIFICATION:
0.5
BAR IS ONE-INCH
ADJUST SCALES ACCORDINGLY IF NOT

SCALE:
1" = 20'

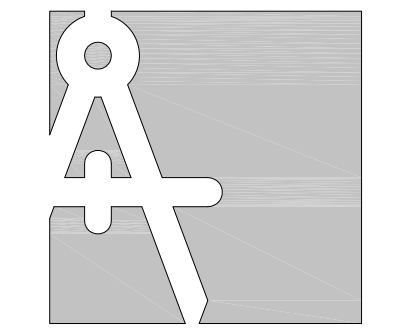
PROJECT NO:
TA20001

DRAWING NO:
TA20001GP



J2024-0040
PSP2024-0005
Original Submission

Received 3/4/2024
City of Rochester Hills
Planning & Economic Development



48701 Hayes Road
 Shelby Twp, MI 48315
 TEL: (810) 394-7887

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PROJECT NAME:

GERALD PLAZA
 Site Development
 1760 E Auburn Rd
 (Lots 1545-1548)
 Rochester Hills, MI 48307

STORM DETENTION DETAILS

PROJECT LOCATION:

SEC 36, T03N, R11E
 CITY OF ROCHESTER HILLS
 OAKLAND COUNTY

Drawn By: FH
 Checked By: SS
 Approved By: SS

REVISIONS:

1. AGENCY SUBMITTALS 02/28/24



SCALE VERIFICATION:
 0.5
 BAR IS ONE-INCH
 ADJUST SCALES ACCORDINGLY IF NOT

AS NOTED

PROJECT NO:
 TA20001

DRAWING NO:
 TA20001SD

6 OF 7

PROJECT INFORMATION

PROJECT NO:	TA20001
PROJECT NAME:	GERALD PLAZA
PROJECT LOCATION:	1760 E AUBURN RD, ROCHESTER HILLS, MI 48307
DATE:	02/28/24
SCALE:	AS SHOWN

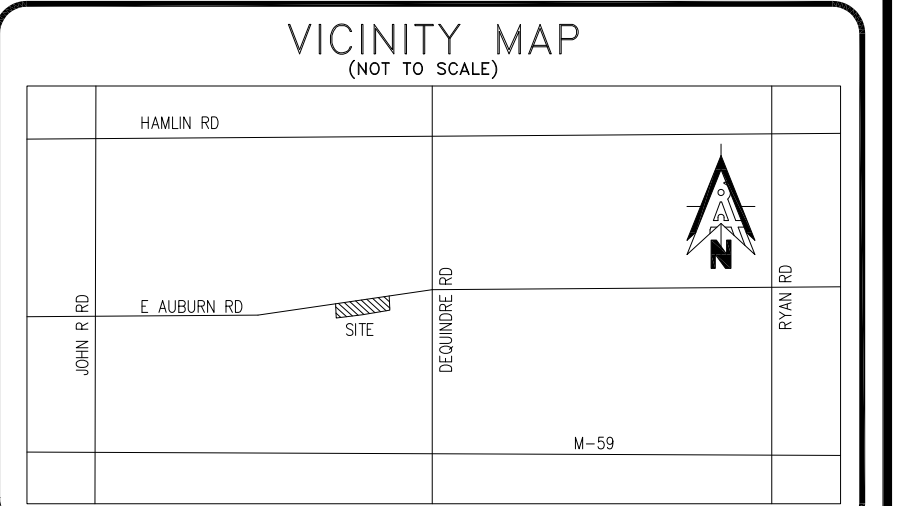
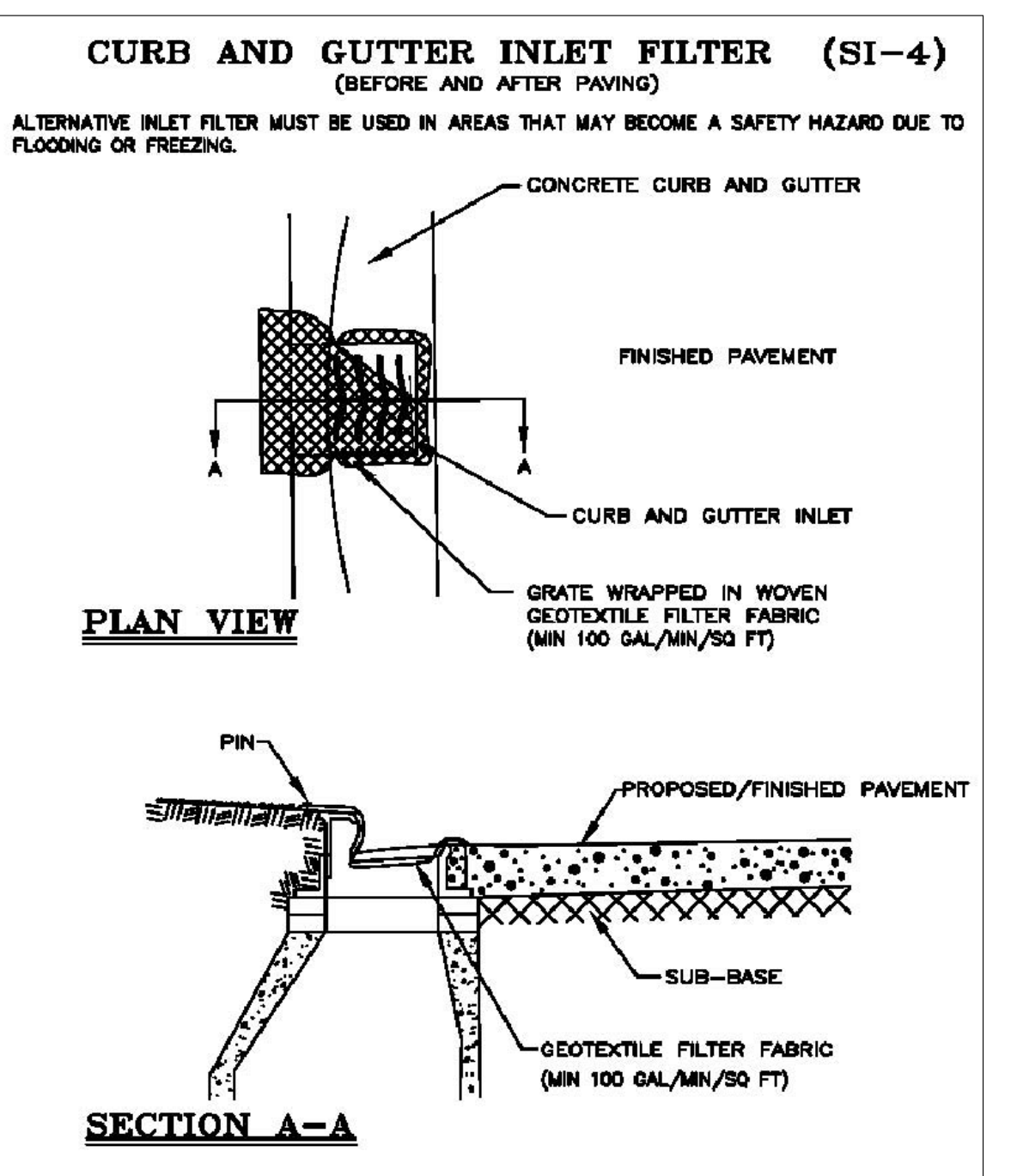
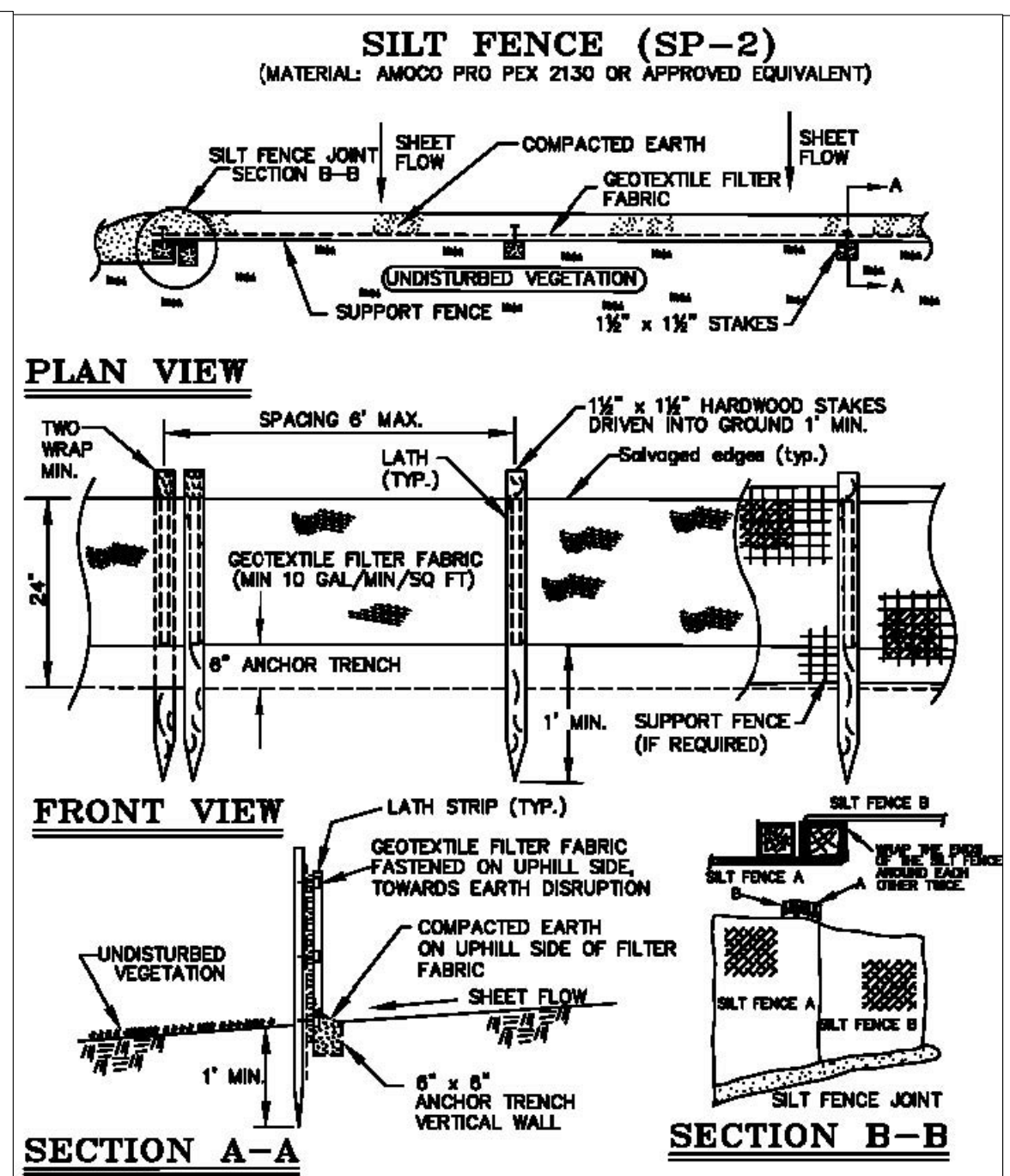
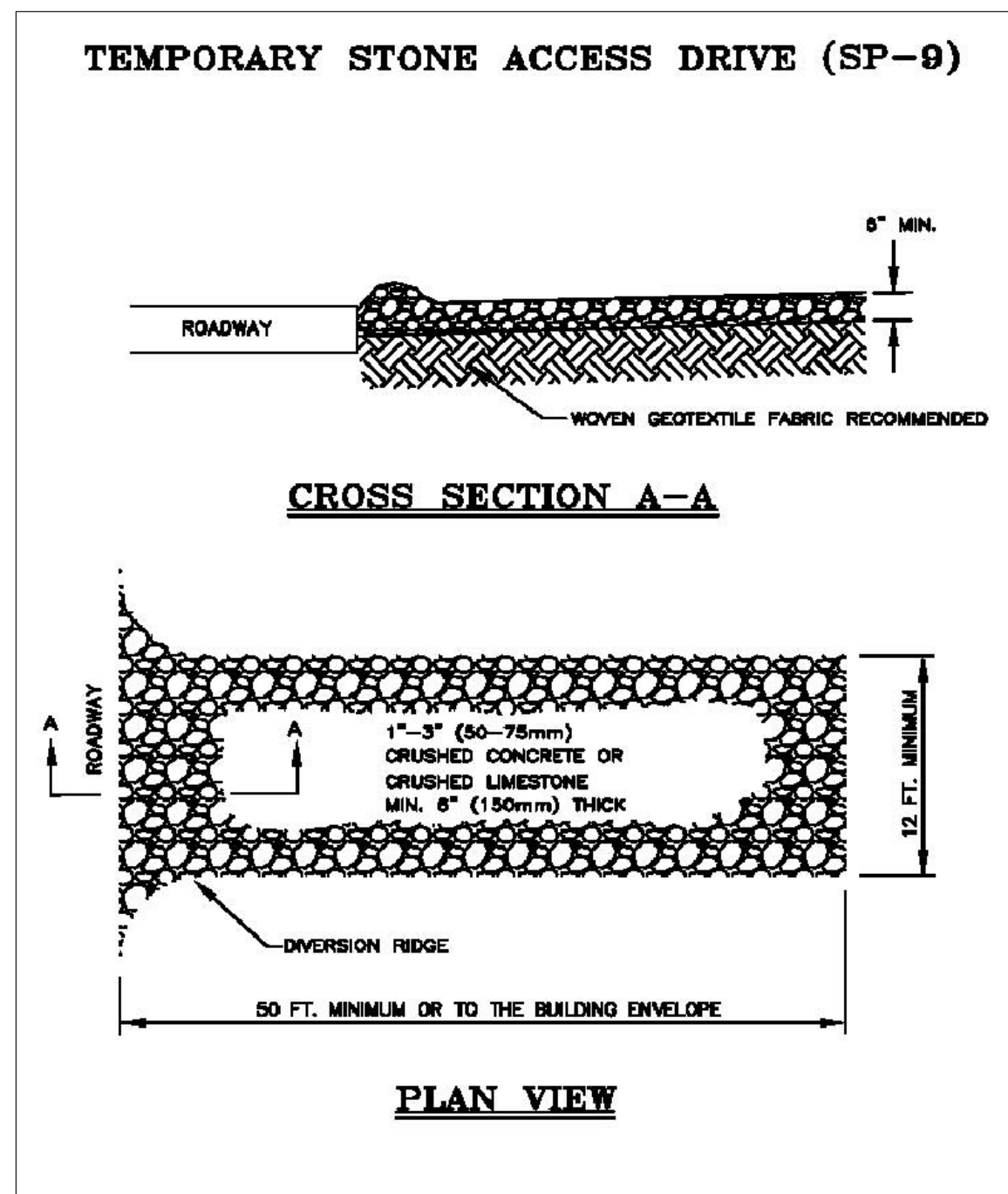
ADVANCED DRAINAGE SYSTEMS, INC.

ZEENAT PLAZA
 ROCHESTER HILLS, MI

Site ASSIST
 FOR SUBMITTALS
 INSTRUCTIONS
 INSTALLATION APP

MC-3500 STORMTECH CHAMBER SPECIFICATIONS

- CHAMBERS SHALL BE STORMTECH MC-3500.
- CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN IMPACT MODIFIED POLYPROPYLENE COPOLYMERS.
- CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2918-16 "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CLASSIFICATION 4S.
- CHAMBERS SHALL PROVIDE CONTRASTIVE UNSTRUCTURED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPED FLOW OR LIMIT ACCESS FOR INSPECTION.
- THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL ANALYSIS, AND THE INSTALLATION REQUIREMENTS SHALL ASSURE THAT THE LOAD FACTORS SPECIFIED IN THE MANUAL AND BROUDES DESIGN PROPORTIONS SECTION 12.3 ARE MET FOR: 1. LONG-DURATION STATIC LOAD AND SHORT-DURATION LIVE LOAD, BASED ON THE DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE IMPACTS.
- CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CAPACITIES DETERMINED IN ACCORDANCE WITH ASTM F2918, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- LOAD CAPACITIES SHALL INCLUDE: 1. UNIFORM LOADS; 2. POINT LOADS; 3. COMBINED LOADS; 4. LIVE LOADS; 5. IMPACT LOADS; 6. WIND LOADS; 7. SEISMIC LOADS; 8. THERMAL LOADS; 9. SOIL LOADS; 10. FLOODING; 11. COLLAPSE; 12. OVERSIGHT; 13. OVERSIGHT; 14. OVERSIGHT; 15. OVERSIGHT; 16. OVERSIGHT; 17. OVERSIGHT; 18. OVERSIGHT; 19. OVERSIGHT; 20. OVERSIGHT; 21. OVERSIGHT; 22. OVERSIGHT; 23. OVERSIGHT; 24. OVERSIGHT; 25. OVERSIGHT; 26. OVERSIGHT; 27. OVERSIGHT; 28. OVERSIGHT; 29. OVERSIGHT; 30. OVERSIGHT; 31. OVERSIGHT; 32. OVERSIGHT; 33. OVERSIGHT; 34. OVERSIGHT; 35. OVERSIGHT; 36. OVERSIGHT; 37. OVERSIGHT; 38. OVERSIGHT; 39. OVERSIGHT; 40. OVERSIGHT; 41. OVERSIGHT; 42. OVERSIGHT; 43. OVERSIGHT; 44. OVERSIGHT; 45. OVERSIGHT; 46. OVERSIGHT; 47. OVERSIGHT; 48. OVERSIGHT; 49. OVERSIGHT; 50. OVERSIGHT; 51. OVERSIGHT; 52. OVERSIGHT; 53. OVERSIGHT; 54. OVERSIGHT; 55. OVERSIGHT; 56. OVERSIGHT; 57. OVERSIGHT; 58. OVERSIGHT; 59. OVERSIGHT; 60. OVERSIGHT; 61. OVERSIGHT; 62. OVERSIGHT; 63. OVERSIGHT; 64. 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OVERSIGHT; 1114. OVERSIGHT; 1115. OVERSIGHT; 1116. OVERSIGHT; 1117. OVERSIGHT; 1118. OVERSIGHT; 1119. OVERSIGHT; 1120. OVERSIGHT; 1121. OVERSIGHT; 1122. OVERSIGHT; 1123. OVERSIGHT; 1124. OVERSIGHT; 1125. OVERSIGHT; 1126. OVER



LEGAL DESCRIPTION

LOTS 1545 - 1548 OF "SUPERVISOR'S PLAT OF BROOKLANDS PARK NO. 4" A SUBDIVISION OF PART OF THE EAST 1/2 OF THE NORTHEAST 1/4 OF SECTION 36, T.3N., R.11E., CITY OF ROCHESTER HILLS, OAKLAND COUNTY MICHIGAN AS RECORDED IN LIBER 28 OF PLATS, PAGE 49, OAKLAND COUNTY RECORDS.

ADDRESS: (COMMONLY KNOWN AS VACANT E. AUBURN ROAD)
 SIDWELL: 15-36-226-003, 15-36-226-004, 15-36-226-005

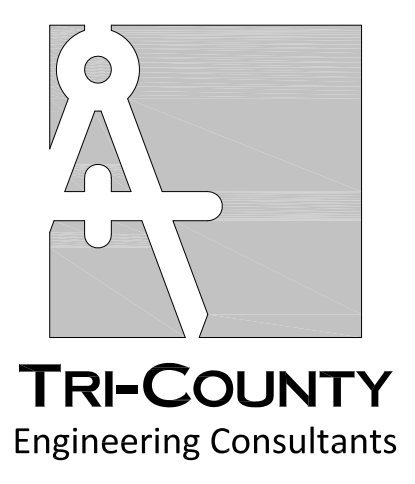
Note: All survey info shown herein was obtained from topographical survey by Reichert Surveying Inc. job number 14-090 dated 07/23/20 as supplied by the developer. TCEC has not performed a survey of this parcel.

BENCHMARK INFORMATION

Site Bench Mark:
 Arrow on hydrant located at the southeast corner of site.
 Elevation: 712.81 NAVD 88 Datum.

Site Bench Mark:
 Spindle in the north face of utility pole; located at the southwest corner of the site, south of the alley.
 Elevation: 712.50 NAVD 88 Datum.

Job Bench Mark:
 NCS brass disc set in concrete monument (50648), 104' south of CL of Jonathan Circle and 27.4 feet southwest of a fire hydrant.
 Elevation: 696.40 NAVD 88 Datum.



48701 Hayes Road
 Shelby Twp, MI 48315
 TEL: (810) 394-7887

Info@Tri-CountyEng.com
 www.Tri-CountyEng.com

CLIENT NAME:
Gerald Real Estate LLC
 13500 Foley Street
 Detroit, MI 48227
 313-491-1815

3 WORKING DAYS
 800-482-7171

Know what's below.
 Call before you dig.

PRIOR TO CONSTRUCTION, ALL EXISTING UTILITIES LOCATION AND DEPTH WITHIN THE PROJECT AREA SHALL BE FIELD VERIFIED. CALL MISS DIG SYSTEM 3 WORKING DAYS PRIOR TO CONSTRUCTION.

UTILITY INFORMATION SHOWN ON THIS DRAWING ARE APPROXIMATE AND MAY BE ACCORDING TO AVAILABLE RECORD OR DISCLOSED INFORMATION BY VARIOUS UTILITY COMPANIES, PUBLIC AGENCIES, OR OTHER SOURCES AND THIS MAY NOT NECESSARILY REFLECT ACTUAL FIELD LOCATIONS AND NO GUARANTEE IS GIVEN TO COMPLETENESS OR ACCURACY.

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PROJECT NAME:
GERALD PLAZA
 Site Development
 1760 E Auburn Rd
 (Lots 1545-1548)
 Rochester Hills, MI 48307

SOIL EROSION & SEDIMENTATION CONTROL PLAN

PROJECT LOCATION:
 SEC 36, T03N, R11E
 CITY OF ROCHESTER HILLS
 OAKLAND COUNTY

Drawn By: FH
 Checked By: SS
 Approved By: SS

REVISIONS:
 1. AGENCY SUBMITTALS 02/28/24



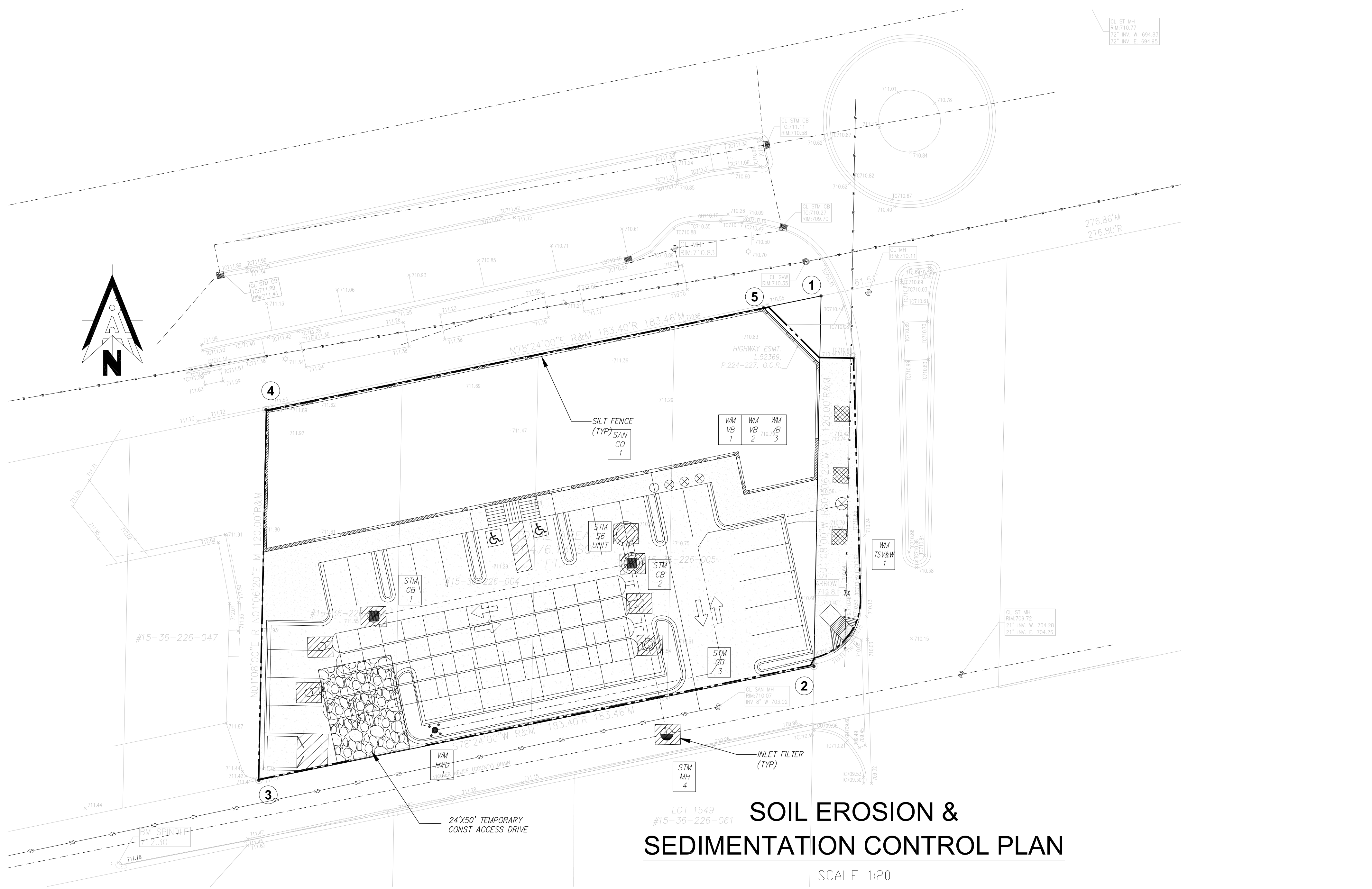
SCALE VERIFICATION:
 0.5
 BAR IS ONE-INCH
 ADJUST SCALES ACCORDINGLY IF NOT

SCALE:
 1" = 20'

PROJECT NO:
 TA20001

DRAWING NO:
 TA20001SE

7 OF 7



SOIL EROSION CONTROL NOTES:

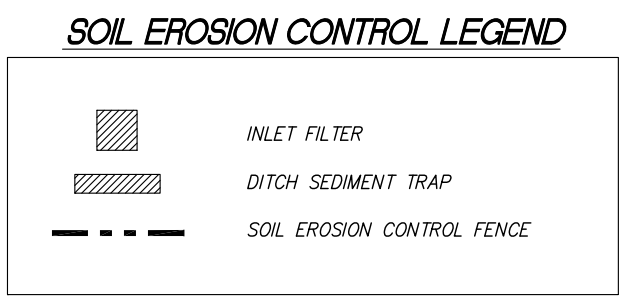
- INSTALL SILT FENCE AROUND DEFINED PERIMETER AS SHOWN, INSTALL TREE PROTECTION & CONSTRUCT TEMPORARY CONSTRUCTION ACCESS.
- CLEAR CURB & STRIP TOPSOIL IN AREAS OF EARTH DISRUPTION.
- COMPLETE LAND BALANCING OPERATIONS.
- INSTALL UNDERGROUND UTILITIES & PLACE INLET FILTERS WHERE INDICATED.
- PERFORM PAVING OPERATIONS, FINE GRADING, LANDSCAPING.
- EROSION CONTROL MEASURES ARE NOT TO BE REMOVED UNTIL THE LOCAL MUNICIPALITY AND/OR COUNTY GRANTS ITS APPROVAL.
- EROSION CONTROL MEASURES SHALL BE PERIODICALLY INSPECTED & MAINTAINED WEEKLY & AFTER EVERY STORM EVENT.
- PERSON(S) RESPONSIBLE FOR THE MAINTENANCE OF ALL SOIL EROSION CONTROL MEASURES: PROJECT OWNER LISTED.
- ALL EROSION CONTROL MEASURES SHALL BE INSTALLED APPROXIMATELY ACCORDING TO THE FOLLOWING SCHEDULE:
- PROJECT COMMENCEMENT ON OR ABOUT 9/1/20.

SCHEDULE

- INSTALL SILT FENCE AS SHOWN ON PLANS (2-3 DAYS)
- STRIP, STOCKPILE TOPSOIL, ROUGH GRADE (N/A)
- INSTALL UNDERGROUND UTILITIES (N/A)
- FINE GRADE SITE, PAVE, LANDSCAPING & ESTABLISH VEGETATION (6 WEEKS)
- CLEAN PAVEMENTS, WALKS, CULVERTS, WATERCOURSES OF ALL ACCUMULATED SEDIMENT IN CONJUNCTION WITH REMOVING ALL TEMPORARY DEVICES (1 WEEK)
- PROJECT COMPLETION ON OR ABOUT 3/1/21.
- RE-ESTABLISHMENT OF PERMANENT VEGETATION REQUIRED PRIOR TO FINAL BUILDING INSPECTION.

SOIL EROSION & SEDIMENTATION CONTROL PLAN

SCALE 1:20



ESTIMATED QUANTITIES THIS SHEET

ITEM	UNIT	QUANTITY
SILT FENCE	LF	590
INLET FILTER	EA	8
TEMP CONST ACCESS DRIVE	EA	1

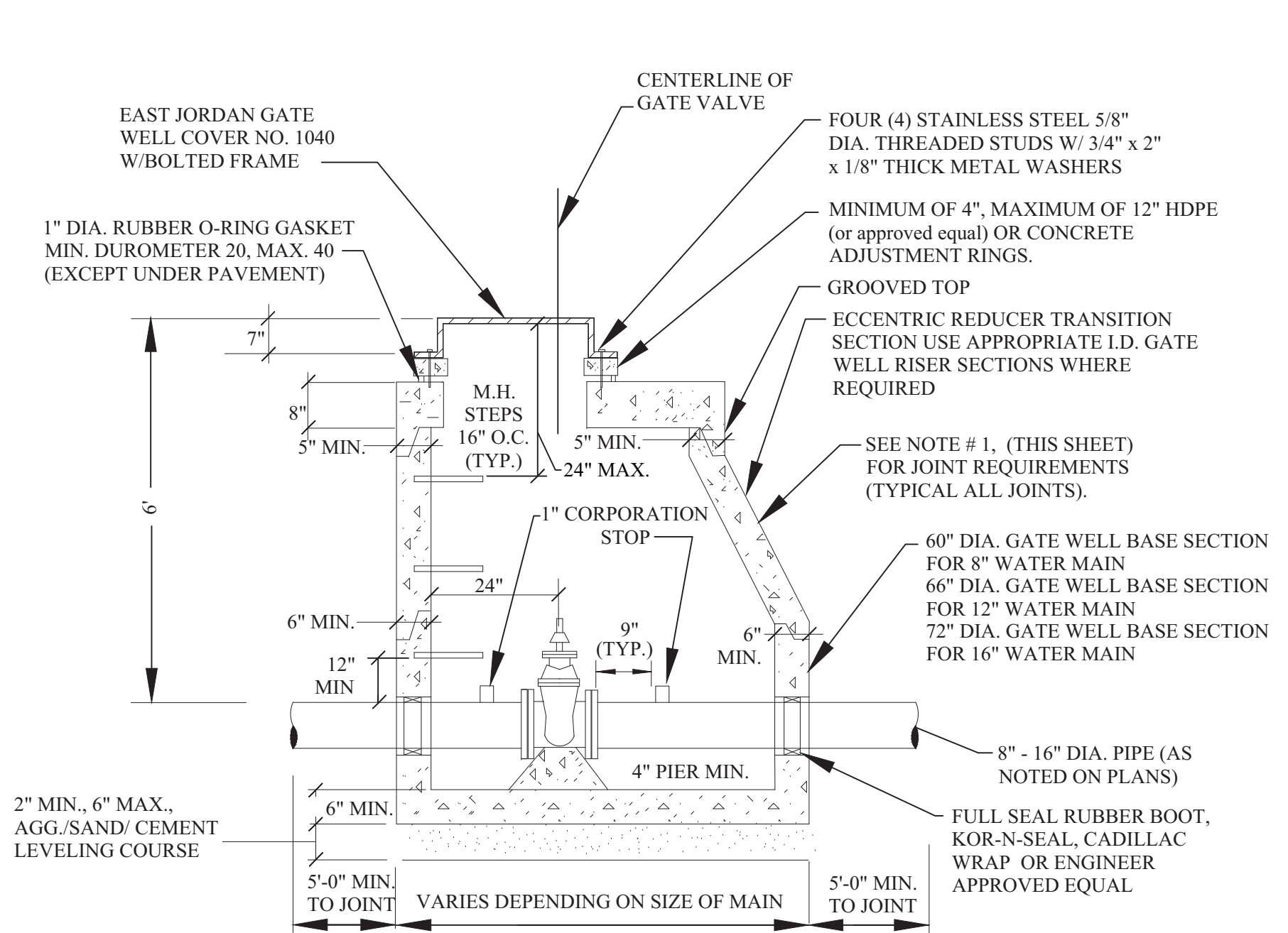
SOIL TYPES

(FOR SOIL EROSION CONTROL PURPOSES)
 62B - Urban Land-Spinks, 0%-8% Slope

(197). SOIL SURVEY OF OAKLAND COUNTY, MICHIGAN

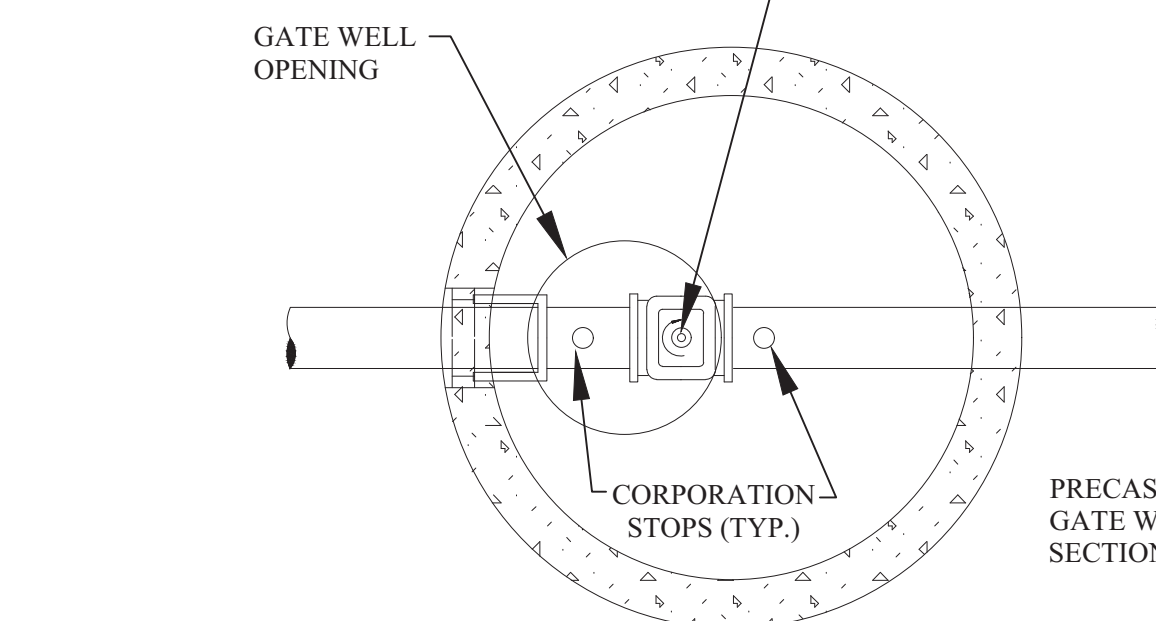
NEAREST WATER COURSE: Plum Brook ±2000 FT
 APPROX GROSS ACREAGE DISTURBED = 0.50 ACRE
 DOMINANT EX LAND FEATURES: ASPHALT PAVEMENT



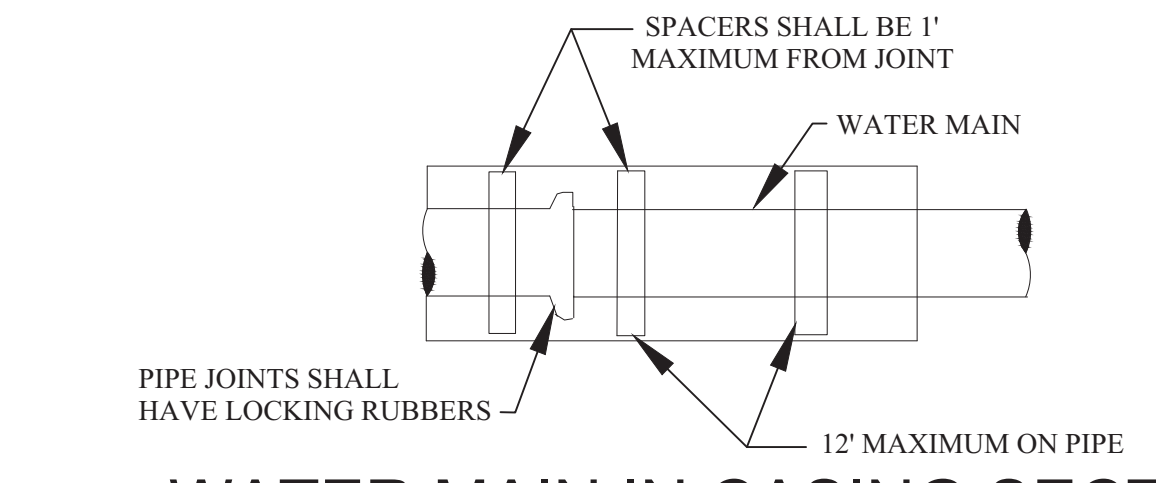


ALL GATE WELLS

MANHOLE STEPS TO BE PLASTIC COATED STEEL MEETING THE REQUIREMENTS IN ASTM D 2146, TYPE II, GRADE 49108, MA. INDUSTRIES, P.S.I. POLYPROPYLENE OR APPROVED EQUAL. STEPS TO BE INSTALLED DURING MANHOLE MANUFACTURE, PLACED AT 16" C. TO C.

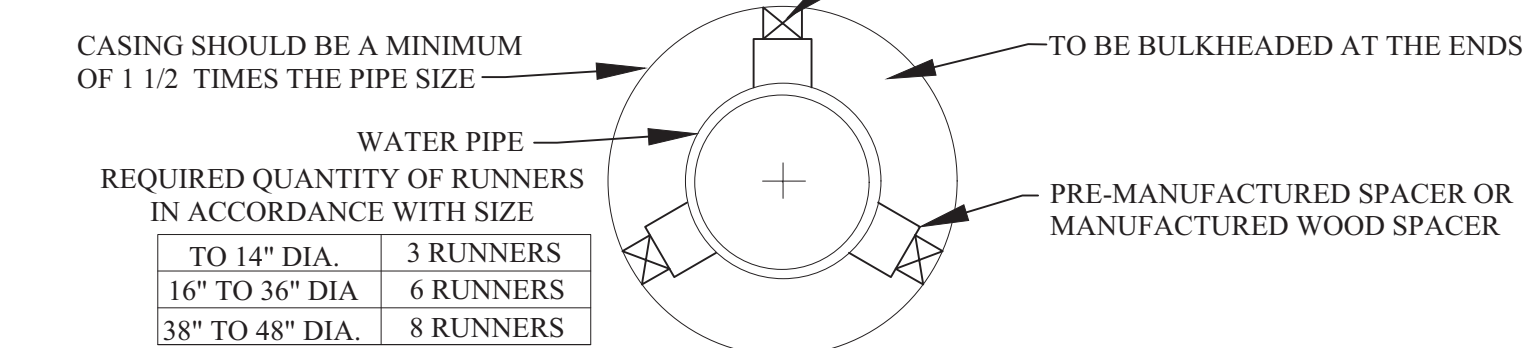


GATE WELL (TYPICAL)



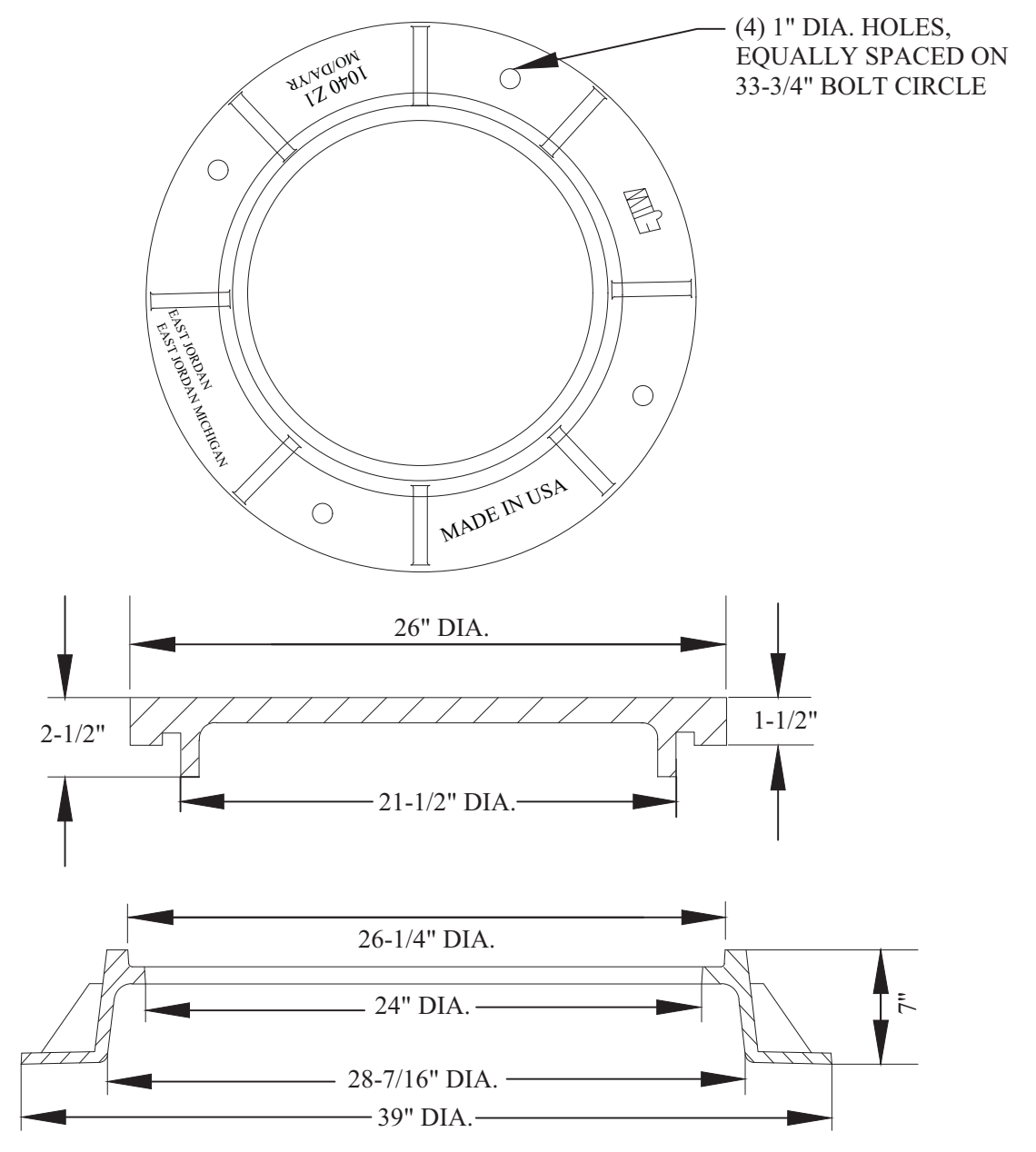
UNLESS OTHERWISE SPECIFIED, MINIMUM CASING PIPE SHALL BE ASTM A-139 GRADE B, WALL THICKNESS AS FOLLOWS:

NOMINAL SIZE	MINIMUM WALL THICKNESS
8" - 42"	0.375
48" - 60"	0.500

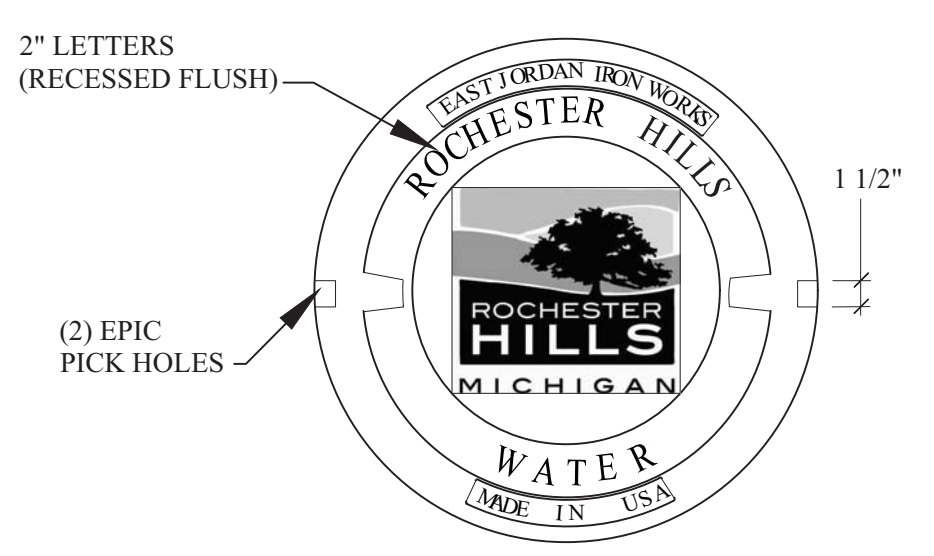


TO 14" DIA.	3 RUNNERS
16" TO 36" DIA.	6 RUNNERS
38" TO 48" DIA.	8 RUNNERS

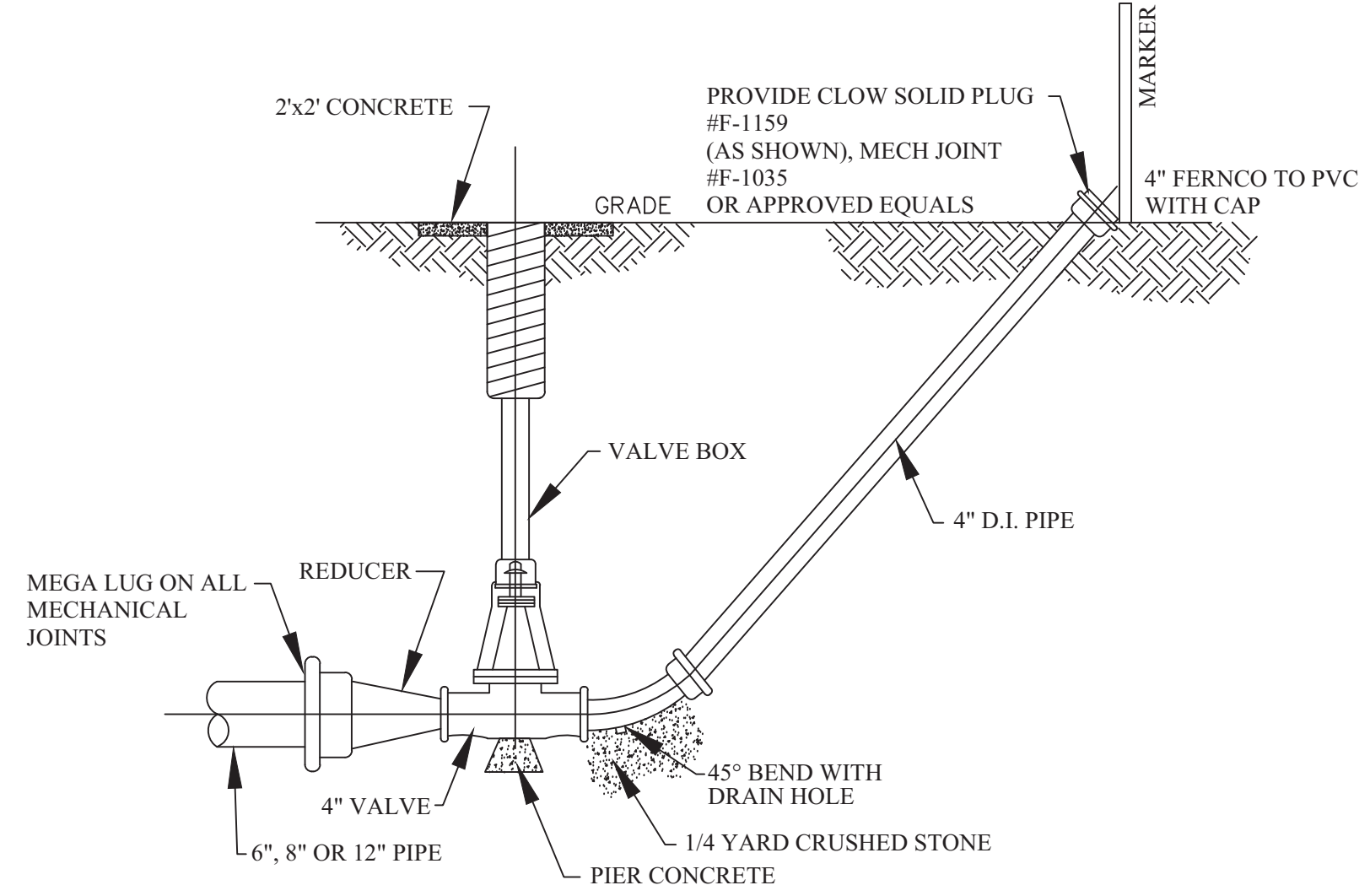
SUPPORT FOR WATER MAIN CONSTRUCTED IN CASING PIPE



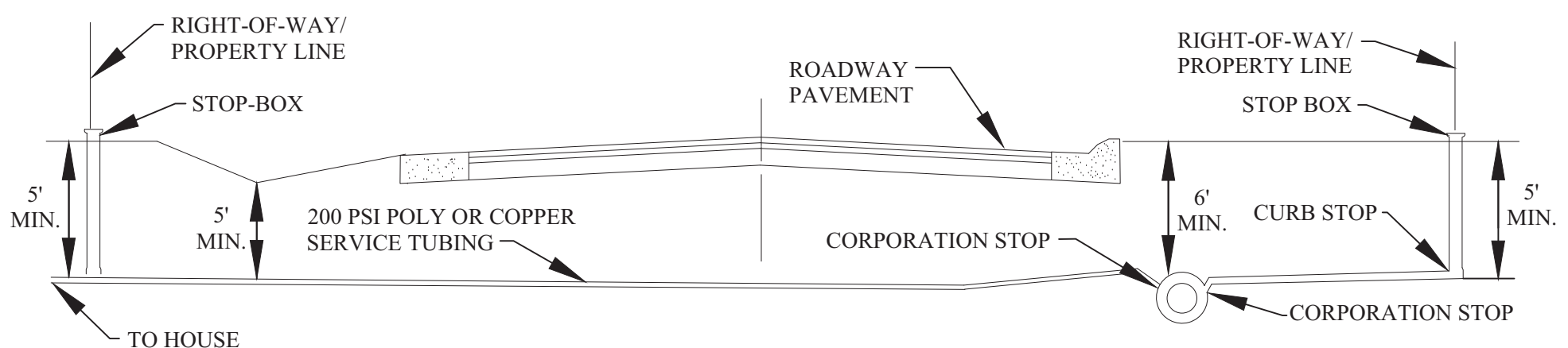
FRAME



LETTERING LAYOUT FOR GATE WELL COVERS

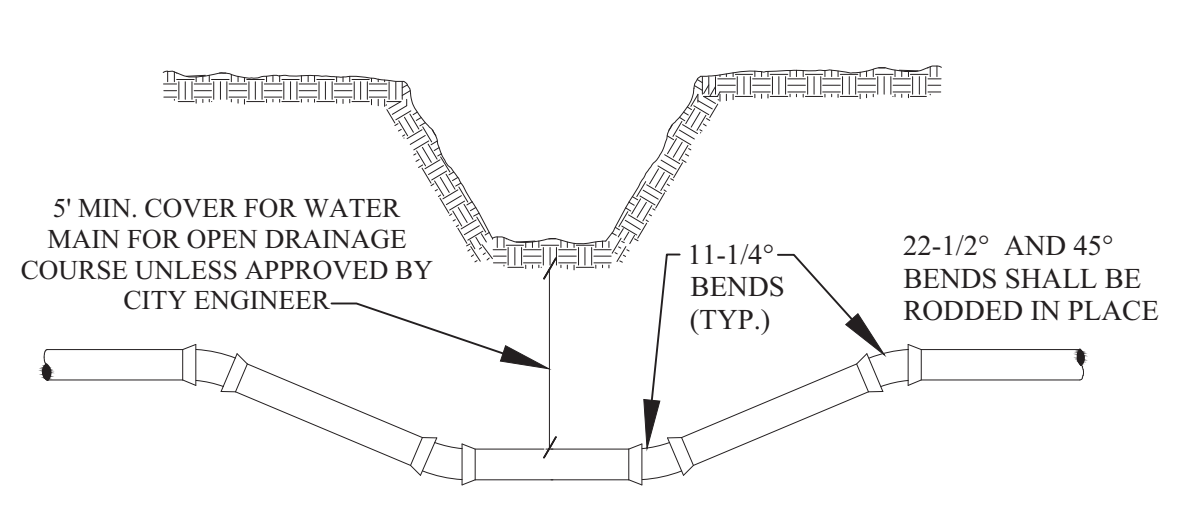


DETAIL OF 4" BLOWOFF

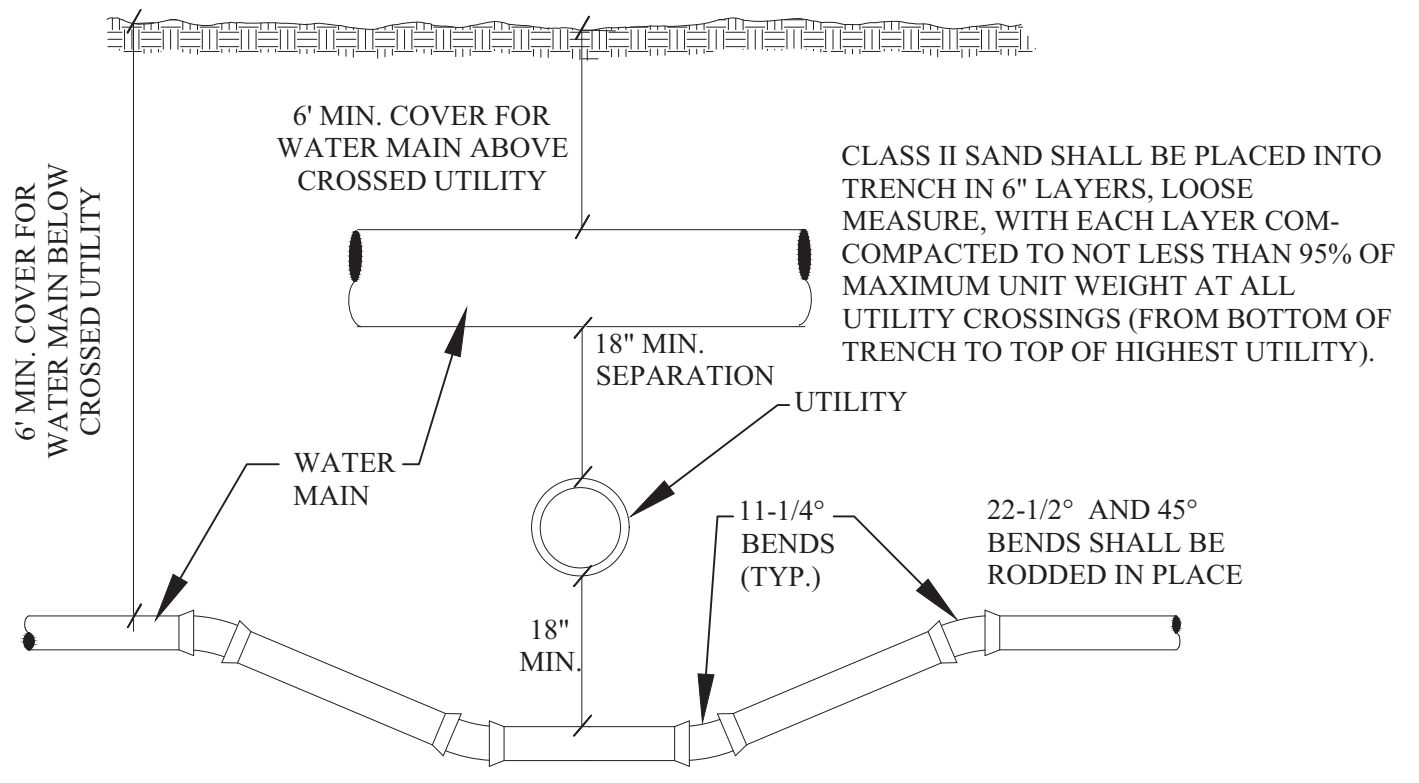


NOTES:
1. WATER SERVICE SHUT-OFF TO BE PLACED AT PROPERTY LINE.
2. LATERAL LOCATION SHALL BE AS REQUESTED BY THE ABUTTING PROPERTY OWNER.
3. ROCHESTER HILLS DPS PERFORMS SERVICE LEAD TAPS UP TO 2" DIAMETER.

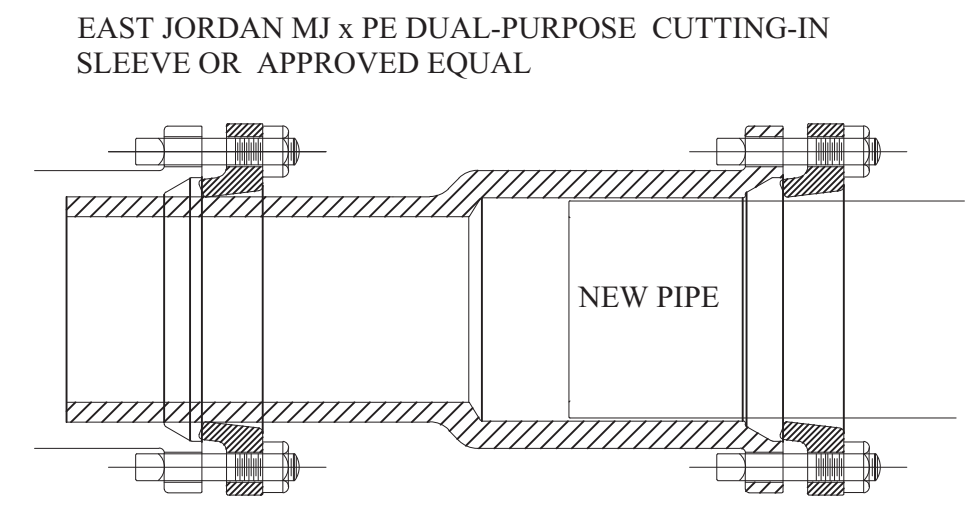
TYPICAL PUBLIC ROAD WATER SERVICE CONNECTION



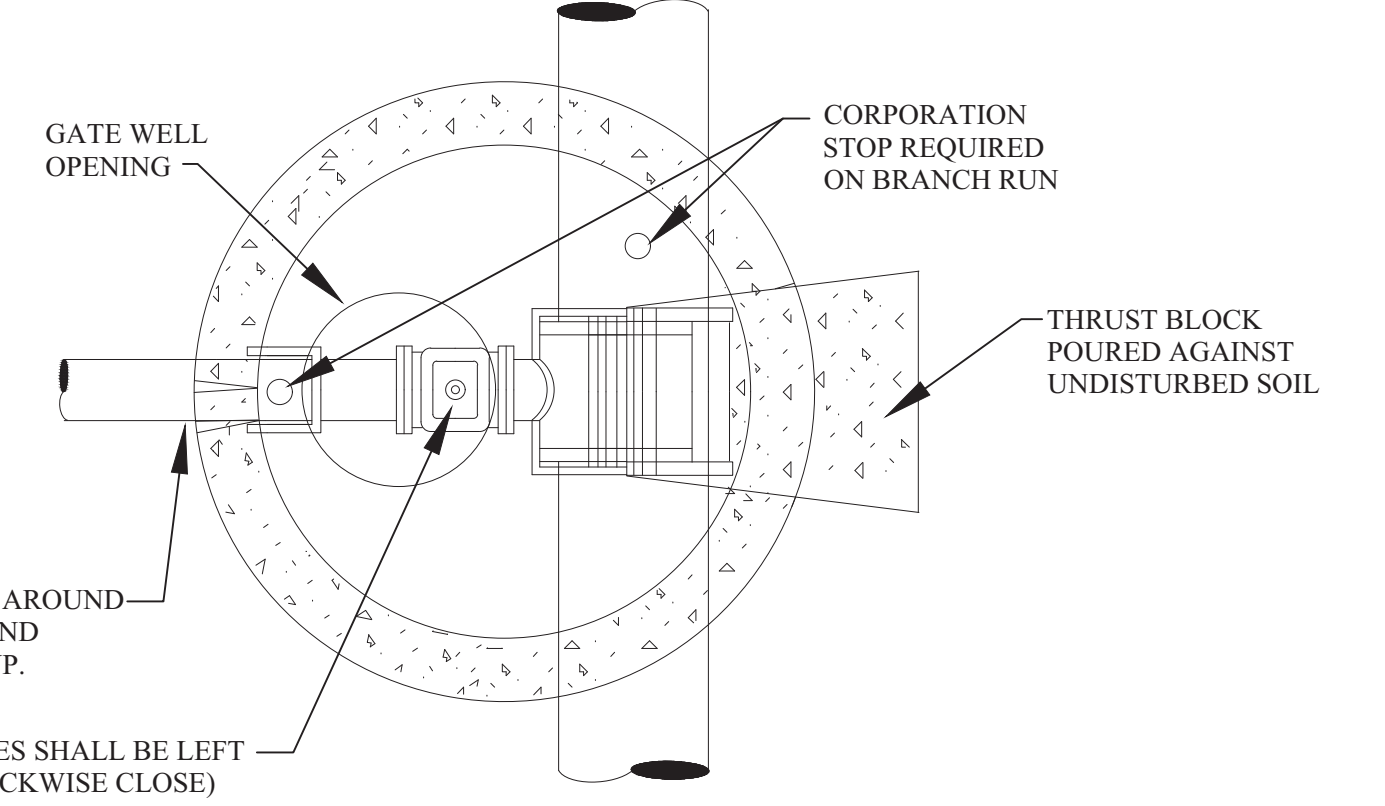
DITCH CROSSING



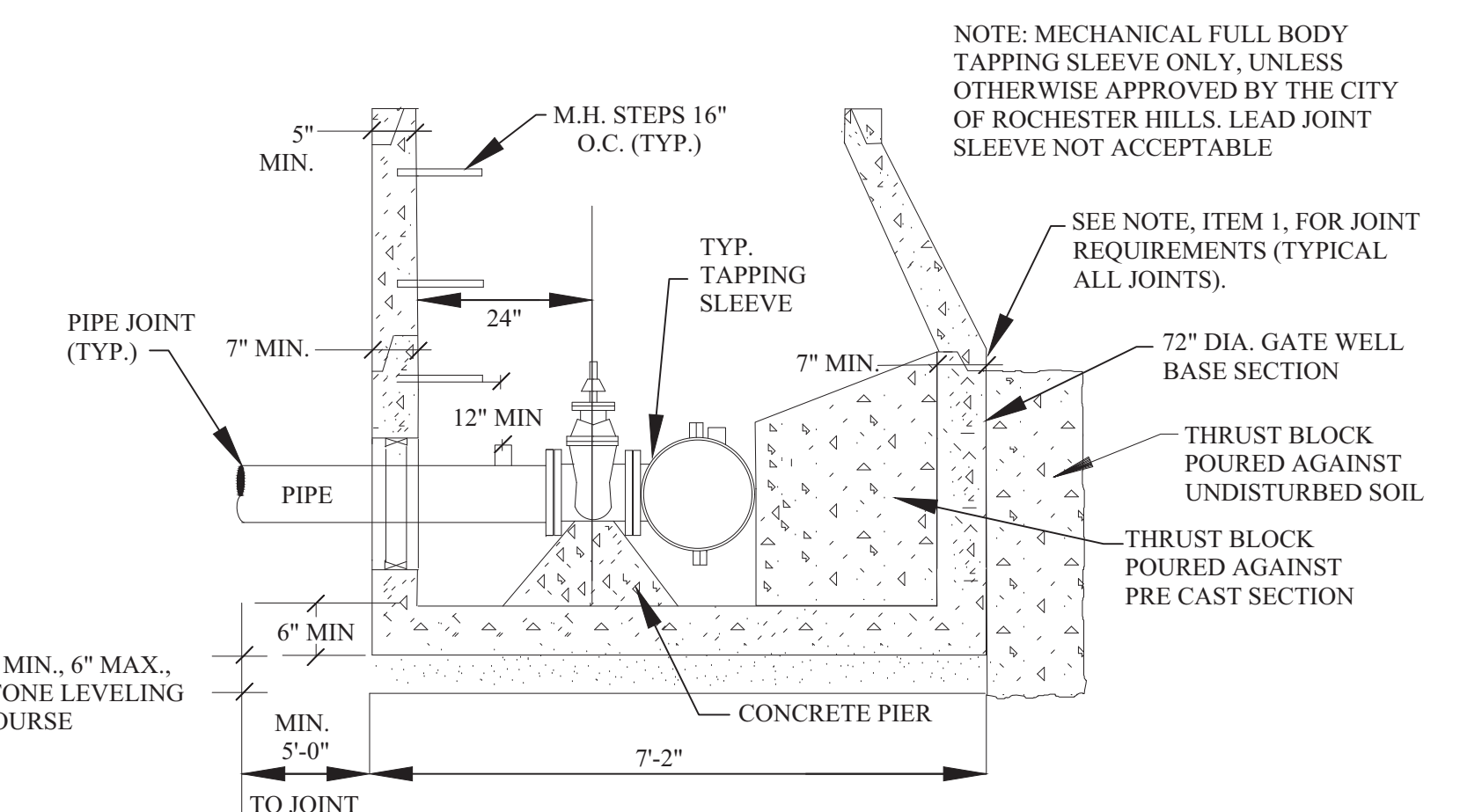
UTILITY CROSSING



BOTTLE SLEEVE



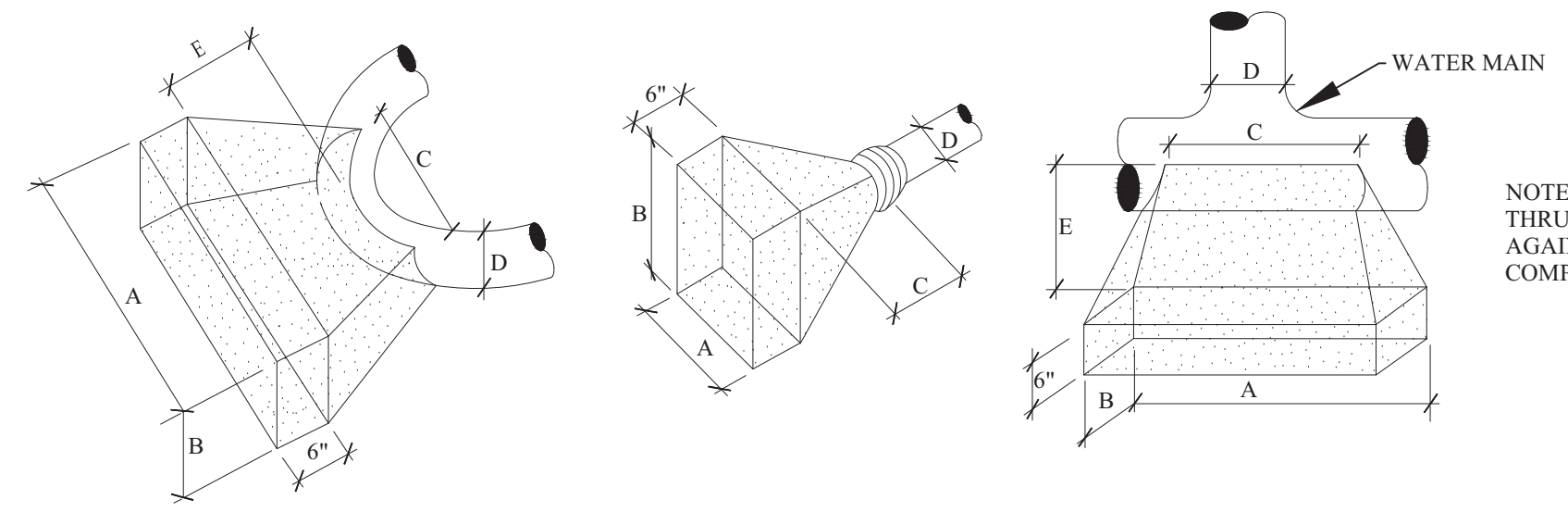
PLAN TAPPING SLEEVE VALVE WELL (TYPICAL)



TAPPING SLEEVE VALVE AND WELL (TYPICAL)

NOTES:

- ALL PRECAST CONCRETE GATE WELL SECTIONS SHALL BE MANUFACTURED TO CONFORM WITH A.S.T.M. C478, STANDARD SPECIFICATIONS FOR PRECAST REINFORCED CONCRETE MANHOLE SECTIONS, EXCEPT WALL THICKNESS SHALL BE AS SHOWN ON THESE DETAILS. ALL JOINTS FOR PRECAST CONCRETE GATE WELL SECTIONS SHALL BE "MODIFIED GROOVE TONGUE" WITH GASKET MANUFACTURED TO CONFORM WITH A.S.T.M. C 443, STANDARD SPECIFICATION FOR JOINTS FOR CIRCULAR CONCRETE SEWER AND CULVERT PIPE USING RUBBER GASKETS.
- CONTRACTOR SHALL INSTALL VALVES, TAPPING SLEEVES AND GATE WELL STRUCTURES IN STRICT COMPLIANCE WITH MEASUREMENTS PROVIDED ON SHEET 1 (i.e. 2'-0" BETWEEN GATE WELL WALL & CENTERLINE OF OPERATING NUT) TO ALLOW PROPER OPERATION OF VALVE THROUGH GATE WELL OPENING. FAILURE TO DO SO WILL REQUIRE CONTRACTOR TO CORRECT AT HIS EXPENSE.
- TAPPING SLEEVES SHALL BE MANUFACTURED BY ROMAC INDUSTRIES; MUELLER; EAST JORDAN; SMITH-BLAIR OR APPROVED EQUAL AND APPROVED BY THE CITY OF ROCHESTER HILLS. FULL BODY SLEEVES MUST BE USED EXCEPT FOR REINFORCED CONCRETE PRESSURE PIPE OR A.C. PIPE.
- FOR ALL PIPE USE A 1" CORPORATION STOP. NO CORPS SHALL BE USED IN CONCRETE PRESSURE PIPE.
- RUBBER O-RINGS SHALL NOT BE USED IN PAVEMENT.



FOR 90° BENDS OR SMALLER

D	A	B	C	E MIN.
20"	8'	6.5'	3.5'	2.5'
16"	6'	4'	2.5'	2'
12"	4'	3'	2'	1.75'
10"	3'	3'	2'	1.75'
8"	3'	2'	2'	1.5'
6"	2'	1.5'	2'	1.25'

FOR PLUGS

D	A	B	C MIN.
20"	7'	5'	2.5'
16"	4'-10"	4'-10"	2'
12"	4'-4"	3'	1'-9"
10"	3'	2'	1'-6"
8"	2'-10"	2'-6"	1'-6"
6"	1'-6"	1'-6"	3"

FOR TEES

D	A	B	C	E MIN.
20"	6.5'	4.5'	3.5'	3'
16"	4'-8"	4'-8"	2.5'	2.75'
12"	4'	3'	2.5'	2.5'
10"	3'	2'	2'	2.25'
8"	2'-6"	2'	2'	2.25'
6"	2'	2'	2'	2.25'

THRUST BLOCK DETAILS



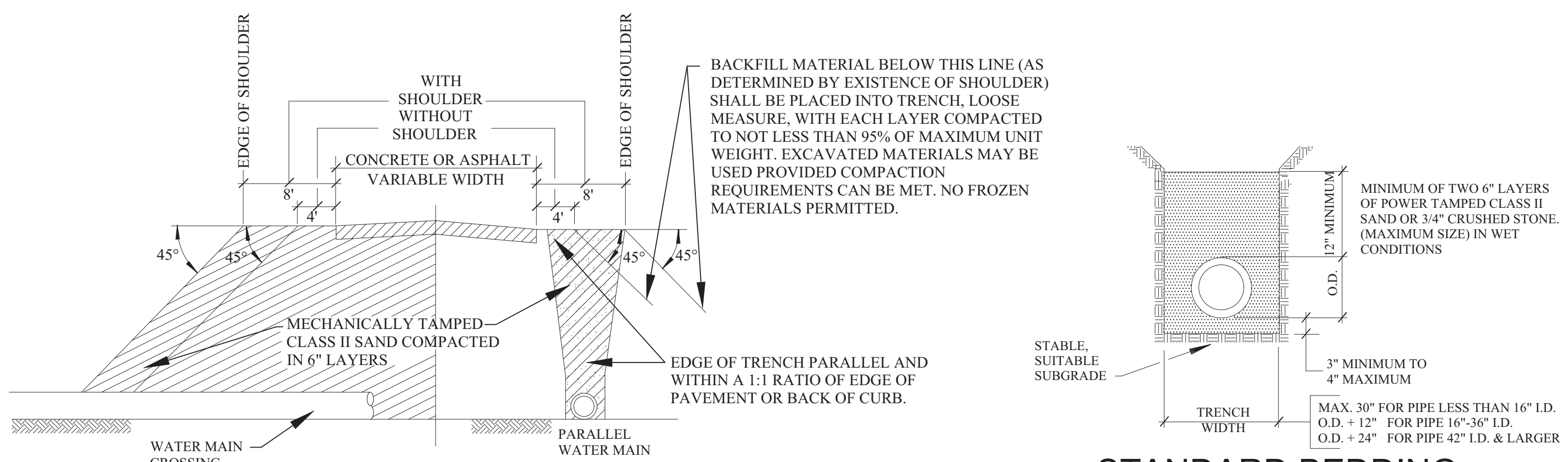
REVISIONS	DATE	APPROVED BY
		CITY COUNCIL, DATE: SEPTEMBER 23, 2019
		PREPARED BY ENGINEERING DIVISION DEPARTMENT OF PUBLIC SERVICES

NOTIFY ROCHESTER HILLS ENGINEERING DIVISION AT 248-841-2510 48 HRS. PRIOR TO START OF CONSTRUCTION

City of Rochester Hills
1000 Rochester Hills Drive, Rochester Hills, Michigan 48309

WATER MAIN STANDARD DETAILS

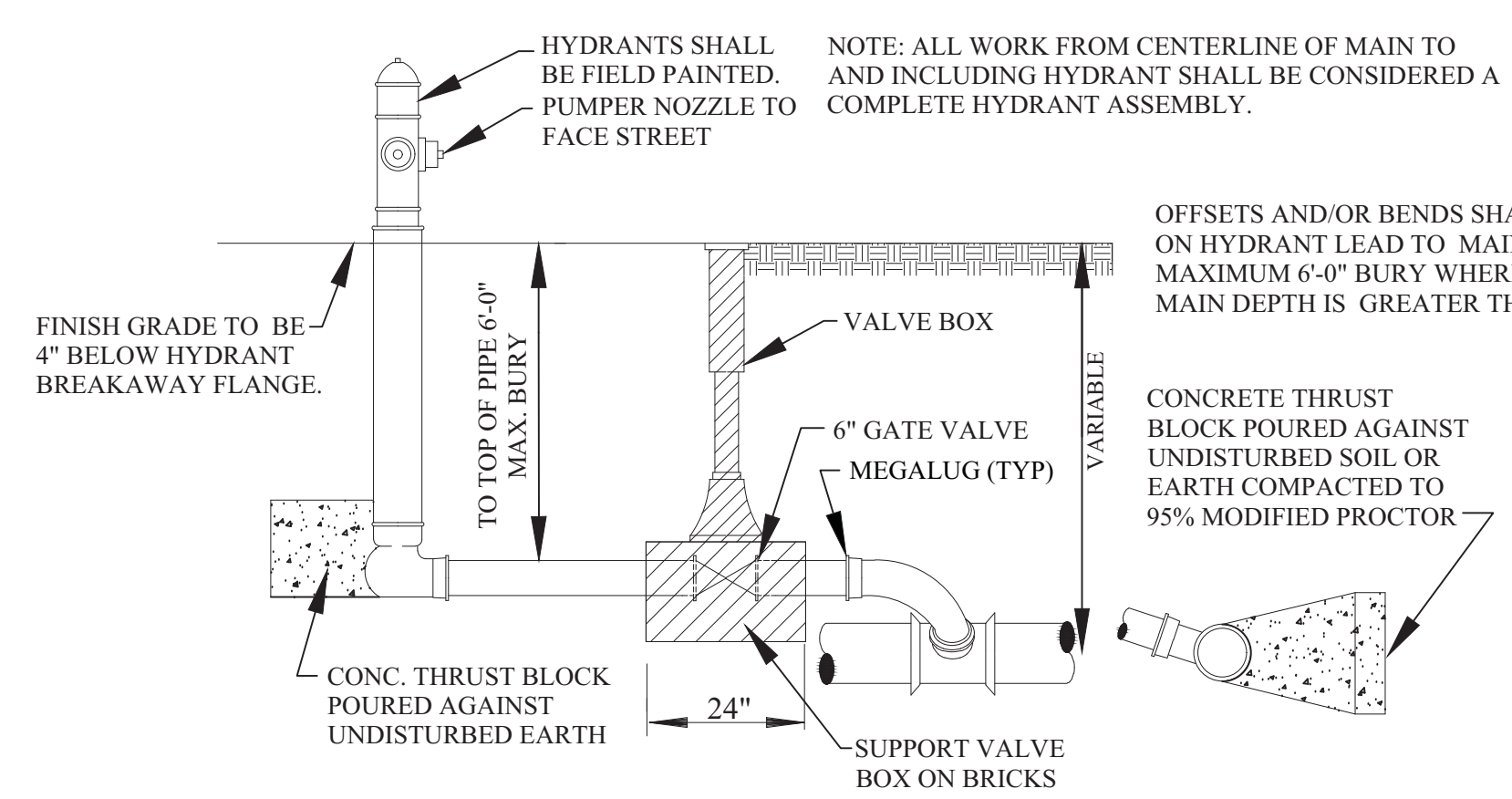
NOT TO SCALE DATE: 1/10/2018
SHEET 1 OF 2



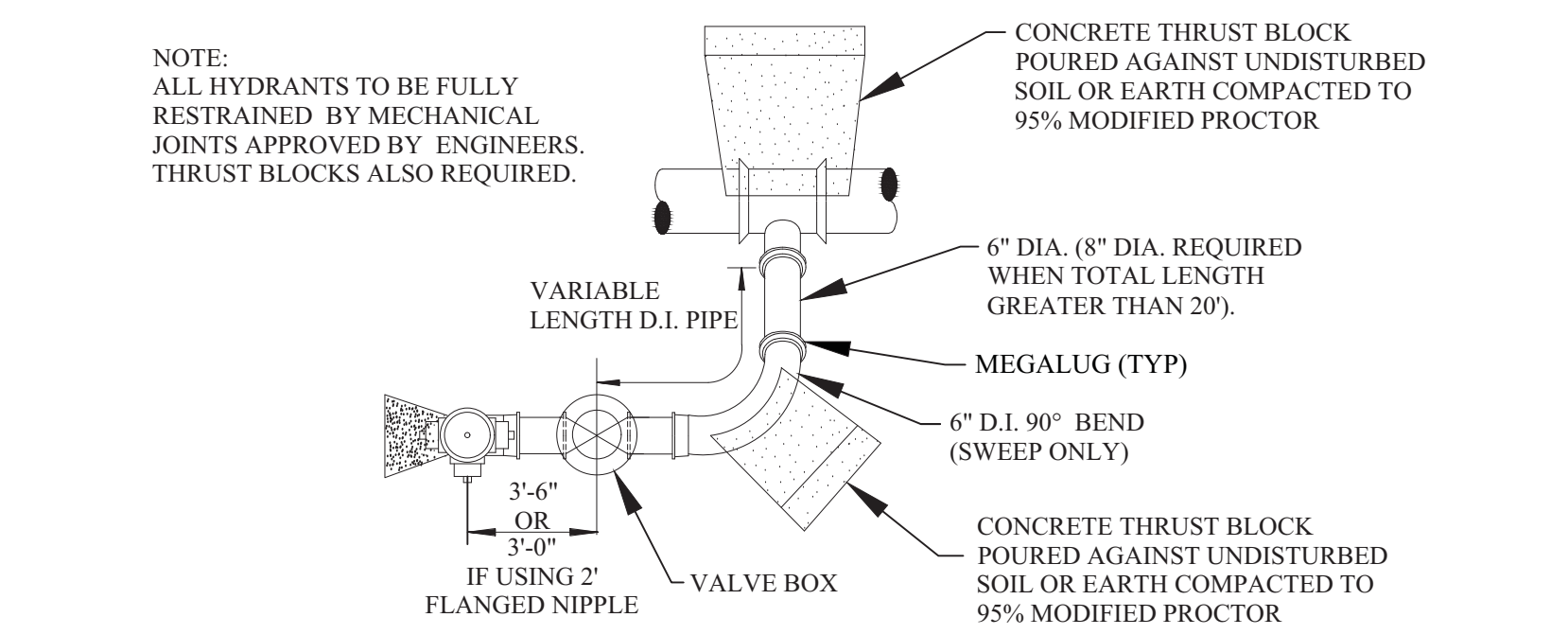
MINIMUM BACKFILL UNDER OR WITHIN PAVEMENT INFLUENCE



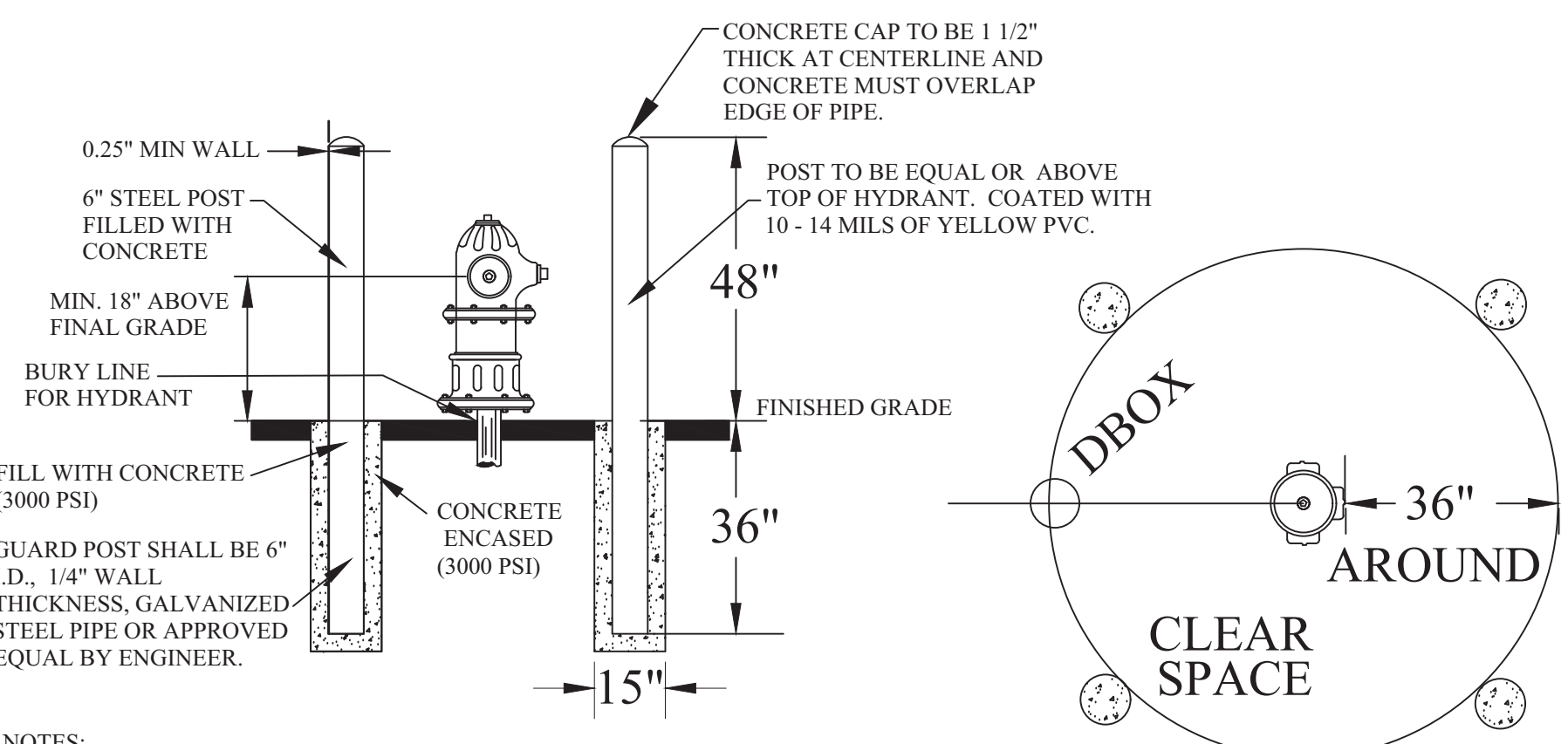
STANDARD BEDDING FOR WATER MAIN



HYDRANT SIDE OUTLET OPTION



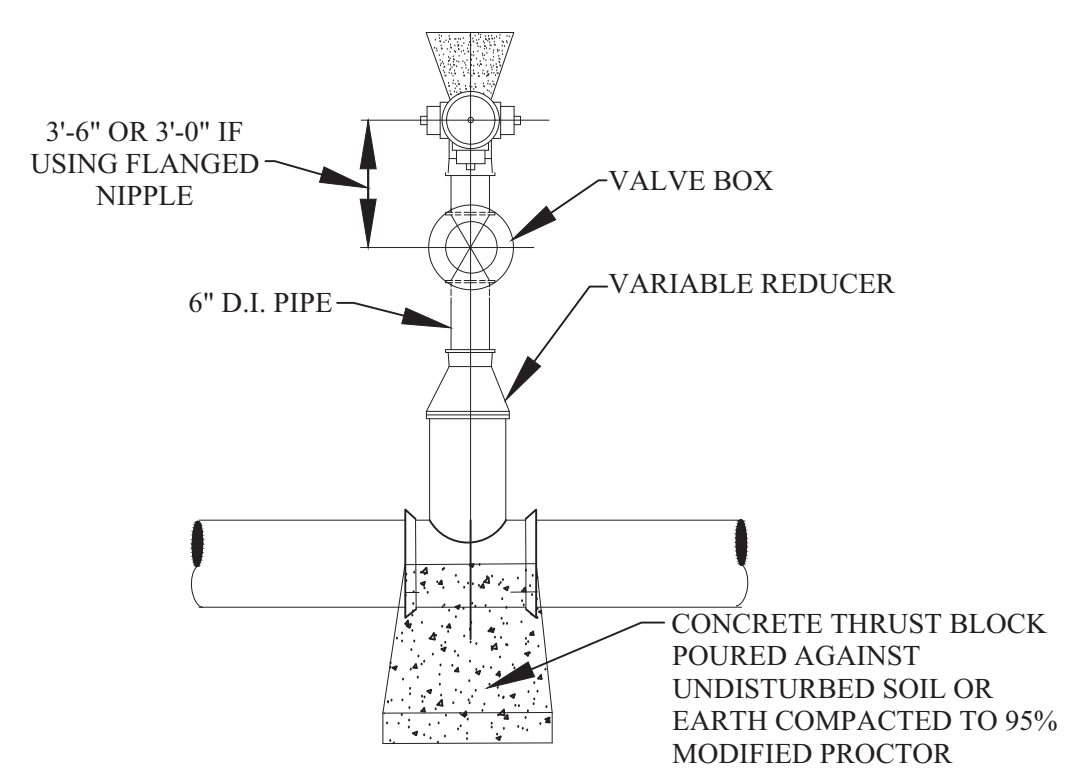
HYDRANT SIDE OUTLET OPTION



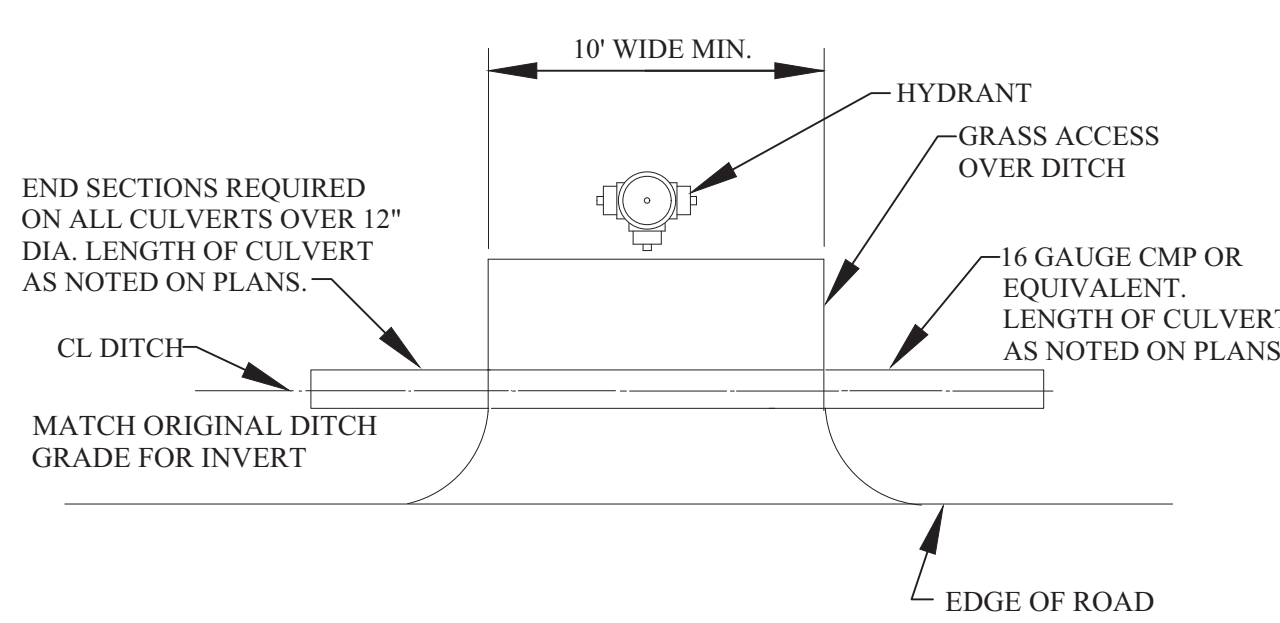
GUARD POST



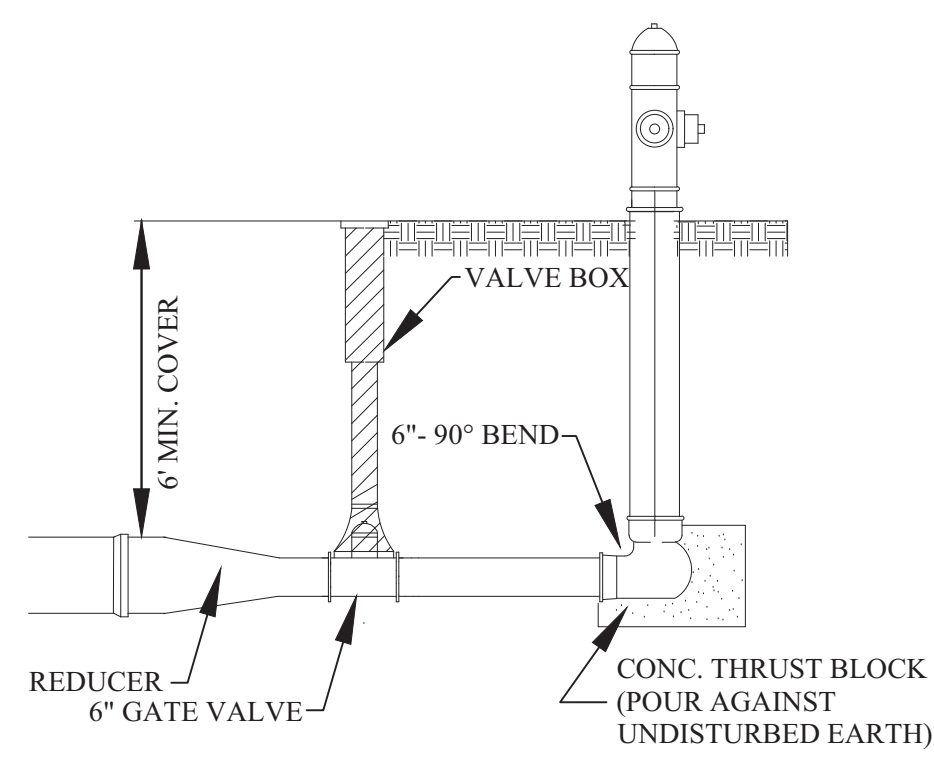
HYDRANT BLOWOFF DETAILS



HYDRANT CONNECTION (TYPICAL)



DITCH ENCLOSURE AT HYDRANT OR GATE WELL



DEAD END BLOWOFF CONNECTION

GENERAL NOTES

1. ALL CONSTRUCTION PROCEDURES AND MATERIALS SHALL CONFORM TO THE CURRENT STANDARDS AND SPECIFICATIONS OF THE CITY OF ROCHESTER HILLS.
2. A PRE-CONSTRUCTION MEETING SHALL BE SCHEDULED BY THE CITY OF ROCHESTER HILLS AND HELD PRIOR TO THE START OF CONSTRUCTION.
3. CONTRACTOR MUST CONTACT MISS DIG (811) AT LEAST THREE WORKING DAYS PRIOR TO THE START OF CONSTRUCTION FOR UNDERGROUND UTILITY LOCATIONS. ALL UTILITIES SHALL BE STAKED BEFORE CONSTRUCTION BEGINS.
4. ALL WATER MAIN EASEMENTS SHALL BE PROVIDED PRIOR TO CONSTRUCTION AND ACCEPTANCE OF THE WATER DISTRIBUTION SYSTEM.
5. WATER MAINS SHALL BE CONSTRUCTED WITH A MINIMUM COVER OF 6 FEET BELOW FINISHED GRADES, INCLUDING OPEN DRAINAGE COURSES.
6. ALL TRENCHES UNDER OR WITHIN A 1:1 RATIO OF EXISTING OR PROPOSED PAVEMENT OR DRIVEWAYS, SHALL BE BACKFILLED WITH COMPACTED CLASS II SAND TO GRADE (95% MAXIMUM UNIT DENSITY).
7. WHERE TWO UTILITIES CROSS, PROVIDE CLASS II BACKFILL MATERIAL IN SIX (6) INCH COMPACTED LAYERS TO TOP OF HIGHEST UTILITY.
8. WHERE WATER MAINS DIP UNDER OTHER UTILITIES, THE SECTIONS WHICH ARE DEEPER THAN NORMAL SHALL BE CONSTRUCTED WITH 11-1/4" VERTICAL BENDS, 22 1/2" OR 45" BENDS MUST BE RODDED AND PROPERLY ANCHORED.
9. ALL PRECAST CONCRETE GATE WELL SECTIONS SHALL BE IN ACCORDANCE WITH A.S.T.M. C478, STANDARD SPECIFICATIONS FOR PRECAST REINFORCED CONCRETE MANHOLE SECTIONS. WALL THICKNESS SHALL BE AS SHOWN ON THESE DETAILS. ALL JOINTS FOR PRECAST CONCRETE GATE WELL SECTIONS SHALL BE "MODIFIED GROOVE TONGUE" WITH GASKET MANUFACTURED TO CONFORM WITH A.S.T.M. C 443, STANDARD SPECIFICATION FOR JOINTS FOR CIRCULAR CONCRETE SEWER AND CULVERT PIPE USING RUBBER GASKETS.
10. CONTRACTOR SHALL INSTALL VALVES, TAPPING SLEEVES AND GATE WELL STRUCTURES IN STRICT COMPLIANCE WITH MEASUREMENTS PROVIDED ON SHEET 1 (2'-0" BETWEEN GATE WELL WALL & CENTERLINE OF OPERATING NUT) TO ALLOW PROPER OPERATION OF VALVE THROUGH GATE WELL OPENING.
11. ALL CROSS-CONNECTION CONTROL DEVICES SHALL BE INSTALLED AS REQUIRED BY THE ROCHESTER HILLS PLUMBING INSPECTOR AND IN ACCORDANCE WITH THE STANDARDS OF THE OAKLAND COUNTY WATER RESOURCE COMMISSIONER OPERATION AND MAINTENANCE DIVISION AND THE MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, DIVISION OF DRINKING WATER AND RADIOLOGICAL PROTECTION.
12. ALL WATER SERVICE CONNECTIONS TWO (2) INCHES AND SMALLER SHALL BE MADE BY THE CITY OF ROCHESTER HILLS, DEPARTMENT OF PUBLIC SERVICES AFTER WATER MAIN ACCEPTANCE AND APPLICABLE PERMITS ARE OBTAINED.
13. ALL FITTINGS AND BENDS SHOULD BE BLOCKED IN ACCORDANCE WITH THRUST BLOCK DETAILS, UNLESS ALTERNATE THRUST RESTRAINT SYSTEM, AS INDICATED PLANS AND SPECIFICATIONS, IS APPROVED BY THE CITY OF ROCHESTER HILLS DEPARTMENT OF PUBLIC SERVICE.

WATER MAIN MATERIALS NOTES

1. TEMPORARY CONNECTIONS, WHICH MAY BE MADE FOR CHLORINATING AND FLUSHING PURPOSES, SHALL INCLUDE A TESTABLE DOUBLE CHECK VALVE BACKFLOW PREVENTER WITH CURRENT CERTIFICATION.
2. CORPORATION STOPS USED FOR INSERTION INTO MAINS SHALL BE FORD TYPE B-44. ALL STOPS SHALL HAVE BRONZE CAST BODIES, KEYS, STEM WASHERS AND NUTS. INLET THREADS SHALL CONFORM TO THE LATEST VERSION OF AWWA C800.
3. ALL DUCTILE IRON PIPE (D.I.P.) WATER MAIN SHALL BE DESIGNED FOR 150 PSI MINIMUM WORKING PRESSURE. A ZINC COATING WITH CLASS 52 MAY BE PROPOSED AND IS SUBJECT TO FINAL DECISION FOR APPROVAL BY THE CITY ENGINEER.
4. THE DUCTILE IRON PIPE TO BE FURNISHED AND DELIVERED UNDER THIS SPECIFICATION SHALL MEET ALL THE REQUIREMENTS OF THE CURRENT AWWA C151 (ANSI A21.5), EXCEPT AS OTHERWISE SPECIFIED HEREIN. PIPE SHALL BE DOUBLE CEMENT-LINED AND SEAL COATED WITH AN APPROVED BITUMINOUS SEAL COAT IN ACCORDANCE WITH AWWA C104 (ANSI A21.4).
5. DUCTILE IRON PIPE SHALL BE CLASS 54 FOR SIZES THREE (3) INCH THROUGH TWENTY (20) INCHES SIZE. TWENTY-FOUR (24) INCH AND LARGER SHALL BE CLASS 55 DUCTILE IRON PIPE.
6. PIPES TWENTY-FOUR (24) INCHES AND LARGER IN NOMINAL DIAMETER SHALL MEET ALL THE REQUIREMENTS OF THE CURRENT AWWA C100 FOR DUCTILE IRON WATER PIPE.
7. MECHANICAL JOINTS FOR DUCTILE IRON WATER MAIN SHALL BE IN ACCORDANCE WITH AWWA C111 (ANSI A21.11).
8. FLANGE JOINTS FOR DUCTILE IRON WATER MAIN SHALL BE IN ACCORDANCE WITH AWWA C110 (ANSI A21.10).
9. FITTINGS FOR DUCTILE IRON PIPE SHALL BE DUCTILE IRON AND SHALL MEET REQUIREMENTS OF AWWA C110 (ANSI A21.10) OR AWWA C153 (ANSI A21.53). DUCTILE IRON FITTINGS SHALL BE RATED FOR 350 PSI. PIPE SIZES TWENTY-FOUR (24) INCH DIAMETER AND LESS, AND 250 PSI FOR PIPE SIZES OVER TWENTY-FOUR (24) INCH DIAMETER. DUCTILE IRON FLANGE FITTINGS SHALL BE RATED FOR 250 PSI FOR ALL PIPE DIAMETERS.
10. ALL DUCTILE IRON PIPE, FITTINGS AND HYDRANTS SHALL BE ENCASED WITH POLYETHYLENE ENCASEMENT IN ACCORDANCE WITH THE REQUIREMENTS OF A.S.T.M. A 1336, STANDARD SPECIFICATION D1248 AND AWWA C105. POLYETHYLENE TUBE MATERIAL SHALL HAVE A THICKNESS OF .008" (8-MILS). ADHESIVE TAPE SHALL BE A GENERAL PURPOSE ADHESIVE TAPE 2" WIDE AND APPROXIMATELY 10-MILS THICK, SUCH AS SCOTCHCRAP, NO.50, POLYKEN NO. 900, OR TAPECOAT CT.

VALVE AND SLEEVE NOTES

1. GATE VALVES, SIZES THREE (3) INCH THROUGH SIXTEEN (16) INCH AND TAPPING VALVES SHALL MEET THE CITY OF ROCHESTER HILLS STANDARD AS DETAILED WITH NON-RISING STEM. (EAST JORDAN, AMERICAN FLOW CONTROL, MUELLER)
2. ALL IN LINE GATE VALVES EIGHT (8) INCH AND LARGER SHALL BE IN WELLS. SPECIFICATIONS SHALL INCLUDE THE DIRECTION OF OPERATION OF ALL VALVES (CLOCKWISE CLOSURE). VALVE BOX USE TO BE APPROVED BY ENGINEERING DIVISION.
3. ALL GATE WELL COVERS SHALL BE CITY OF ROCHESTER HILLS STANDARD AS DETAILED.
4. ALL GATE VALVES WITH OPERATING NUTS AT A DISTANCE GREATER THAN FIVE (5) FEET BELOW GROUND SURFACE SHALL BE PROVIDED WITH AN EXTENSION STEM. THE LENGTH OF THE EXTENSION STEM SHALL REACH WITHIN FIVE (5) FEET FROM THE GROUND SURFACE. WHEN AN EXTENSION STEM IS USED, IT SHALL BE HELD IN PLACE BY AN EXTENSION STEM GUIDE SUITABLY FASTENED TO THE WALL OF THE GATE WELL. THE EXTENSION STEM SHALL BE MECHANICALLY ATTACHED TO THE OPERATING NUT. DETAILS OF THE EXTENSION SYSTEM AND THE METHOD OF INSTALLATION SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.
5. BUTTERFLY VALVES SHALL BE USED FOR VALVES GREATER THAN 16-INCH DIAMETER AND SHALL BE MODEL 2F11 AS MANUFACTURED BY HENRY PRATT COMPANY OR APPROVED EQUAL.
6. TAPPING VALVES SHALL BE SERIES "A" AS MANUFACTURED BY EAST JORDAN OR RESILIENT SEATED GATE VALVES AS APPROVED BY THE CITY OF ROCHESTER HILLS ENGINEERING SERVICES.
7. TAPPING SLEEVES SHALL BE MANUFACTURED BY ROMAC INDUSTRIES; MUELLER; EAST JORDAN; SMITH-BLAIR OR APPROVED EQUAL AND APPROVED BY THE CITY OF ROCHESTER HILLS. FULL BODY SLEEVES MUST BE USED EXCEPT FOR REINFORCED CONCRETE PRESSURE PIPE OR A.C. PIPE.

HYDRANT REQUIREMENTS

1. ALL HYDRANTS SHALL BE CONSTRUCTED WITH A SIX (6) INCH COMPANION GATE VALVE IN A THREE (3) PIECE, ADJUSTABLE DUCTILE IRON VALVE BOX, WHICH SHALL INCLUDE A FIVE AND ONE-QUARTER (5-1/4) INCH SCREW SHAFT. VALVE BOXES SHALL BE SERIES 6860 AS MANUFACTURED BY TYLER PIPE OR APPROVED EQUAL.
2. ALL HYDRANTS SHALL BE EAST JORDAN NO. 5-BR-250 TRAFFIC MODEL, OR CITY APPROVED EQUAL. SELF-DRAINING HYDRANTS SHALL NOT BE USED. HYDRANTS SHALL HAVE BREAKAWAY FLANGE.
3. ALL HYDRANTS SHALL BE PAINTED RED ABOVE GROUND WITH A FINISH COAT OF RUST-OLEUM SAFETY RED OR APPROVED EQUAL. HYDRANT CAPS SHALL BE PAINTED SAME COLOR AS THE HYDRANT.
4. ALL FIRE HYDRANT JOINTS SHALL BE TOTALLY RESTRAINED BY THE USE OF RESTRAINED JOINT. THRUST BLOCKS ARE ALSO REQUIRED.

ACCEPTANCE OF NEW WATER MAINS

1. PRIOR TO WATER MAIN ACCEPTANCE THE FOLLOWING CONDITIONS MUST BE MET: 1) PRESSURE TESTING AND BACTERIA TESTING MUST BE COMPLETED IN ACCORDANCE WITH THE CITY OF ROCHESTER HILLS 2) ALL EASEMENT AND RIGHT-OF-WAY ACQUISITION MUST BE ACCEPTED BY THE CITY OF ROCHESTER HILLS ENGINEERING SERVICES 3) THE CITY OF ROCHESTER HILLS MUST BE PROVIDED WITH THE BILL OF SALE AND 4) ALL MYLAR "AS-BUILT DRAWINGS" MUST BE ACCEPTED AND APPROVED BY THE CITY OF ROCHESTER HILLS, ENGINEERING SERVICES. THE CITY OF ROCHESTER HILLS INSPECTION DIVISION MUST WITNESS THE CONNECTION OF THE WATER MAIN TO THE EXISTING WATER MAIN, AFTER WHICH RESIDENTIAL AND COMMERCIAL TAPS WILL BE ALLOWED.
2. THE CONTRACTOR SHALL NOTIFY THE CITY OF ROCHESTER HILLS, INSPECTION DEPARTMENT (248.841.2510) FOR PRESSURE TESTING, BACTERIOLOGICAL SAMPLING, CONNECTIONS TO EXISTING WATER MAIN AND FINAL FIELD REVIEW. A FORTY-EIGHT (48) HOUR ADVANCE NOTICE IS REQUIRED.
3. THE CONTRACTOR SHALL DISINFECT AND PRESSURE TEST ALL NEW WATER MAIN IN ACCORDANCE WITH ROCHESTER HILLS STANDARDS. THE WATER MAIN SHALL PASS A 150 PSI PRESSURE TEST FOR A TWO (2) HOUR PERIOD. WATER LOSS SHALL NOT EXCEED A RATE OF 11.65 U.S. GALLONS PER INCH DIAMETER PER MILE OF WATER MAIN IN TWENTY-FOUR (24) HOURS.
4. WHERE CONTRACTOR SUPPLIED GAUGES ARE REQUIRED, MINIMUM SIZE SHALL BE 3 1/2" DIAMETER OR LARGER GRADUATED IN ONE (1) OR TWO (2) POUND INCREMENTS FROM 1 TO 160 P.S.I. OR HIGHER AND HAVE CURRENT CERTIFICATION.
5. PRESSURE TESTING AND BACTERIA TESTING MUST BE COMPLETED AND APPROVED PRIOR TO CONNECTING TO THE EXISTING WATER MAIN.

CITY OF ROCHESTER HILLS WATER SYSTEMS AS-BUILT DRAWING SPECIFICATIONS

IN AREAS WHERE WATER SYSTEMS ARE OPERATED AND MAINTAINED BY THE CITY OF ROCHESTER HILLS DEPARTMENT OF PUBLIC SERVICES, FINAL ACCEPTANCE OF THE WATER SYSTEM MUST BE RENDERED BY THE DEPARTMENT OF PUBLIC SERVICES, BEFORE THE SYSTEM CAN BE USED FOR THE SERVICE INTENDED.

ONE ITEM REQUIRED FOR FINAL ACCEPTANCE SHALL BE THE SUBMISSION OF AS-BUILT DRAWINGS TO THE CITY OF ROCHESTER HILLS, DPS, BY THE DESIGN ENGINEER. AS-BUILT DRAWINGS SHALL BE DEFINED AS AND CONTAIN THE FOLLOWING INFORMATION:

1. FINAL AS-BUILT DRAWINGS SHALL BE PROVIDED IN REPRODUCIBLE PDF FORMAT VIA DIGITAL STORAGE MEDIA. XEROX OR ANY HEAT PROCESS REPRODUCTIONS WILL NOT BE ACCEPTED.
2. ALONG WITH THE PDF PLAN SET PROVIDE TWO (2) SETS OF BLACK-LINED DRAWINGS AND THE PLANS ON ELECTRONIC MEDIA IN AUTOCAD FORMAT (LATEST VERSION).
3. EACH AND EVERY SHEET SHALL BE SEALED BY THE DESIGN ENGINEER, ALONG WITH THE FOLLOWING CERTIFICATION STATEMENT ON THE COVER SHEET:

I HEREBY CERTIFY THAT OUR FIRM HAS PREPARED THESE AS-BUILT DRAWINGS OF THE IMPROVEMENTS AS CONSTRUCTED, AND THAT TO THE BEST OF MY KNOWLEDGE THOSE IMPROVEMENTS NOTED AS "AS BUILT" WERE CONSTRUCTED IN SUBSTANTIAL CONFORMANCE WITH THE APPROVED CONSTRUCTION PLANS; AND ALSO THAT THE WATER MAIN AND STRUCTURES, AS CONSTRUCTED, LIE WITHIN THE EASEMENT DESCRIPTIONS REQUIRED BY THE CITY OF ROCHESTER HILLS.

(COMPANY NAME)

(ENGINEER'S SIGNATURE)

PROFESSIONAL ENGINEER NO. _____

ENGINEER SEAL

4. THE MAXIMUM SCALE SHALL BE ONE (1) INCH EQUALS FIFTY (50) FEET.
5. THE SIZE, LENGTH, CLASS AND MANUFACTURER OF PIPE INSTALLED SHALL BE INDICATED.
6. THE SIZE, BRAND AND MODEL NUMBERS OF ALL VALVES AND HYDRANTS INSTALLED SHALL BE INDICATED.
7. A TOTAL AS-BUILT DRAWING QUANTITY LIST SHALL BE INCLUDED, AS WELL AS AN AS-BUILT DRAWING QUANTITY LIST ON EACH INDIVIDUAL SHEET.
8. THE LOCATIONS SHALL BE SHOWN ON THE PLANS WITH AN ACCURACY OF ONE (1) FOOT.
9. THE OFFSET OF THE WATER MAIN FROM PROPERTY LINES SHALL BE INDICATED.
10. ALL GATE VALVE WELLS, HYDRANTS AND ALL WATER SYSTEM APPURTENANCES SHALL BE LOCATED FROM TWO FIXED OBJECTS (MANHOLES, BUILDING CORNERS ECT.).
11. ALL UNDERGROUND APPURTENANCES, SUCH AS GATE VALVE WELLS, METER PITS, PRESSURE REDUCING VALVE PITS, ETC. SHALL BE LOCATED FROM THE NEAREST HYDRANT THAT IS CONNECTED TO THE SAME WATER MAIN AS THE APPURTENANCE.
12. THE LOCATION AND SIZE OF EVERY RESTRAINED JOINT SHALL BE NOTED.
13. THE ACCURATE LOCATION OF ALL UTILITY CROSSINGS WHERE THE VERTICAL SEPARATION, IS LESS THAN 18" SHALL BE NOTED.
14. AS-BUILT SHALL BE PREPARED IN ACCORDANCE WITH THE CITY OF ROCHESTER HILLS AS-BUILT GUIDELINES AS PROVIDED AT THE PRE-CONSTRUCTION MEETING.

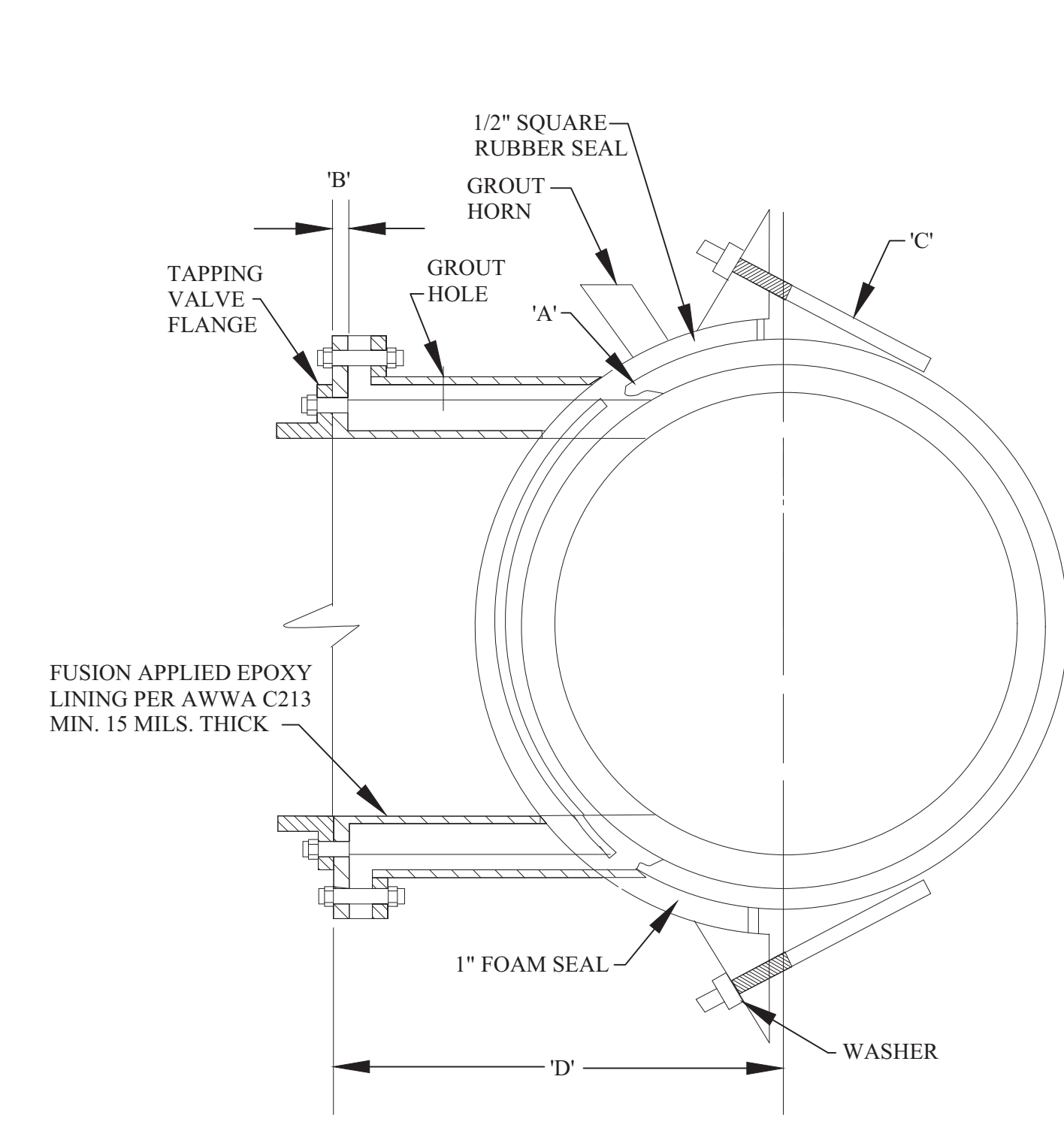
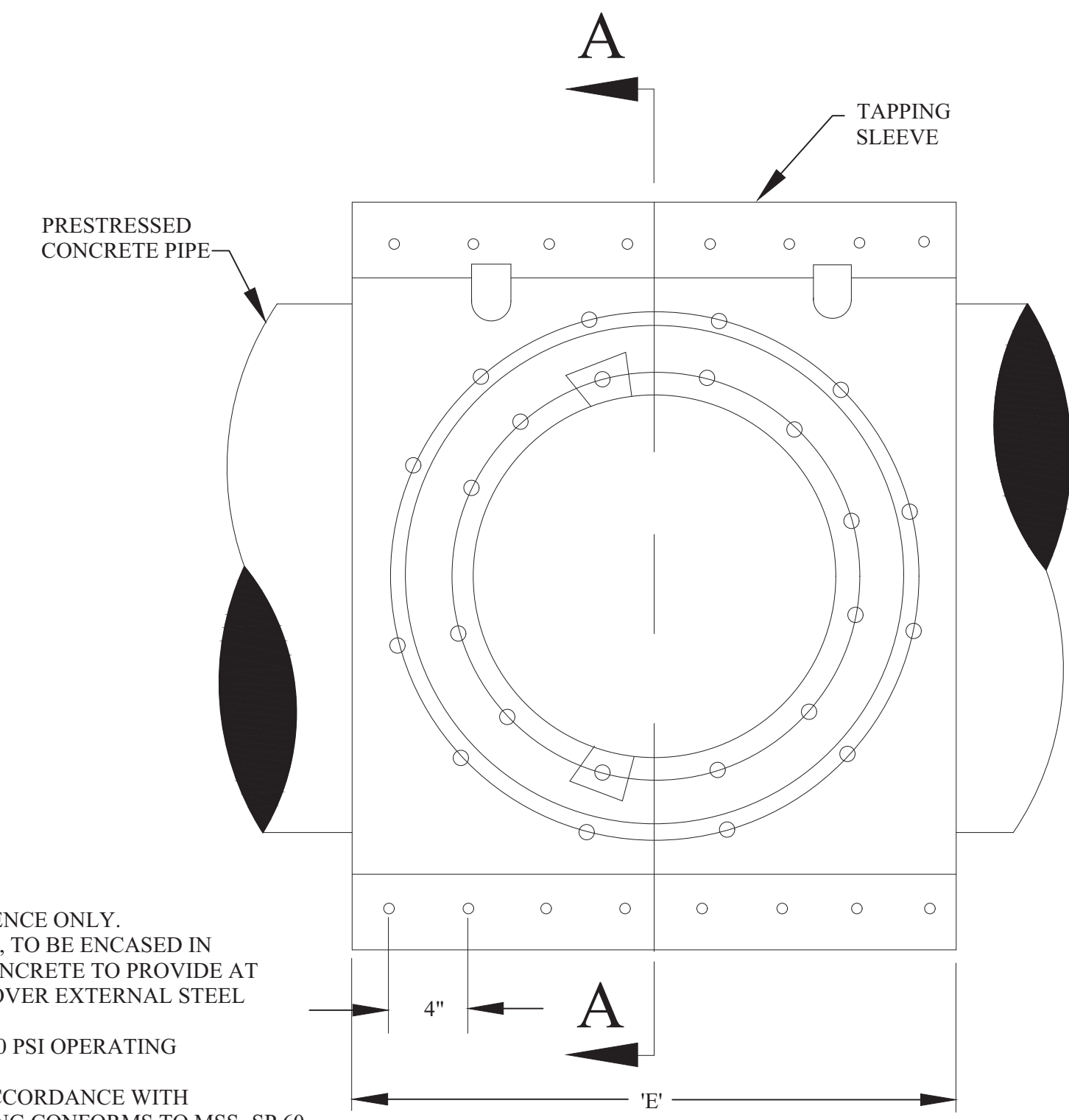
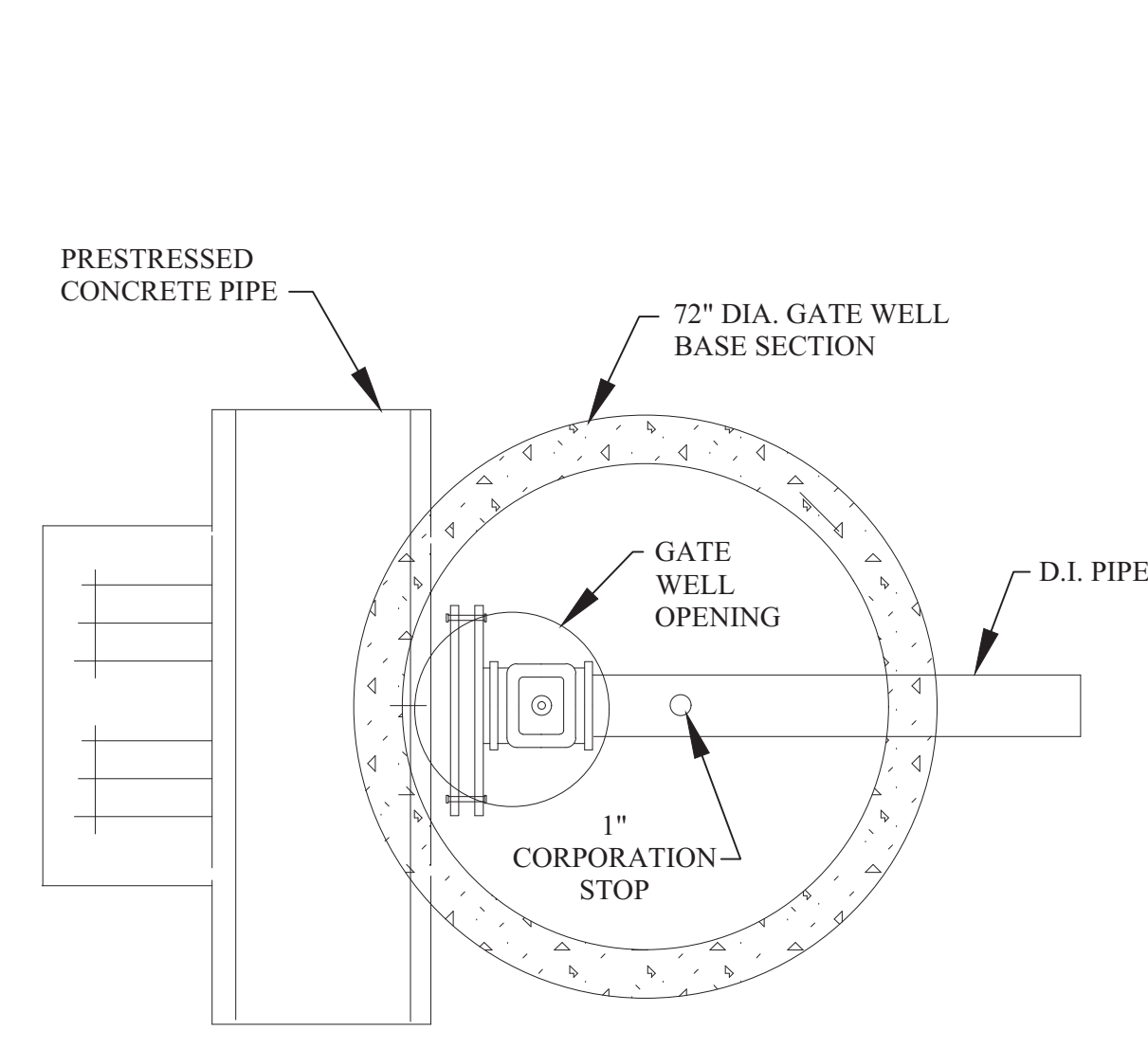
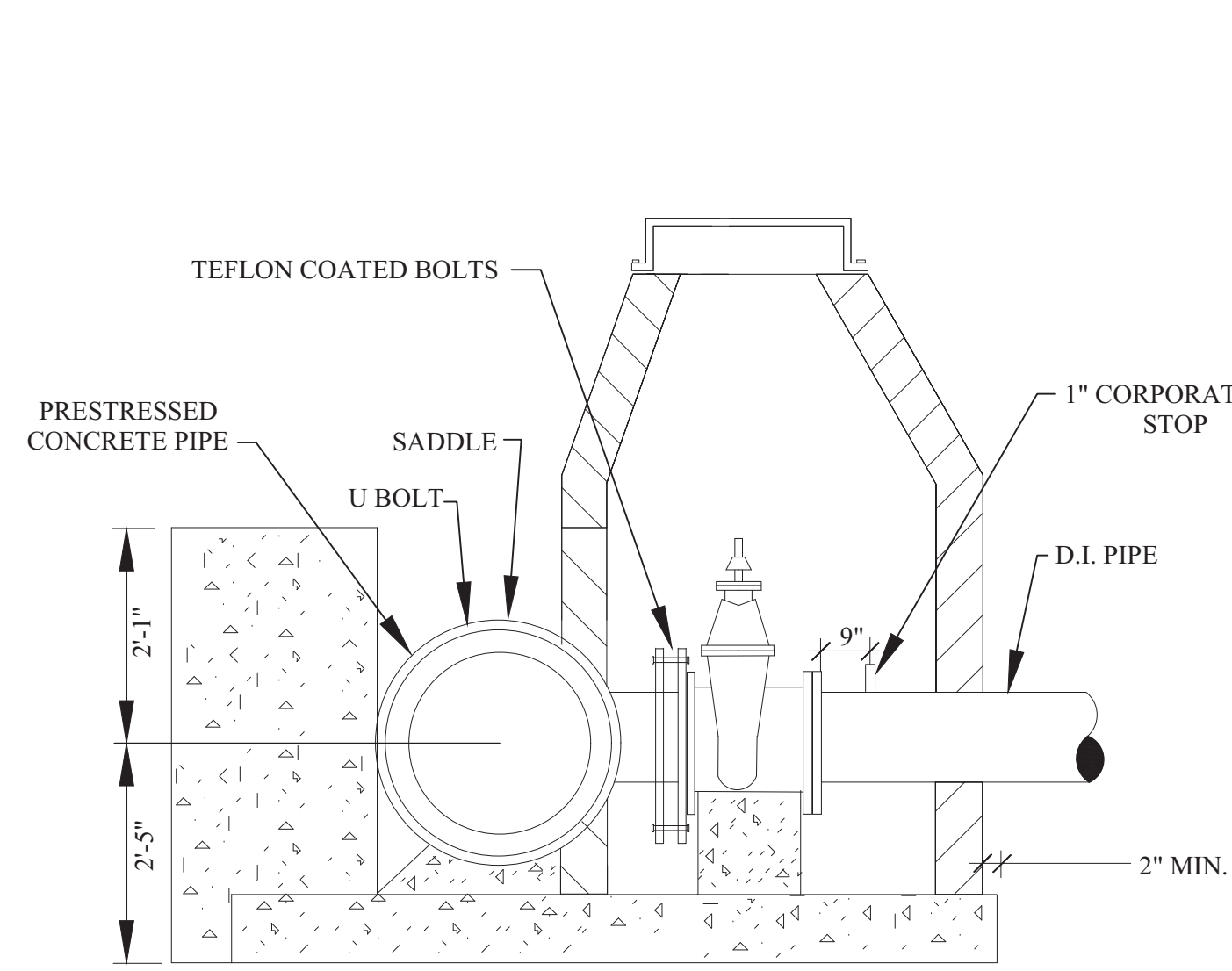


REVISIONS	DATE	APPROVED BY CITY COUNCIL, DATE: SEPTEMBER 23, 2019	NOTIFY ROCHESTER HILLS ENGINEERING DIVISION @ 248-841-2510 48 HRS. PRIOR TO START OF CONSTRUCTION
		PREPARED BY ENGINEERING DIVISION DEPARTMENT OF PUBLIC SERVICES	

City of Rochester Hills
1000 Rochester Hills Drive, Rochester Hills, Michigan 48309

WATER MAIN STANDARD DETAILS

NOT TO SCALE	DATE: 1/10/2019
SHEET 2 OF 2	



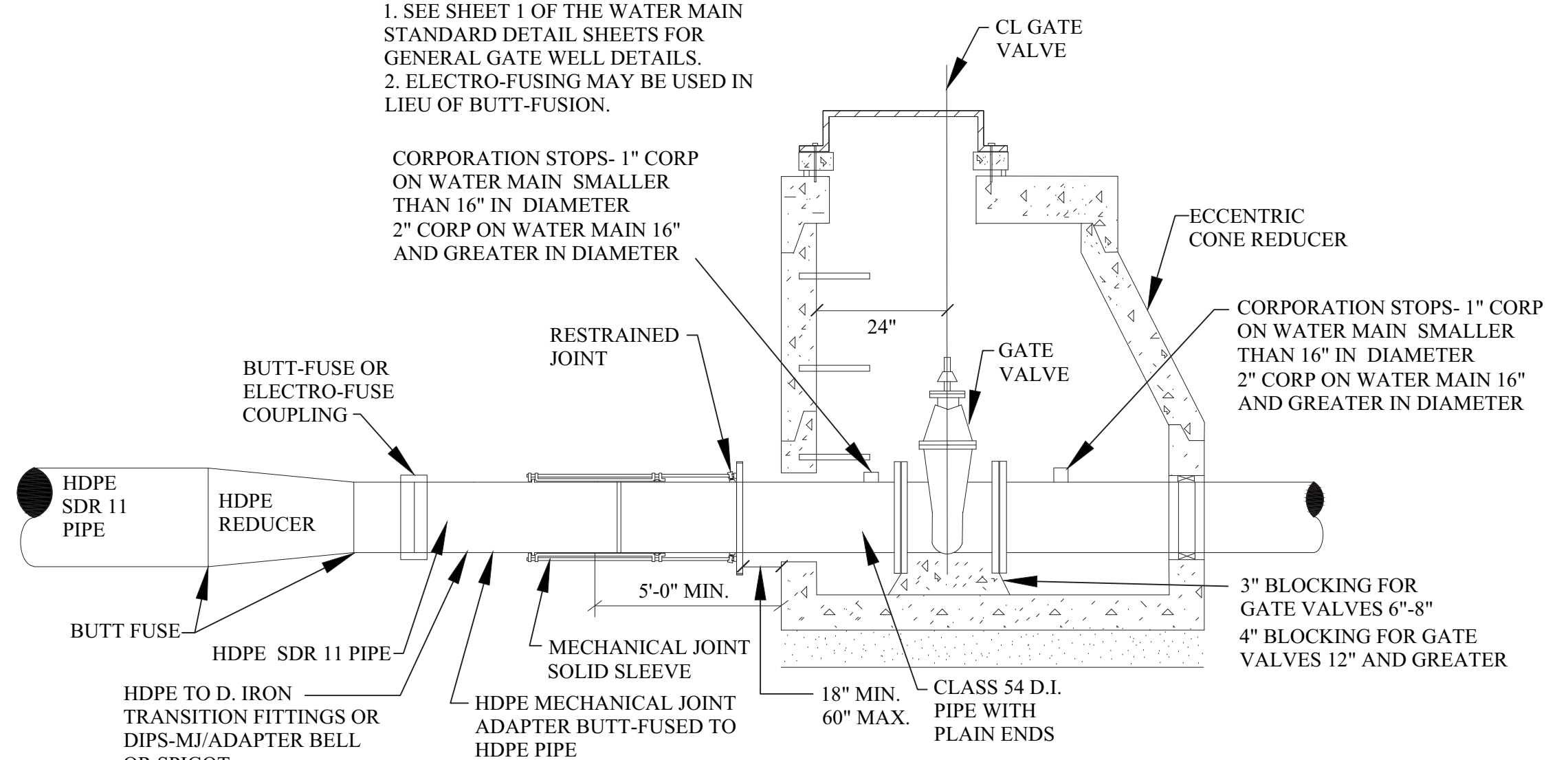
- NOTES:
- 1) THESE DIMENSIONS ARE FOR REFERENCE ONLY.
 - 2) ENTIRE SADDLE, INCLUDING STRAPS, TO BE ENCASED IN PORTLAND CEMENT MORTAR OR CONCRETE TO PROVIDE AT LEAST ONE (1) INCH OF THICKNESS OVER EXTERNAL STEEL SURFACES PRIOR TO BACKFILLING.
 - 3) TAP SADDLES ARE DESIGNED FOR 150 PSI OPERATING PRESSURE.
 - 4) FLANGE DRILLED AND TAPPED IN ACCORDANCE WITH AWWA C207 CLASS D, CENTERING RING CONFORMS TO MSS-SP 60.
 - 5) GROUT SHALL SET A MINIMUM OF TWENTY-FOUR (24) HOURS PRIOR TO PRESSURE TESTING.

CONCRETE PRESSURE TAP VALVE WELL ASSEMBLY WITH CONCRETE ENCASEMENT

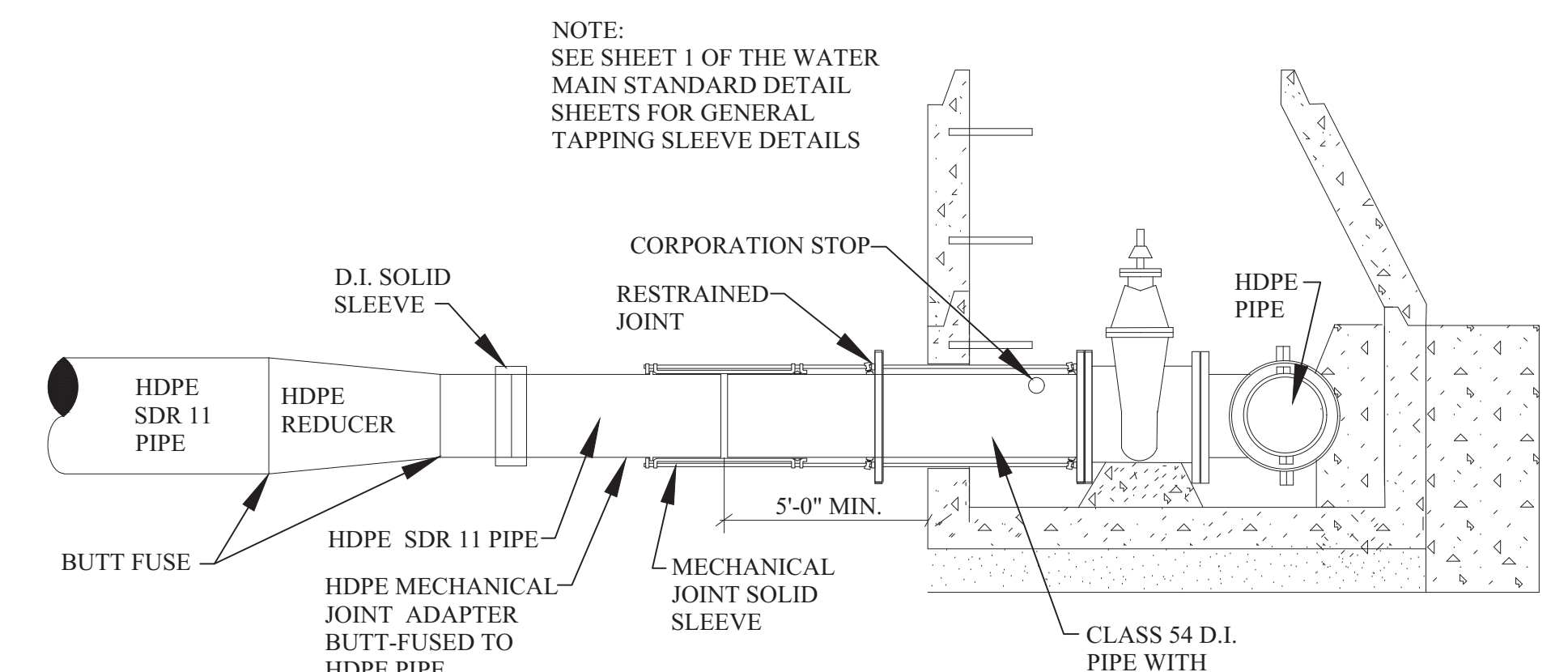
CONCRETE TAPPING SLEEVE DETAILS

PIPE SIZE X TAP SIZE	A	B	C	D	E
16" X 4"	1/4"	7/8"	6"	14-1/16"	24"
16" X 6"	1/4"	1-1/8"	6"	14-5/16"	24"
16" X 8"	1/4"	1-1/8"	6"	14-5/16"	24"
16" X 10"	1/4"	1-3/8"	7"	14-9/16"	28"
16" X 12"	1/4"	1-3/8"	8"	14-9/16"	32"
20" X 4"	1/4"	7/8"	6"	16-1/2"	24"
20" X 6"	1/4"	1-1/8"	6"	16-1/2"	24"
20" X 8"	1/4"	1-1/8"	6"	16-1/2"	24"
20" X 10"	1/4"	1-3/8"	7"	17"	28"
20" X 12"	1/4"	1-3/8"	8"	17"	32"
24" X 4"	1/4"	7/8"	6"	18-3/4"	24"
24" X 6"	1/4"	1-1/8"	6"	19"	24"
24" X 8"	1/4"	1-1/8"	6"	19"	24"
24" X 10"	1/4"	1-3/8"	7"	19-1/4"	28"
24" X 12"	1/4"	1-3/8"	8"	19-1/4"	32"
30" X 4"	1/4"	7/8"	6"	22-1/8"	24"
30" X 6"	1/4"	1-1/8"	6"	22-3/8"	24"
30" X 8"	1/4"	1-1/8"	6"	22-3/8"	24"
30" X 10"	1/4"	1-3/8"	7"	22-5/8"	28"
30" X 12"	1/4"	1-3/8"	8"	22-5/8"	32"
36" X 4"	1/4"	7/8"	6"	25-1/2"	24"
36" X 6"	1/4"	1-1/8"	6"	25-3/4"	24"
36" X 8"	1/4"	1-1/8"	7"	25-3/4"	28"
36" X 10"	1/4"	1-3/8"	8"	26"	32"
36" X 12"	1/4"	1-3/8"	9"	26"	36"
42" X 4"	1/4"	7/8"	6"	28-7/8"	24"
42" X 6"	1/4"	1-1/8"	7"	29-1/8"	28"
42" X 8"	1/4"	1-1/8"	8"	29-1/8"	32"
42" X 10"	3/8"	1-3/8"	9"	29-3/8"	36"
42" X 12"	3/8"	1-3/8"	10"	29-3/8"	40"
48" X 4"	3/8"	7/8"	7"	32-1/4"	28"
48" X 6"	3/8"	1-1/8"	7"	32-1/2"	28"
48" X 8"	3/8"	1-1/8"	7"	32-1/2"	28"
48" X 10"	3/8"	1-3/8"	7"	32-3/4"	28"
48" X 12"	3/8"	1-3/8"	9"	32-3/4"	36"

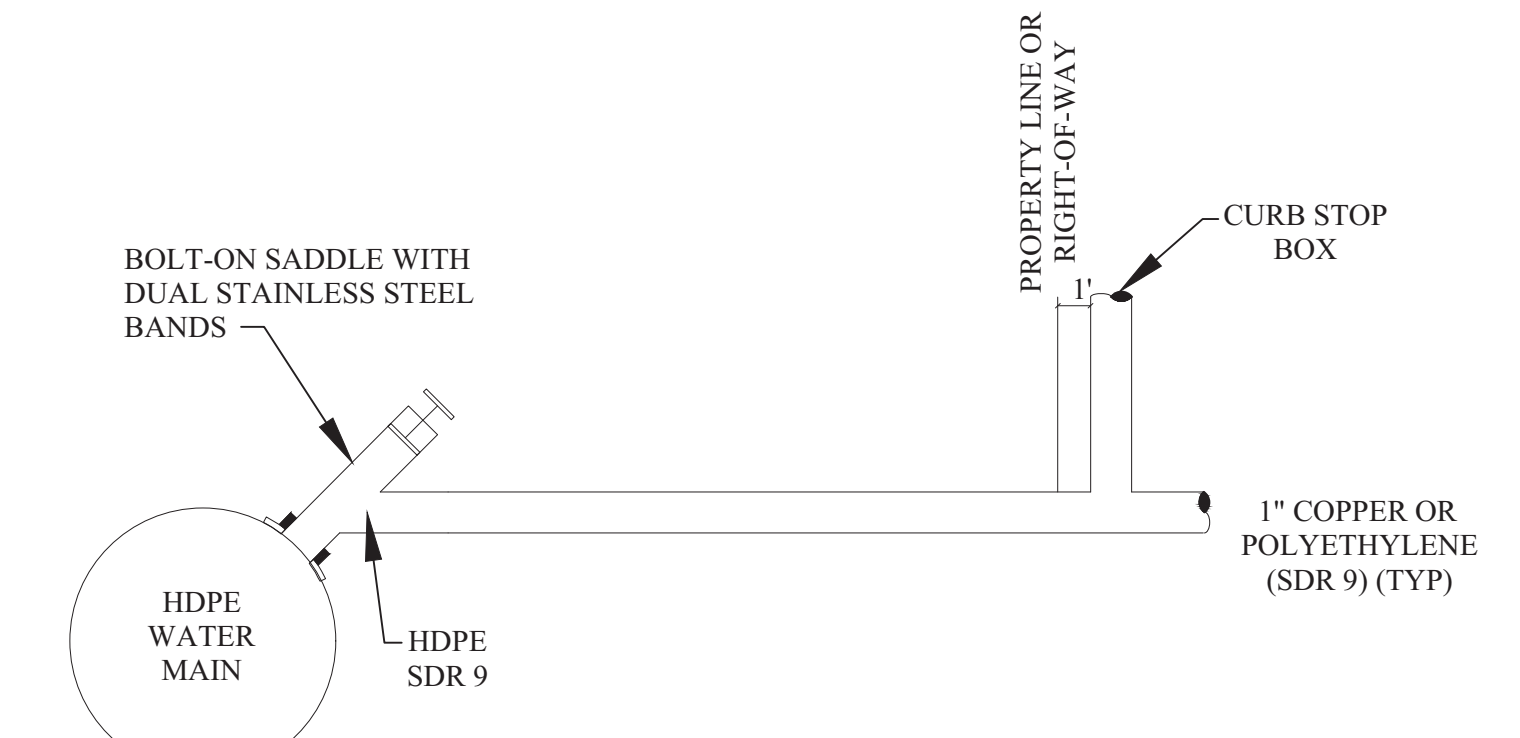
- NOTES:
1. SEE SHEET 1 OF THE WATER MAIN STANDARD DETAIL SHEETS FOR GENERAL GATE WELL DETAILS.
 2. ELECTRO-FUSION MAY BE USED IN LIEU OF BUTT-FUSION.



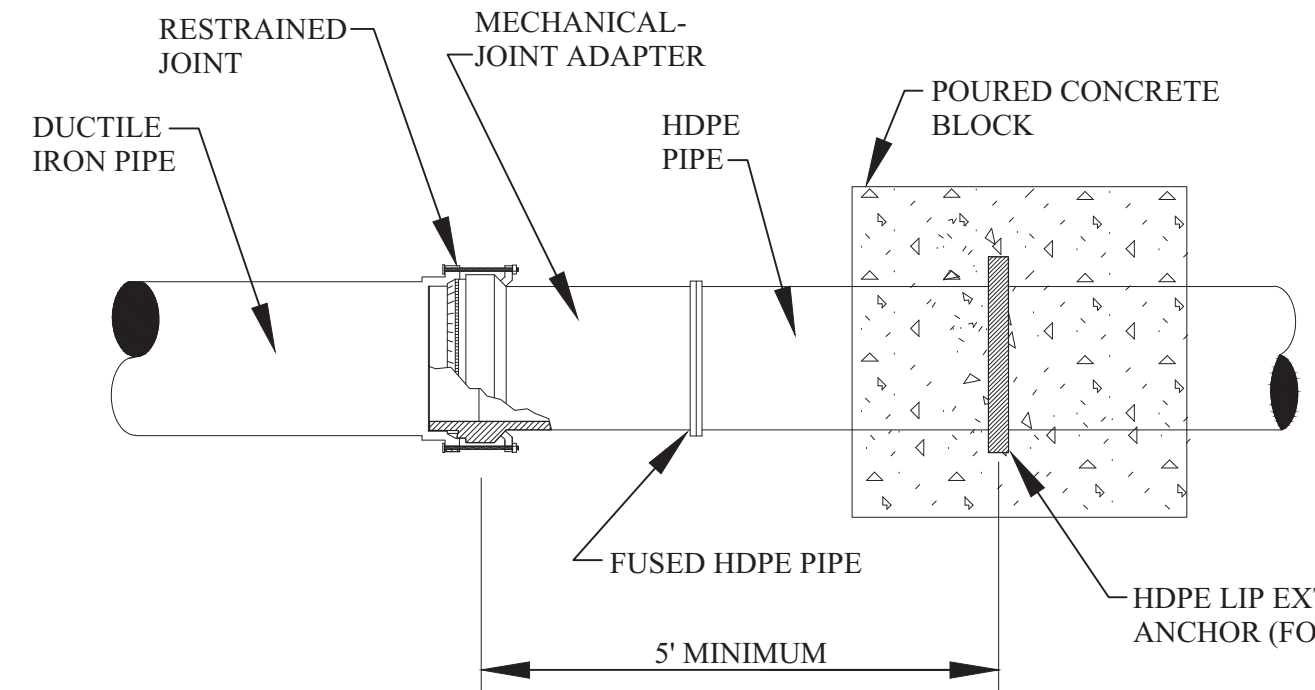
TYPICAL GATE VALVE CONNECTION TO HDPE



TAPPING SLEEVE VALVE WELL

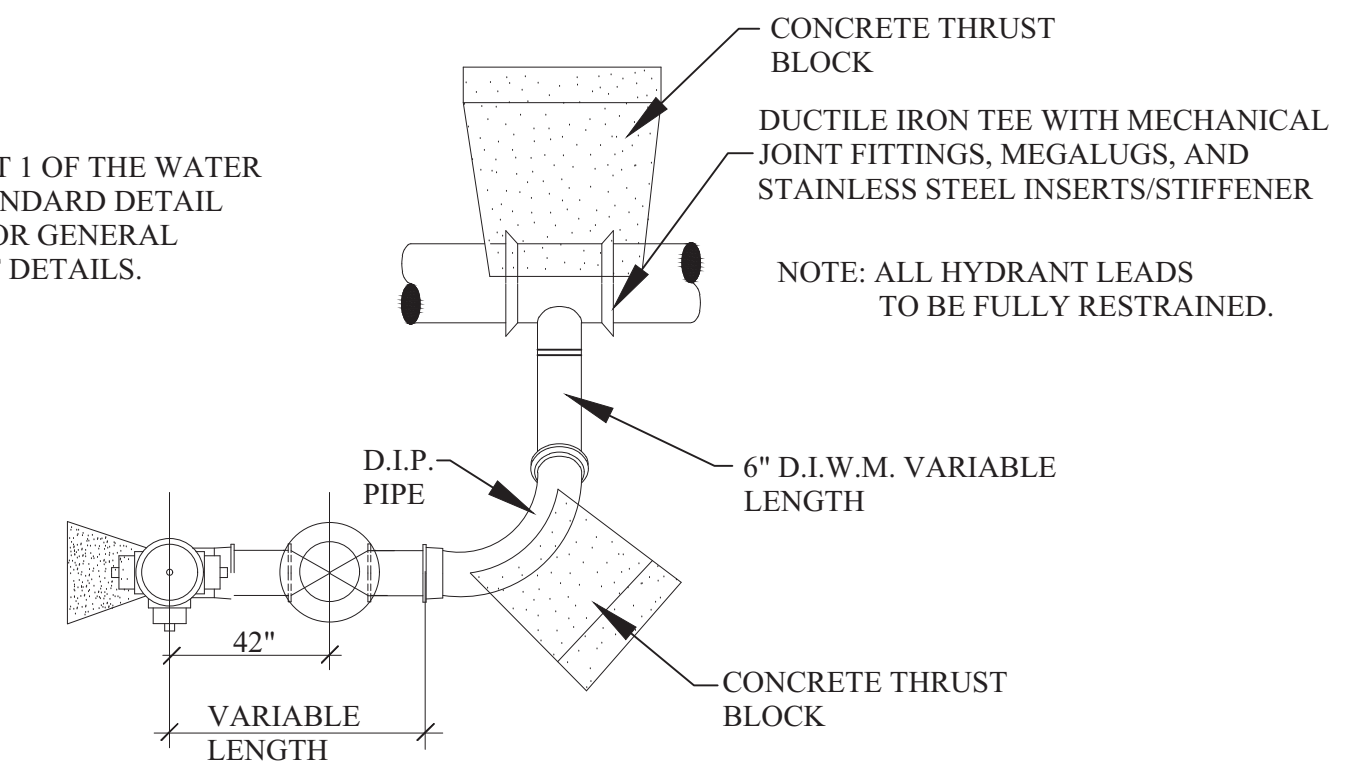


HOUSE LEAD DETAIL HDPE TO COPPER OR POLYETHYLENE (SDR 9)



MECHANICAL-JOINT ADAPTER

- NOTE: SEE SHEET 1 OF THE WATER MAIN STANDARD DETAIL SHEETS FOR GENERAL HYDRANT DETAILS.



PLAN HYDRANT SIDE OUTLET

- NOTE: ALL BURIED BOLTS SHALL BE CORTEN OR LOW ALLOY AND POLY-WRAPPED.

DETAILS FOR HIGH DENSITY POLYETHYLENE PIPE (HDPE)

REVISIONS	DATE	APPROVED BY	NOTIFY ROCHESTER HILLS ENGINEERING DIVISION @ 248-841-2510 48 HRS. PRIOR TO START OF CONSTRUCTION
		CITY COUNCIL, DATE: SEPTEMBER 23, 2019	
		PREPARED BY ENGINEERING DIVISION DEPARTMENT OF PUBLIC SERVICES	

City of Rochester Hills
1000 Rochester Hills Drive, Rochester Hills, Michigan 48309

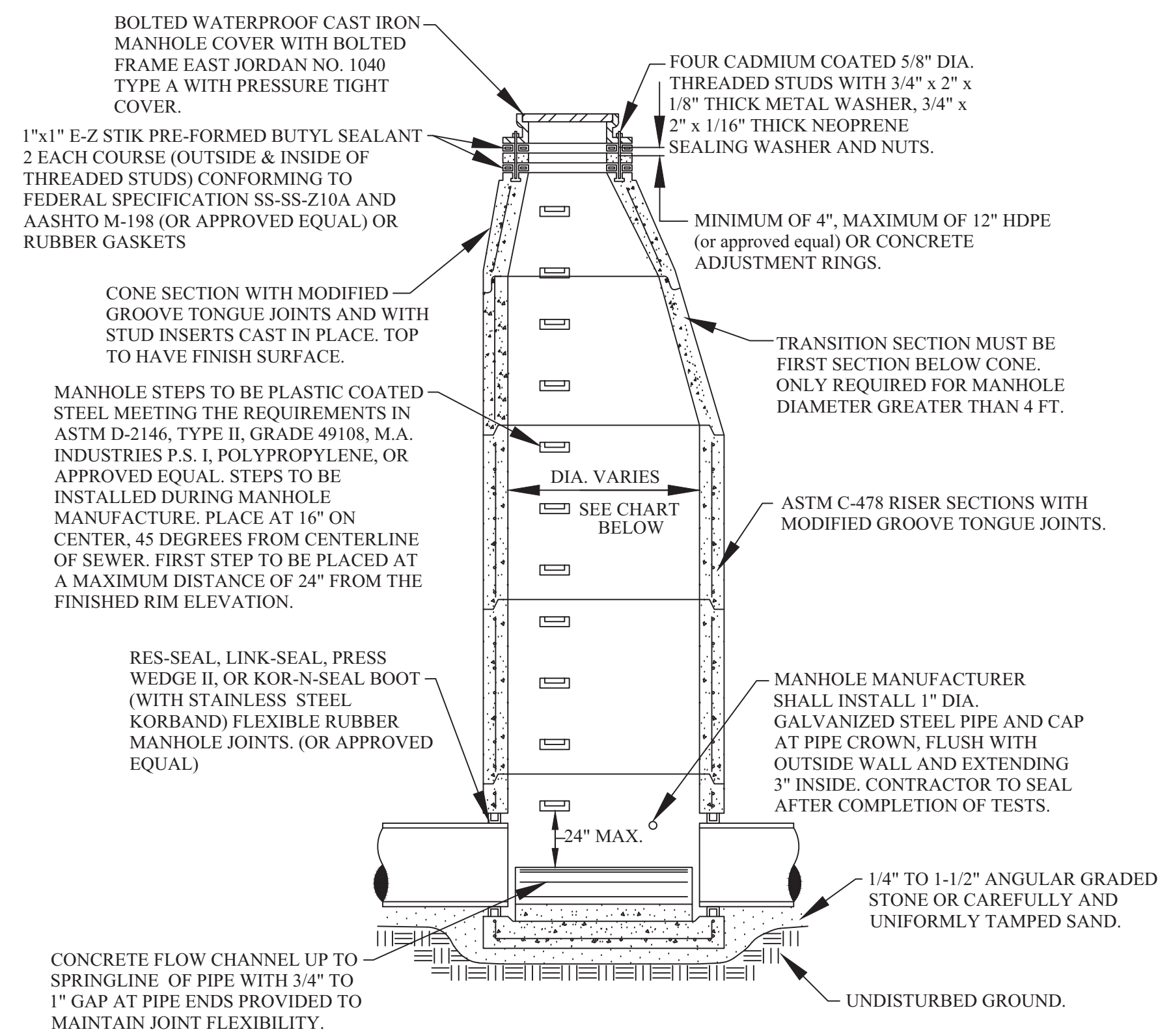
WATER MAIN SPECIAL DETAILS

NOT TO SCALE	DATE: 1/10/2019
SHEET 1 OF 1	



SANITARY SEWER CONSTRUCTION NOTES

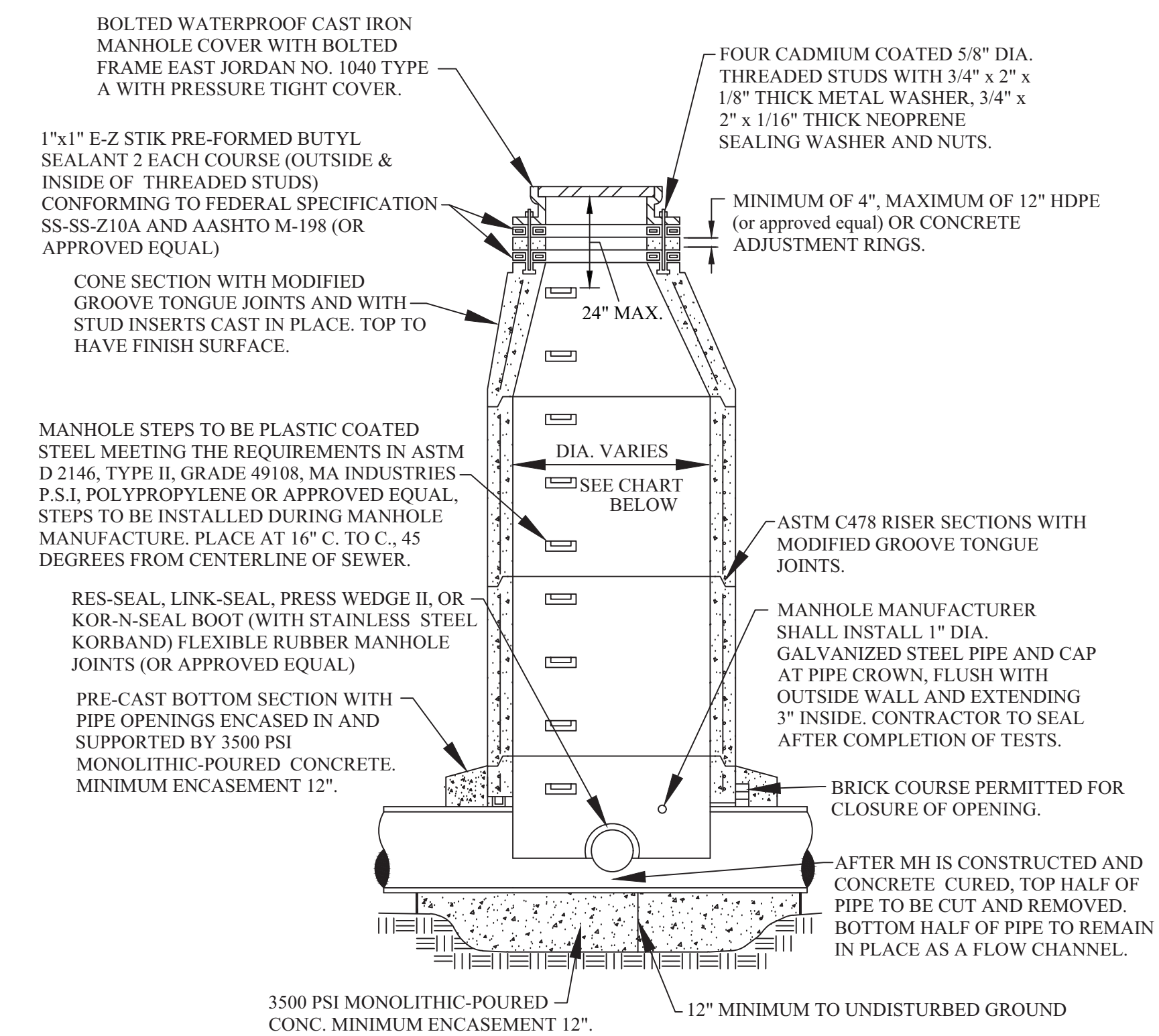
- ALL CONSTRUCTION SHALL CONFORM TO THE CURRENT STANDARDS AND SPECIFICATIONS OF THE CITY OF ROCHESTER HILLS AND THE OAKLAND COUNTY WATER RESOURCES COMMISSIONER (OCWRC). ALL SANITARY SEWER CONSTRUCTION SHALL HAVE FULL-TIME INSPECTION SUPERVISED BY THE CITY OF ROCHESTER HILLS INSPECTION SERVICES.
- NO SEWER INSTALLATION SHALL HAVE AN INFILTRATION EXCEEDING 100 GALLONS PER INCH DIAMETER PER MILE OF PIPE IN A 24 HOUR PERIOD, AND NO SINGLE RUN OF SEWER BETWEEN MANHOLES SHALL EXCEED 100 GALLONS PER INCH DIAMETER PER MILE. AIR TESTS IN LIEU OF INFILTRATION TESTS SHALL BE AS SPECIFIED IN THE OAKLAND COUNTY WATER RESOURCES COMMISSIONER STANDARDS. PRELIMINARY-AIR TESTS ARE WITNESSED BY THE CITY AND FINAL AIR TESTS ARE WITNESSED BY BOTH THE CITY AND THE OCWRC. ONLY PIPE AND PIPE JOINTS APPROVED BY THE CITY MAY BE USED FOR SANITARY SEWER CONSTRUCTION.
- LOCATED IN THE FIRST MANHOLE UPSTREAM FROM THE POINT OF ALL CONNECTIONS TO AN EXISTING SEWER, OR EXTENSION, A TEMPORARY 12-INCH DEEP SUMP SHALL BE PROVIDED IN THE FIRST MANHOLE ABOVE THE CONNECTION WHICH WILL BE FILLED IN AFTER SUCCESSFUL COMPLETION OF ANY ACCEPTANCE TEST UP TO THE STANDARD FILLET PROVIDED FOR THE FLOW CHANNEL. A WATERTIGHT BULKHEAD SHALL BE PROVIDED ON THE DOWNSTREAM SIDE OF THE SUMP MANHOLE.
- AT ALL TIMES WHEN LAYING OF NEW PIPE IS NOT ACTUALLY IN PROGRESS, THE UPSTREAM OPEN END OF THE PIPE SHALL BE CLOSED BY TEMPORARY WATERTIGHT PLUGS OR BY OTHER APPROVED MEANS. IF WATER IS IN THE TRENCH WHEN WORK IS RESUMED, THE PLUG SHALL NOT BE REMOVED UNTIL THE DANGER OF WATER ENTERING THE PIPE HAS PASSED. ALL MAIN LINE PIPE SHALL BE LAID WITH A PIPE LASER BEAM FOR LINE AND GRADE. A TARGET MUST BE INSTALLED AT THE END OF THE PIPE BEING LAID.
- SELF-LEVELING ACCESS ASSEMBLY STRUCTURES SHALL BE USED FOR ADJUSTING STRUCTURES WITHIN ASPHALT AND CONCRETE PAVEMENT.
- ALL SEWER PIPE SHALL BE INSTALLED IN CLASS "B" BEDDING OR BETTER.
- ALL NEW MANHOLES SHALL HAVE CITY APPROVED FLEXIBLE, WATERTIGHT SEALS WHERE PIPES PASS THROUGH WALLS. MANHOLES SHALL BE OF PRE CAST SECTIONS WITH MODIFIED GROOVE TONGUE AND BUTYL TYPE JOINTS. PRE CAST MANHOLE CONE SECTIONS SHALL BE CITY APPROVED MODIFIED ECCENTRIC CONE TYPE. ALL MANHOLES SHALL BE PROVIDED WITH BOLTED, WATERTIGHT COVERS.
- AT ALL CONNECTIONS TO MANHOLES IN ALL SEWERS, OR EXTENSIONS, DROP CONNECTIONS WILL BE REQUIRED WHEN THE DIFFERENCE IN INVERT ELEVATIONS EXCEEDS 18 INCHES.
- GROUND WATER, STORM WATER, CONSTRUCTION WATER, DOWN SPOUT DRAINAGE OR WEEP TILE DRAINAGE SHALL NOT BE ALLOWED TO ENTER ANY SANITARY SEWER INSTALLATION.
- PRIOR TO ANY EXCAVATION, THE CONTRACTOR SHALL CONTACT MISS DIG THREE (3) DAYS IN ADVANCE (811) FOR THE LOCATION OF UNDERGROUND PIPELINE AND CABLE FACILITIES AND SHALL ALSO NOTIFY REPRESENTATIVES OF OTHER UTILITIES LOCATED IN THE VICINITY OF THE WORK.
- AN 18 INCH MINIMUM VERTICAL SEPARATION AND A 10 FOOT MINIMUM HORIZONTAL SEPARATION MUST BE MAINTAINED BETWEEN SANITARY SEWER AND ALL OTHER UTILITIES.
- AS A MEANS OF INSURING PROPER INSTALLATION OF THE SANITARY SEWER PIPE, THE CONTRACTOR SHALL VIDEO INSPECT, ACCORDING TO THE CITY OF ROCHESTER HILLS VIDEO INSPECTION STANDARDS, 100% OF THE SANITARY SEWER PIPE. THE CONTRACTOR SHALL PROVIDE 24 HOURS NOTICE TO THE CITY OF ROCHESTER HILLS PRIOR TO VIDEO INSPECTION, SO A REPRESENTATIVE MAY BE PRESENT. ROCHESTER HILLS WILL BE PROVIDED WITH A DIGITAL COPY OF THE VIDEO INSPECTION AND LOG IN ACCORDANCE WITH THE CITY OF ROCHESTER HILLS INSPECTION STANDARDS.



STANDARD MANHOLE

MANHOLE SIZING CHART

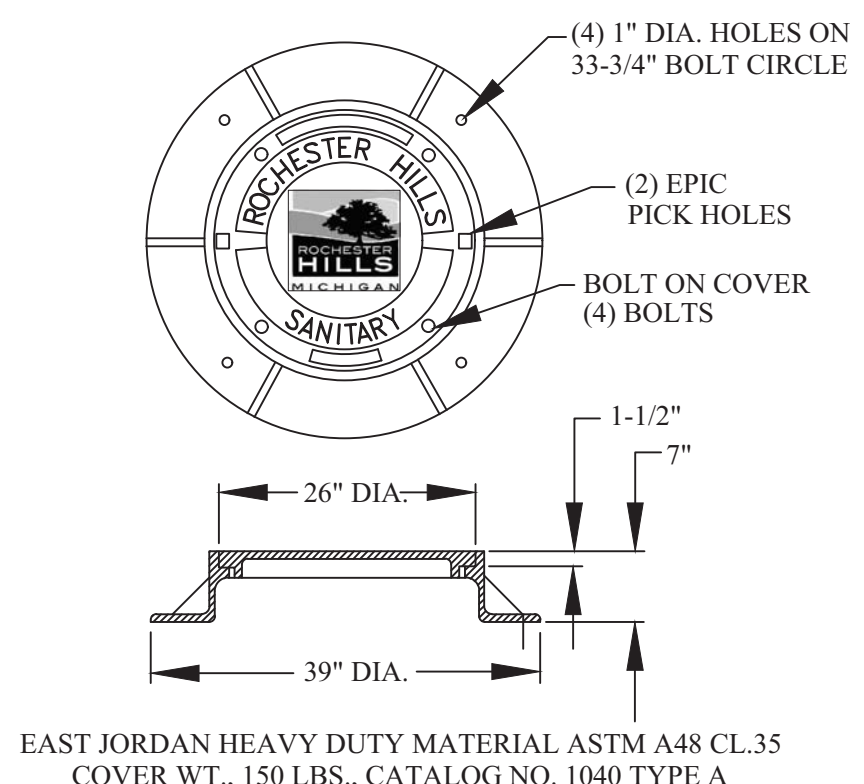
MANHOLE DIAMETER	MAX. PIPE SIZE FOR STRAIGHT THRU INST.	MAX. PIPE SIZE FOR RIGHT ANGLE INST.
4'	24"	18"
5'	36"	24"
6'	42"	36"
7'	60"	42"



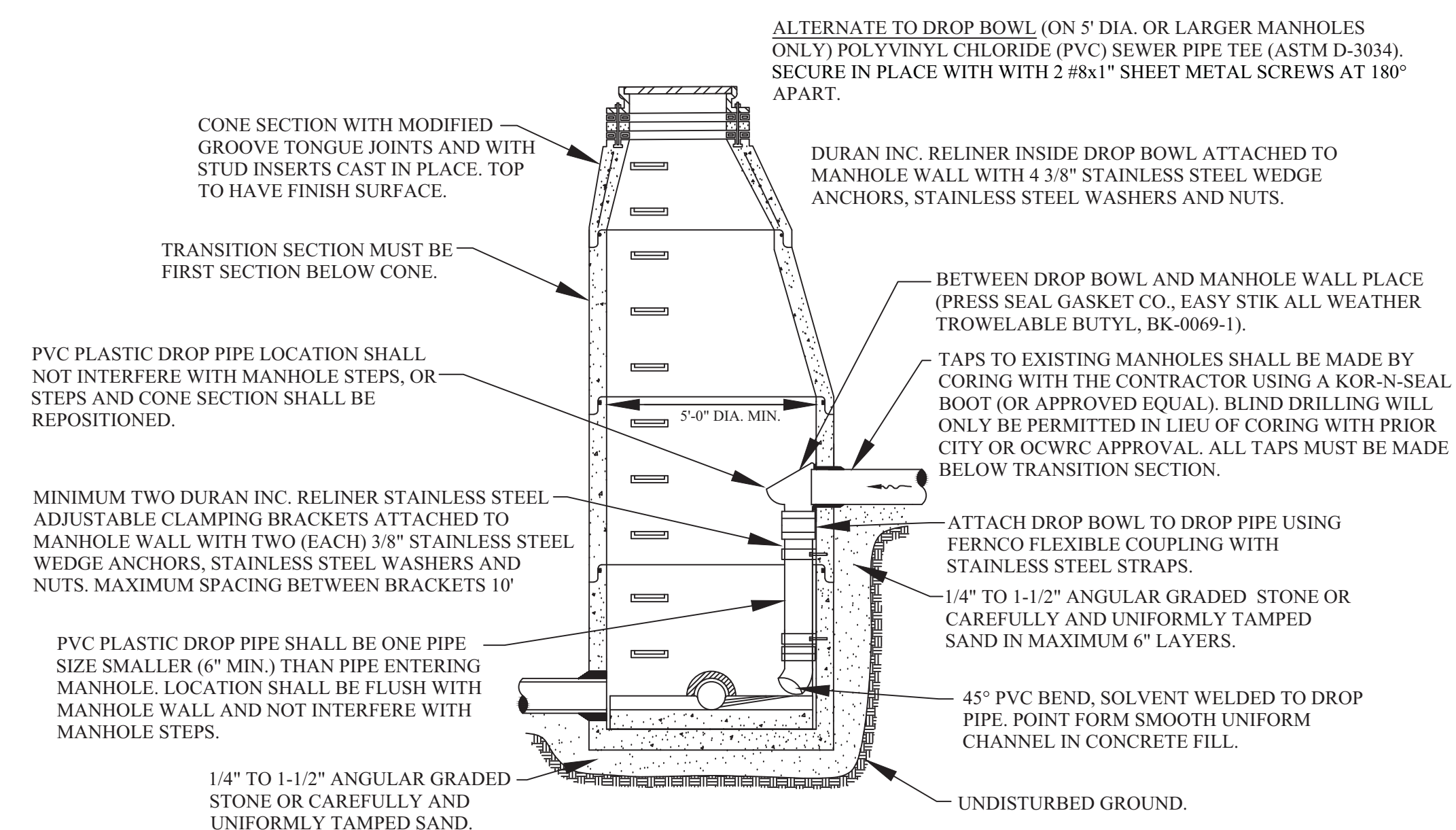
MANHOLE CONSTRUCTED OVER EXISTING SEWER

MANHOLE SIZING CHART

MANHOLE DIAMETER	MAX. PIPE SIZE FOR STRAIGHT THRU INST.
4'	24"
5'	36"
6'	42"
7'	60"



ROCHESTER HILLS MANHOLE COVER



INTERIOR DROP CONNECTION

NOTE: INTERIOR DROP CONNECTION PERMITTED ONLY WHEN APPROVED BY CITY ENGINEER.

SANITARY SEWER MATERIALS

- THE FOLLOWING MATERIALS MAY BE USED FOR PUBLIC SANITARY SEWER CONSTRUCTION, APPROVED PIPE MATERIALS MUST CONFORM TO STANDARDS ADOPTED BY THE OFFICE OF THE OAKLAND COUNTY WATER RESOURCES COMMISSIONER:
 - FOR SEWERS 8" TO 15" TO BE PVC TRUSS PIPE, ASTM D-2680, WITH GASKET JOINTS, OTHER TYPES OF PIPE AS APPROVED BY CITY ENGINEER.
 - FOR 6" SEWER LEADS SHALL BE SOLID WALLED PVC, SDR 23.5, ASTM D-3034 OR PVC SCHEDULE 40 SOLID WALLED, ASTM D-2665. PIPE SHALL HAVE A MINIMUM PIPE STIFFNESS OF 150 P.S.I., AND A MINIMUM DEFLECTION OF 15% AT FAILURE. THE SEWER LEAD MATERIAL SHALL BE COMPATIBLE WITH SEWER MAIN MATERIAL.
 - FOR SEWERS GREATER THAN 15" TO BE REINFORCED CONCRETE PIPE (RCP) SHALL CONFORM TO THE CURRENT ASTM D C76 WALL B. JOINTS SHALL BE SYNTHETIC RUBBER AND MEET OR EXCEED THE REQUIREMENTS ESTABLISHED BY ASTM 361.



REVISIONS	DATE	APPROVED BY	NOTIFY ROCHESTER HILLS ENGINEERING DIVISION @ 248-841-2510 48 HRS. PRIOR TO START OF CONSTRUCTION

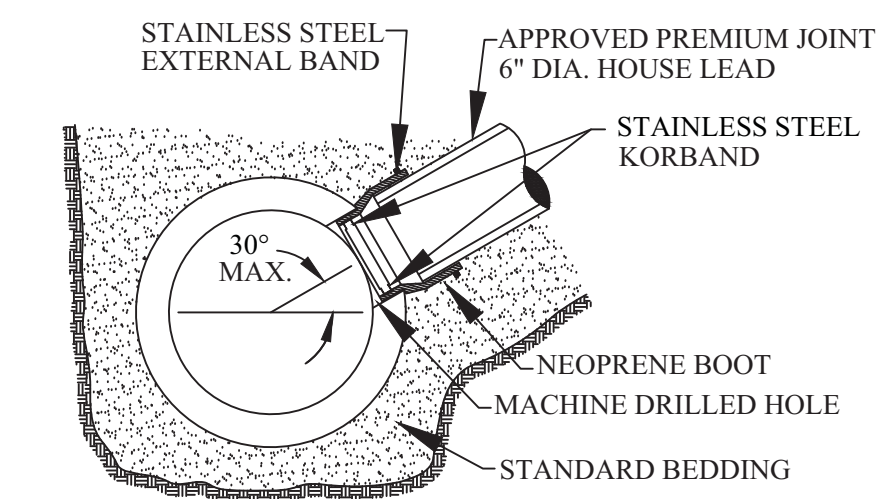
City of Rochester Hills
 1000 Rochester Hills Drive, Rochester Hills, Michigan 48309

SANITARY SEWER STANDARD DETAILS

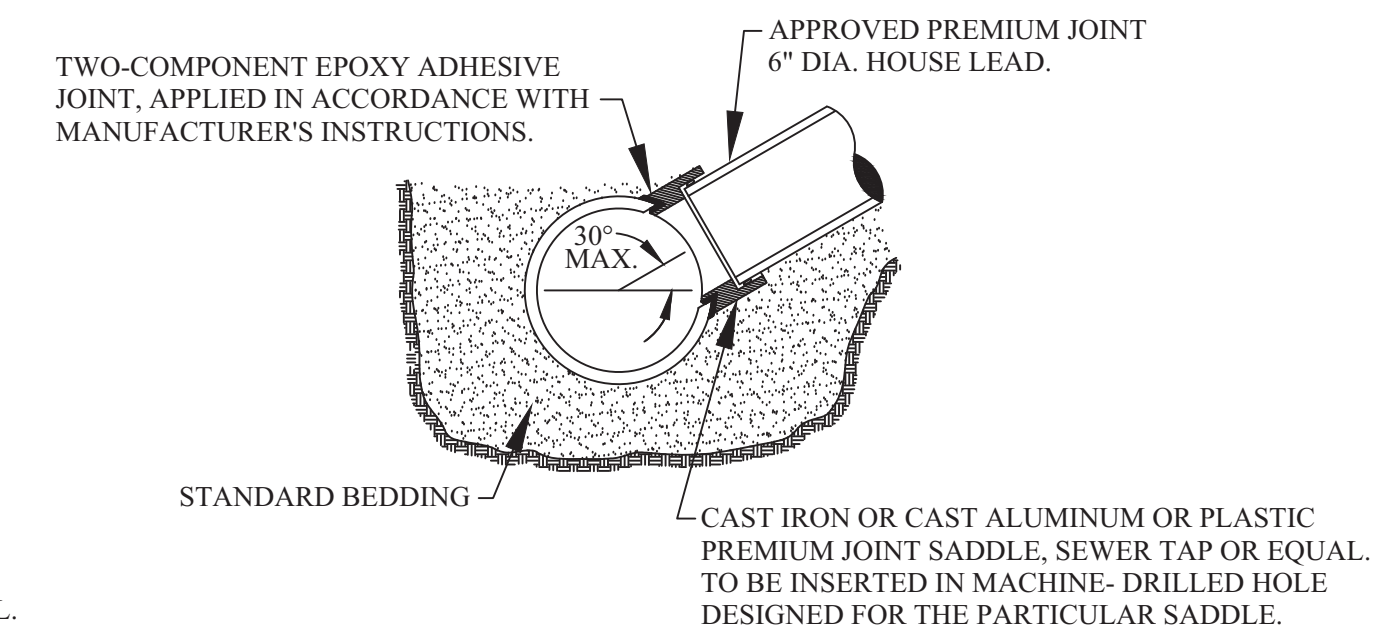
NOT TO SCALE	DATE: 1/10/2019
SHEET 1 OF 2	

CITY OF ROCHESTER HILLS GRAVITY BUILDING LEAD REQUIREMENTS AND DETAILS

- ALL BUILDING LEAD WORK MUST BE PERFORMED UNDER THE CITY OF ROCHESTER HILLS INSPECTION.
- FOR ALL CITY OF ROCHESTER HILLS SYSTEMS CALL 248-841-2510 48-HOURS PRIOR TO SCHEDULING INSPECTION.
FOR ALL OCWRC-OPERATED SYSTEMS, CALL 248-858-1110 48-HOURS IN ADVANCE PRIOR TO SCHEDULING INSPECTION.
- SANITARY SEWER MAY NOT BE USED AS A DE-WATERING OUTLET.
- WHERE AN EXISTING BUILDING LEAD IS BEING EXTENDED, DISSIMILAR TYPES AND SIZES OF PIPE SHALL BE JOINED USING A CITY OF ROCHESTER HILLS APPROVED ADAPTER.
- APPROVED BUILDING LEAD PIPE FOR GRAVITY SEWER LEADS:
 - PVC PLASTIC, ASTM D3034, SDR 23.5
 - SOLID WALL PVC SCHEDULE 40, ASTM D-2665
 - ANY DEVIATIONS FROM ABOVE SPECIFICATIONS REQUIRES APPROVAL BY CITY ENGINEER.
- ALLOWABLE TYPES OF SEWER PIPE ADAPTERS: FERNCO STRONGBACK COUPLING OR APPROVED EQUAL.
- FOR 6" LEADS A CLEANOUT MUST BE INSTALLED EVERY 100 FT. FOR 4" LEADS A CLEANOUT MUST BE INSTALLED EVERY 50 FT. 90° BENDS NOT ALLOWED EXCEPT FROM THE HORIZONTAL TO THE VERTICAL WITHIN 5 FEET OF THE BUILDING.

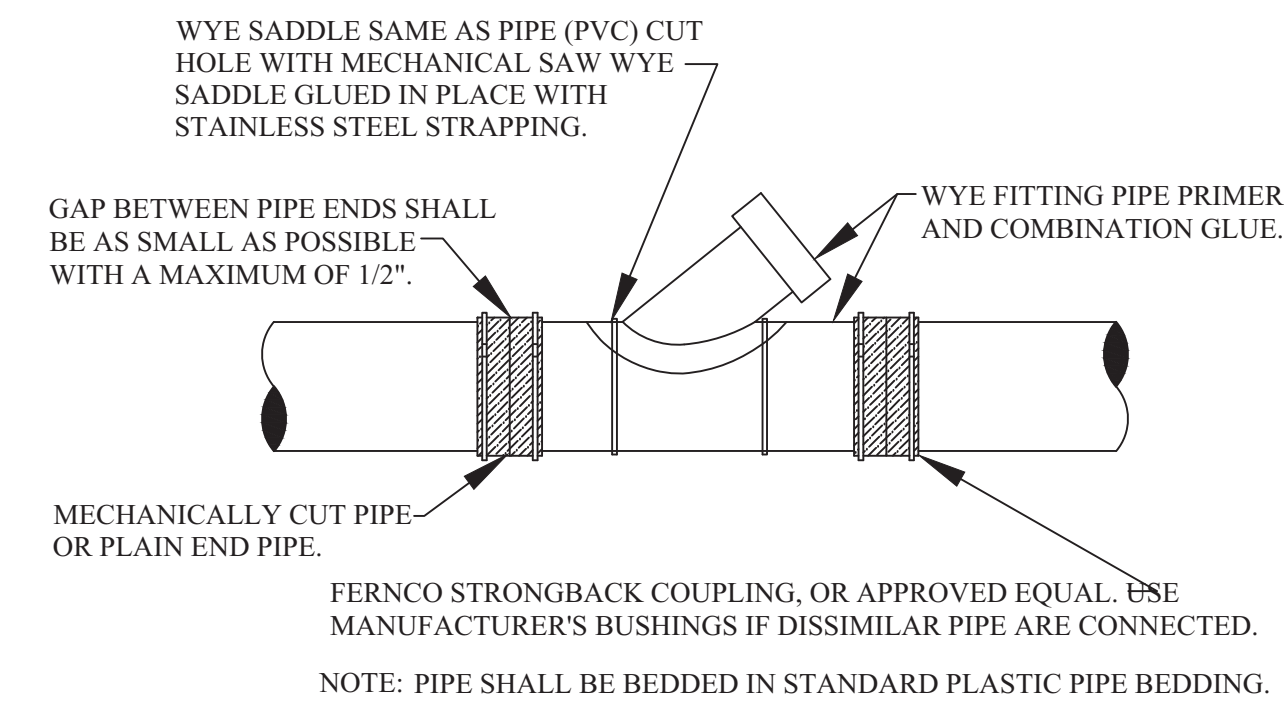


KOR-N-TEE TAP FOR CONCRETE PIPE



NOTE: SURFACE OF MAIN SEWER SHALL BE CLEANED WITH AN ABRASIVE GRINDER PRIOR TO EPOXY APPLICATION. DUE TO VARIATION OF SET-UP TIME OF EPOXY ADHESIVE WITH TEMPERATURE, ANCHOR STRAPS SHALL BE USED TO SECURE SADDLE IN POSITION IN COLD WEATHER OR WHENEVER WORK IS TO PROCEED PRIOR TO COMPLETE CURE OF EPOXY.

SEWER TAP-OVER 12" MAIN SEWER PIPES VITRIFIED CLAY



WYE SADDLE OR WYE PIPE INSERTION WITH FLEXIBLE COUPLINGS (RIGID PIPE)

IN AREAS WHERE SANITARY SEWER SYSTEMS ARE OPERATED AND MAINTAINED BY THE CITY OF ROCHESTER HILLS DEPARTMENT OF PUBLIC SERVICES, PRELIMINARY ACCEPTANCE OF THE SANITARY SEWER SYSTEM MUST BE RENDERED BY THE DEPARTMENT OF PUBLIC SERVICES, BEFORE THE SYSTEM CAN BE USED FOR THE SERVICE INTENDED.

ONE ITEM REQUIRED FOR PRELIMINARY ACCEPTANCE SHALL BE THE SUBMISSION OF AS-BUILT DRAWINGS TO THE CITY OF ROCHESTER HILLS ENGINEERING DIVISION, BY THE DESIGN ENGINEER. AS-BUILT DRAWINGS SHALL BE DEFINED AS AND CONTAIN THE FOLLOWING INFORMATION:

- FINAL AS-BUILT DRAWINGS SHALL BE PROVIDED IN REPRODUCIBLE PDF FORMAT VIA DIGITAL STORAGE MEDIA. XEROX OR ANY HEAT PROCESS REPRODUCTIONS WILL NOT BE ACCEPTED.
- ALONG WITH THE PDF PLAN SET PROVIDE TWO (2) SETS OF BLACK-LINED DRAWINGS AND THE PLANS ON ELECTRONIC MEDIA IN AUTOCAD FORMAT (LATEST VERSION).
- THE COVER SHEET SHALL BE SEALED BY THE PROJECT DESIGN ENGINEER, ALONG WITH THE FOLLOWING CERTIFICATION STATEMENT.

I HEREBY CERTIFY THAT OUR FIRM HAS PREPARED THESE AS-BUILT DRAWINGS OF THE IMPROVEMENTS AS CONSTRUCTED, AND THAT TO THE BEST OF MY KNOWLEDGE THOSE IMPROVEMENTS NOTED AS "AS BUILT" WERE CONSTRUCTED IN SUBSTANTIAL CONFORMANCE WITH THE APPROVED CONSTRUCTION PLANS; AND ALSO THAT THE SANITARY SEWER AND STRUCTURES, AS CONSTRUCTED, LIE WITHIN THE EASEMENT DESCRIPTIONS REQUIRED BY THE CITY OF ROCHESTER HILLS.

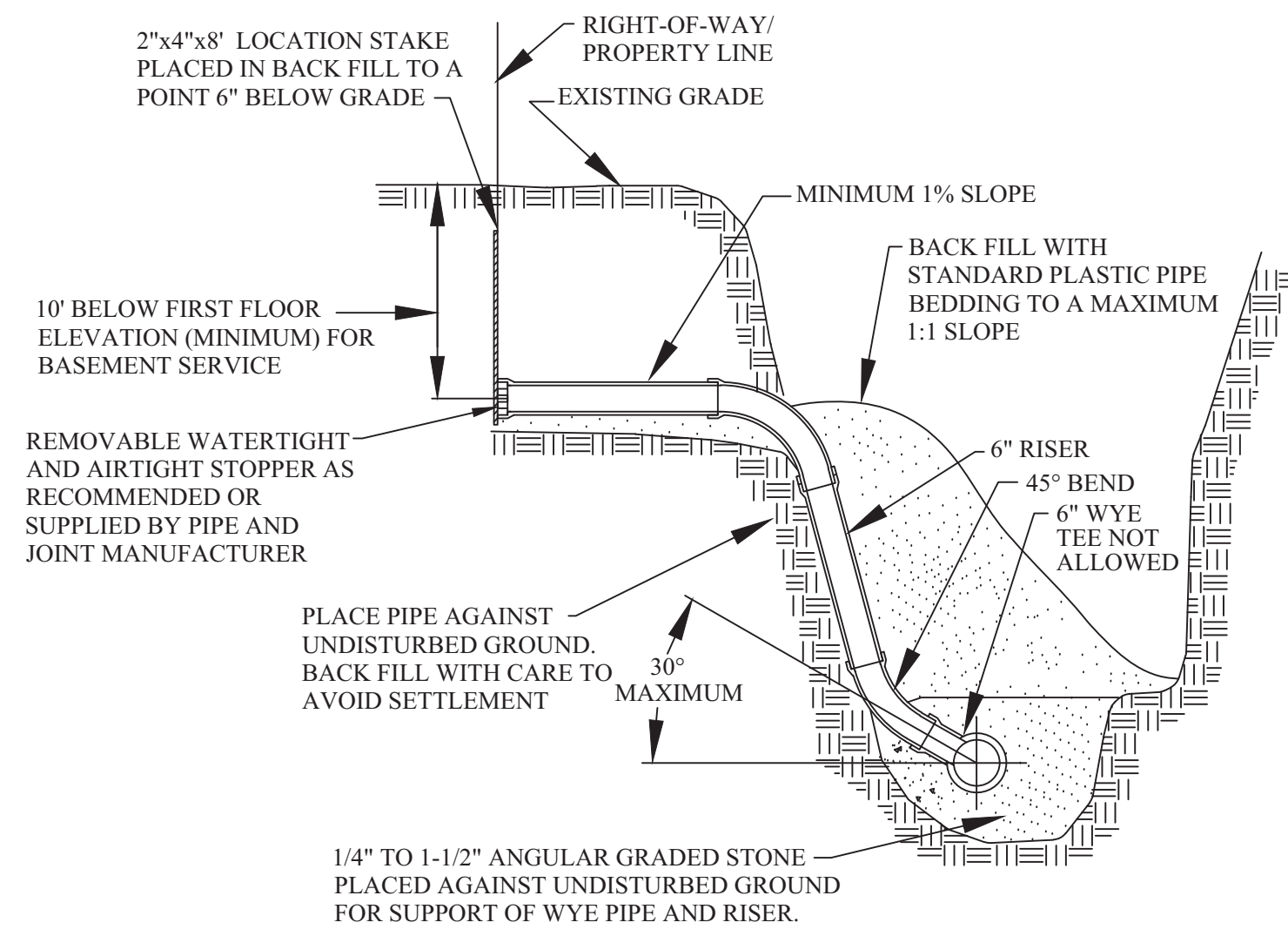
(COMPANY NAME)

(ENGINEER'S SIGNATURE)

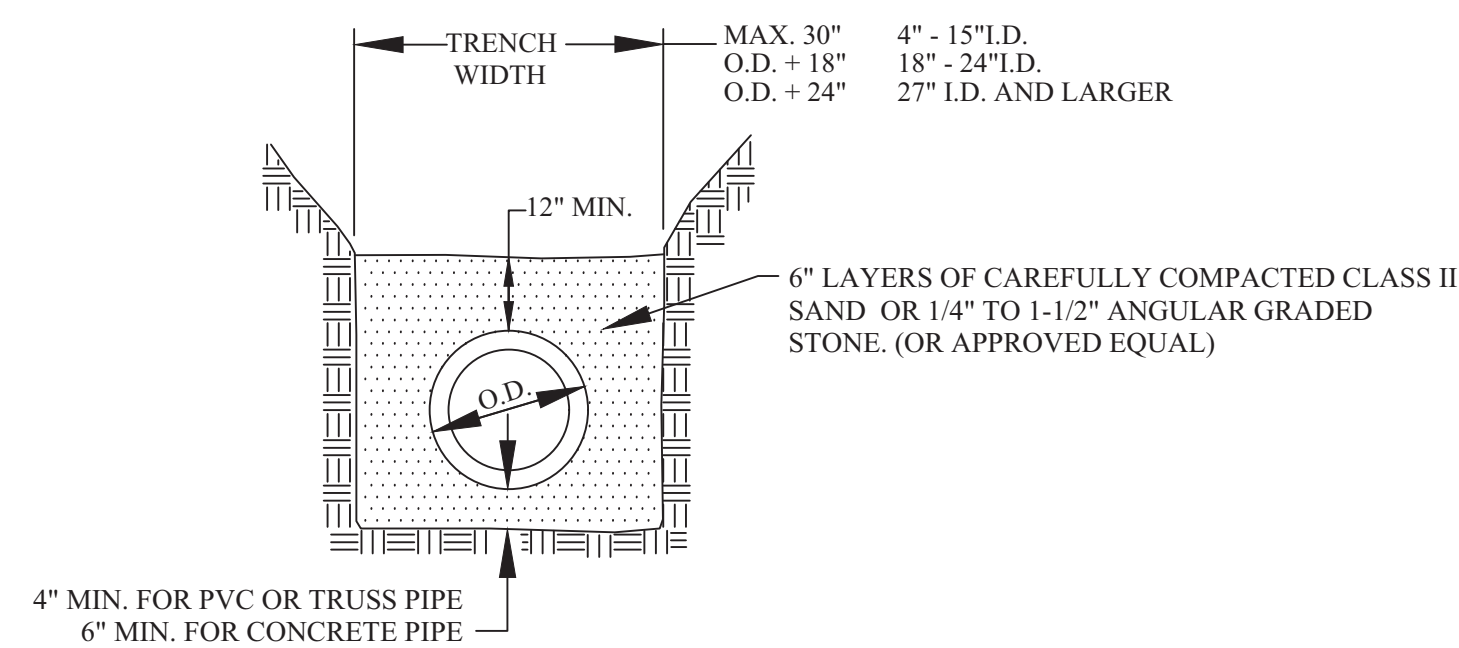
PROFESSIONAL ENGINEER NO. _____

ENGINEER SEAL

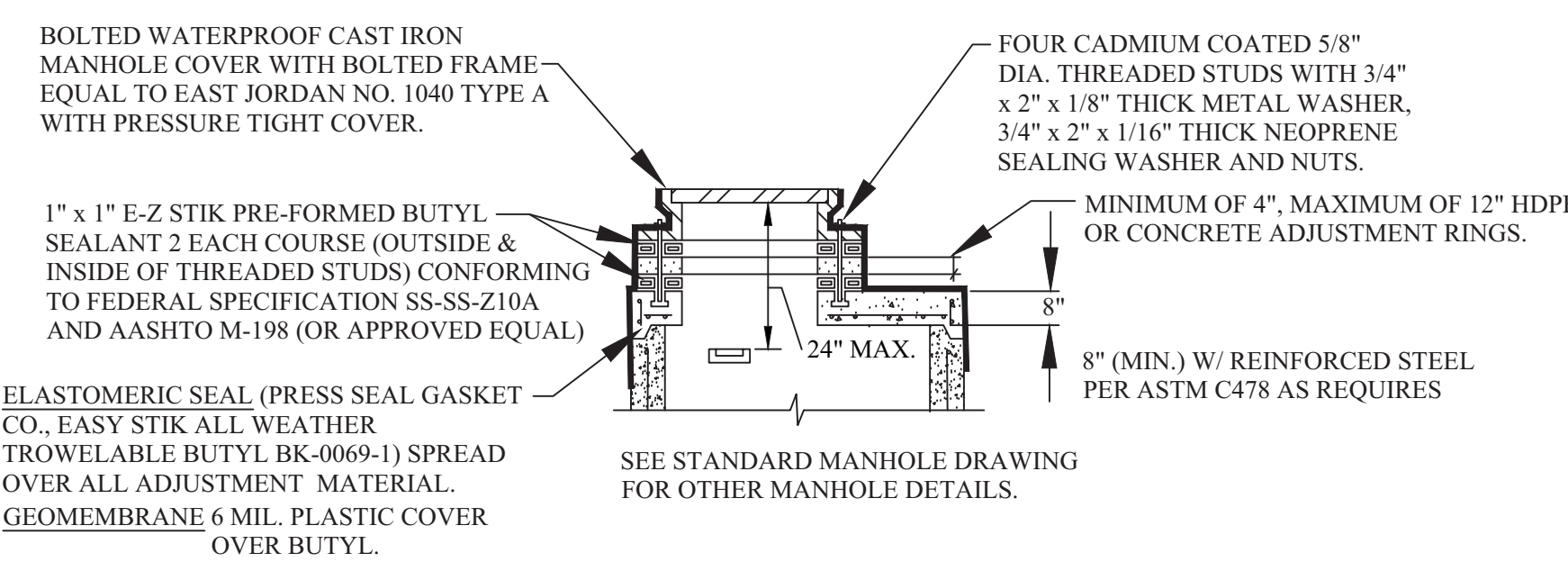
- THE MAXIMUM SCALE SHALL BE ONE (1) INCH EQUALS FIFTY (50) FEET.
- THE SIZE, LENGTH, CLASS AND MANUFACTURER OF PIPE INSTALLED SHALL BE INDICATED.
- THE SIZE, MANUFACTURER AND MODEL NUMBERS OF ALL VALVES AND PUMPS INSTALLED SHALL BE INDICATED.
- A TOTAL AS-BUILT DRAWING QUANTITY LIST SHALL BE INCLUDED.
- THE LOCATIONS SHALL BE SHOWN ON THE PLANS WITH AN ACCURACY OF ONE (1) FOOT.
- THE OFFSET OF THE SANITARY MAIN FROM PROPERTY LINES SHALL BE INDICATED.
- ALL MANHOLES, VALVE WELLS, PUMPS AND ALL SANITARY SYSTEM APPURTENANCES SHALL BE LOCATED FROM TWO FIXED OBJECTS (MANHOLES, BUILDING CORNERS ETC.).
- ALL UNDERGROUND APPURTENANCES, SUCH AS TFC/ARV WELLS, METER PITS, GRINDER PUMPS AND PUMP STATION PITS, ETC. SHALL BE LOCATED FROM THE NEAREST MANHOLE THAT IS CONNECTED TO THE SAME SANITARY MAIN AS THE APPURTENANCE.
- THE ACCURATE LOCATION OF ALL UTILITY CROSSINGS WHERE THE VERTICAL SEPARATION IS LESS THAN 18" SHALL BE NOTED.
- AS-BUILTS SHALL BE PREPARED IN ACCORDANCE WITH CITY OF ROCHESTER HILLS AS-BUILT GUIDELINES AS PROVIDED AT THE PRE-CONSTRUCTION MEETING.



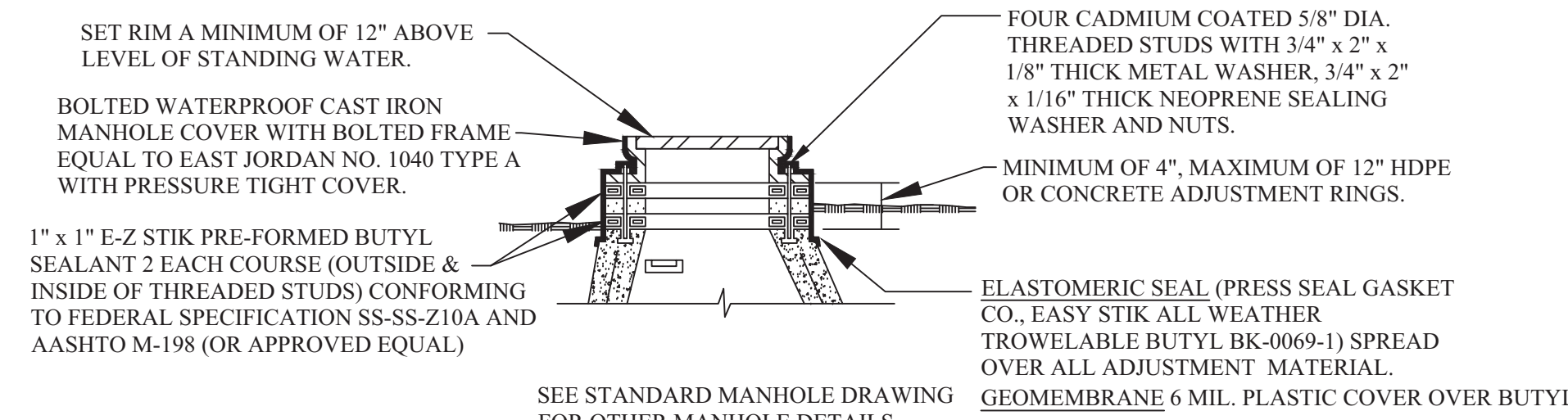
HOUSE LEAD DETAIL



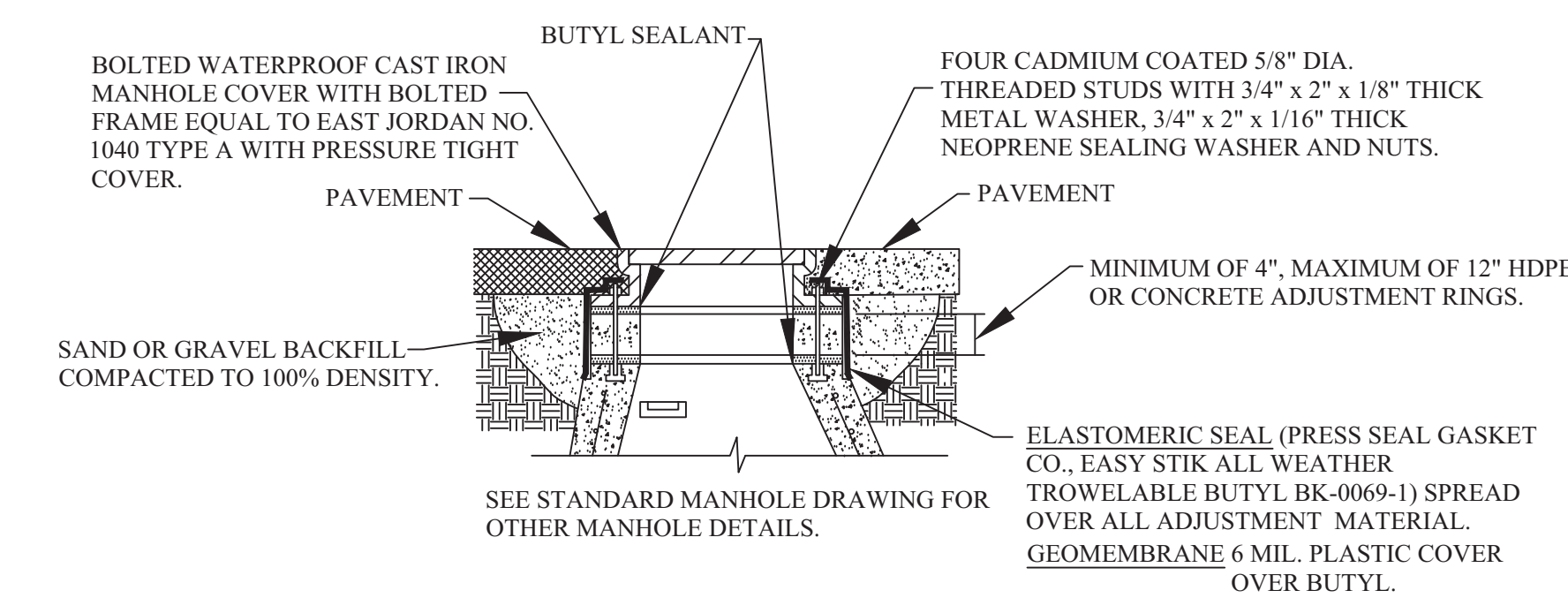
STANDARD BEDDING (CLASS B)



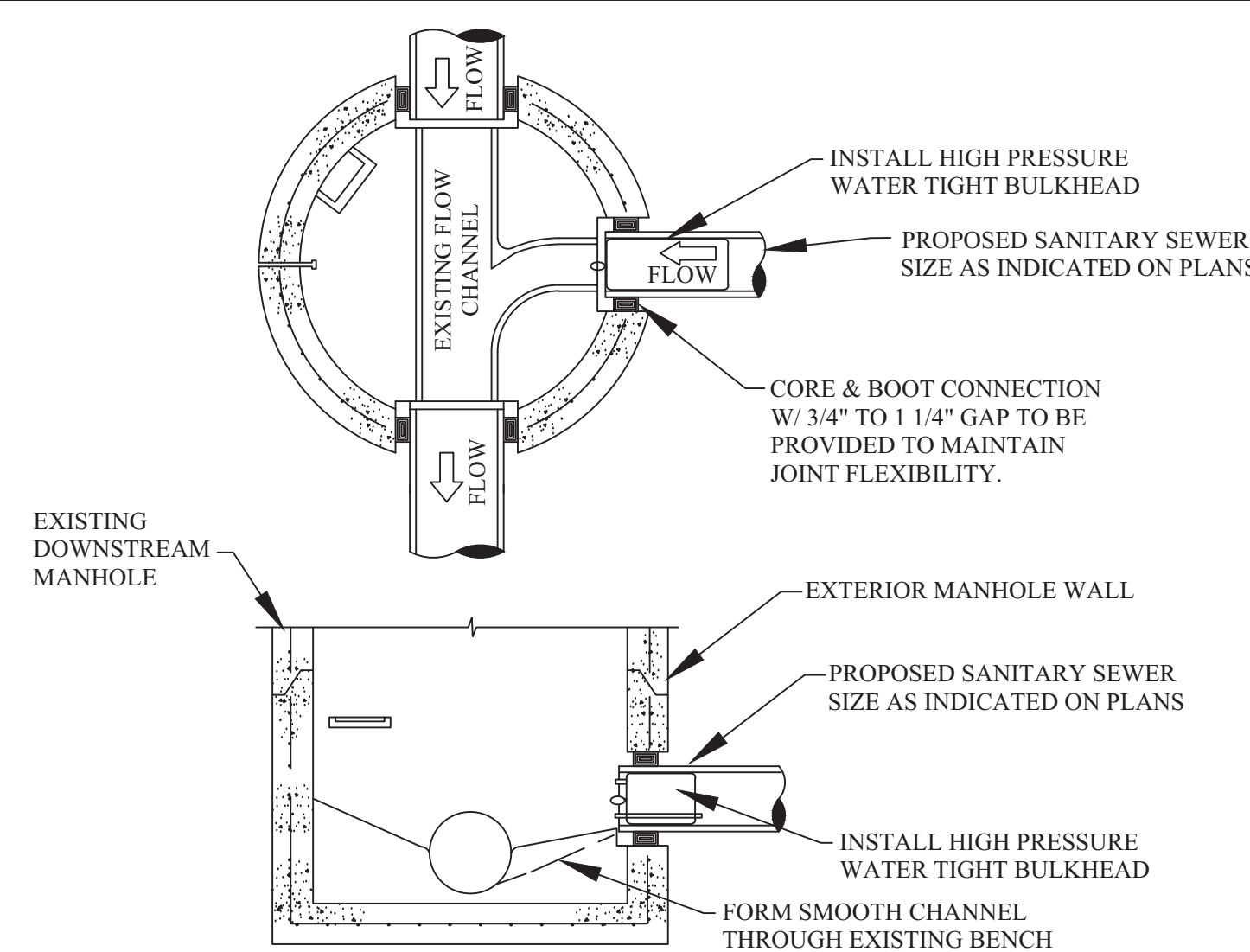
FLAT TOP MANHOLE



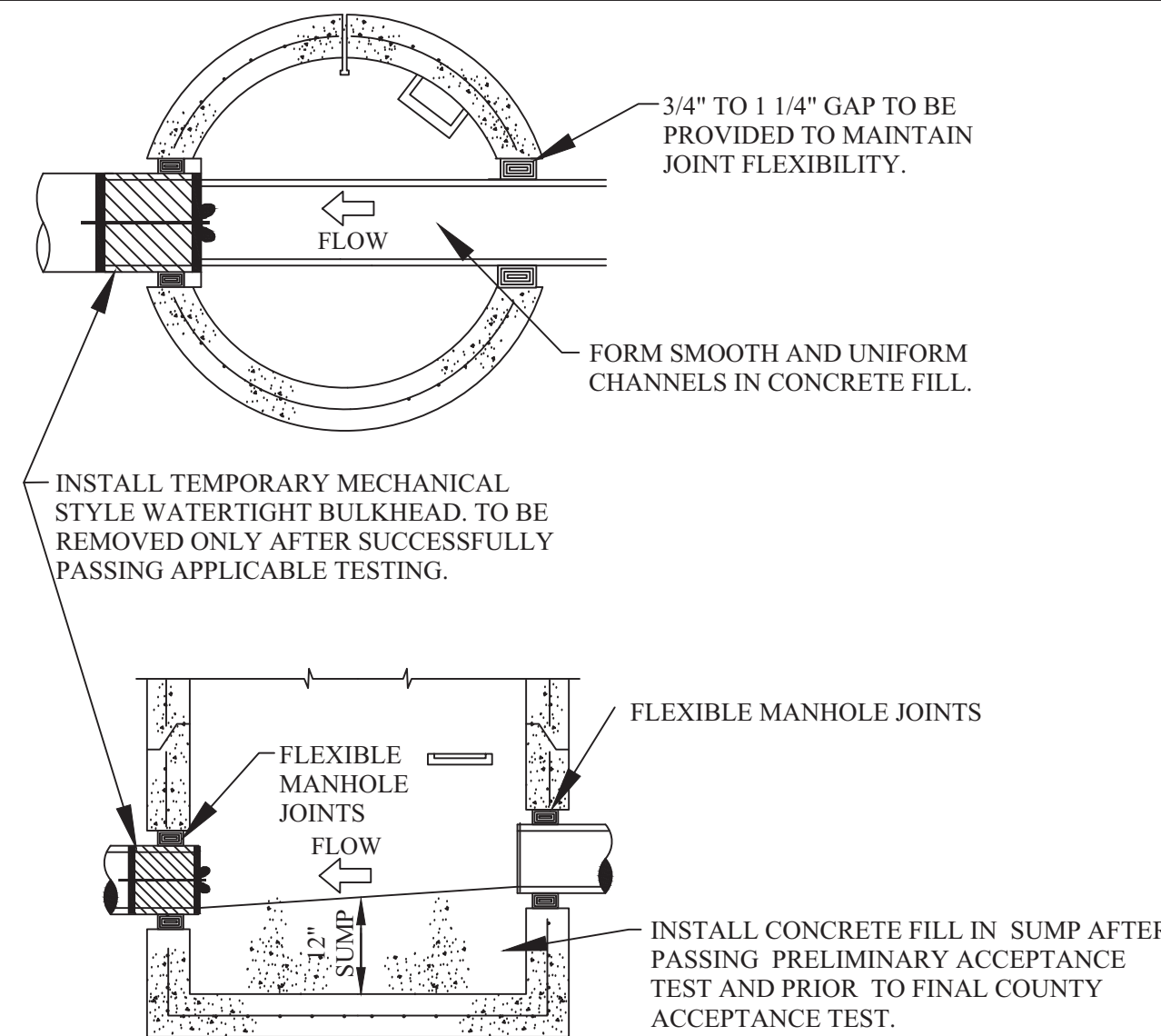
ADJUSTMENT DETAIL FOR MANHOLE TOPS WITHIN FLOOD PRONE AREAS



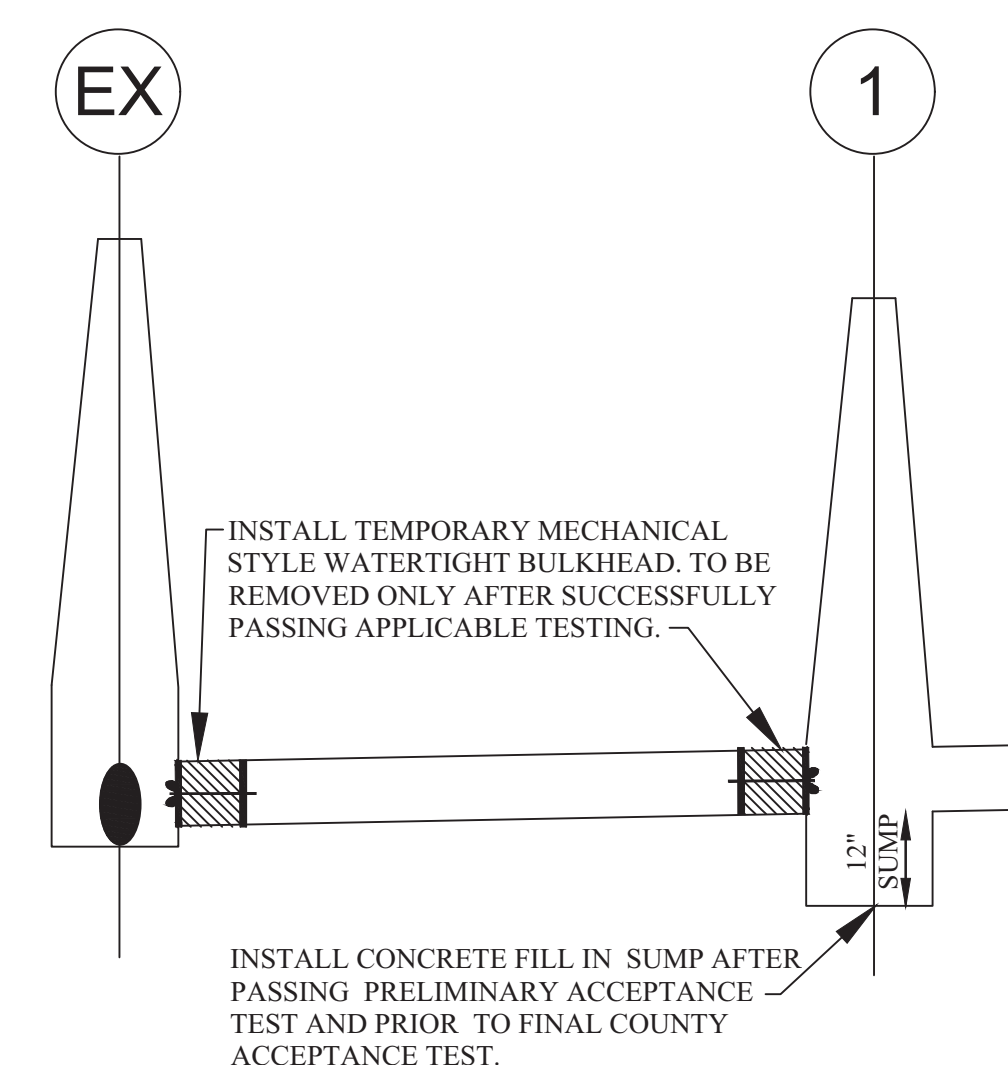
ADJUSTMENT DETAIL MANHOLE TOPS WITHIN PAVEMENT AREAS



TESTING BULKHEAD IN EXISTING MANHOLE



FIRST MANHOLE UPSTREAM FROM SANITARY TAP



PROFILE OF BULKHEADS AND ONE FOOT SUMP

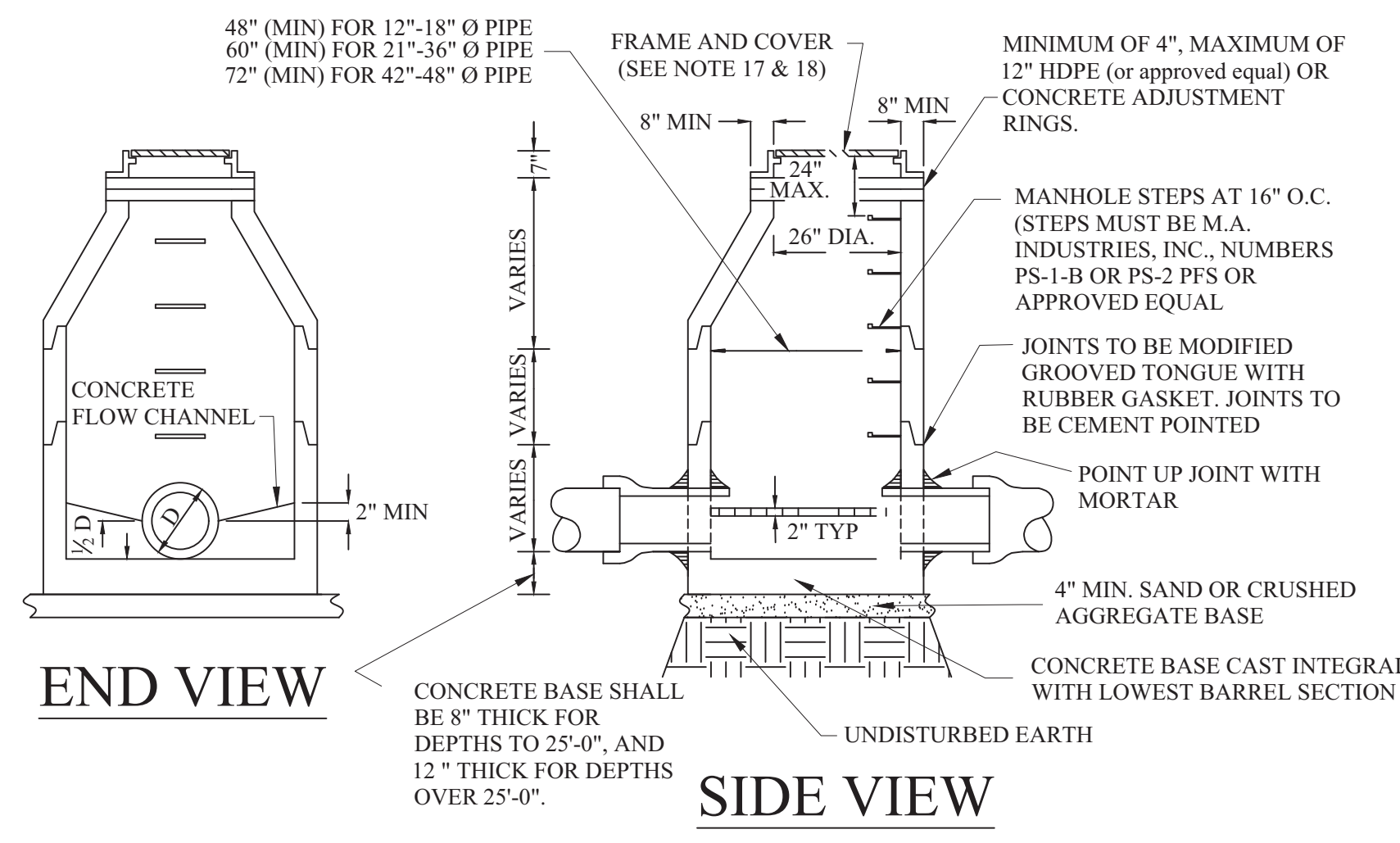
REVISIONS	DATE	APPROVED BY CITY COUNCIL, DATE: _____

NOTIFY ROCHESTER HILLS
ENGINEERING DIVISION @
248-841-2510 48 HRS. PRIOR
TO START OF
CONSTRUCTION

City of Rochester Hills
1000 Rochester Hills Drive, Rochester Hills, Michigan 48309

**SANITARY SEWER
STANDARD DETAILS**

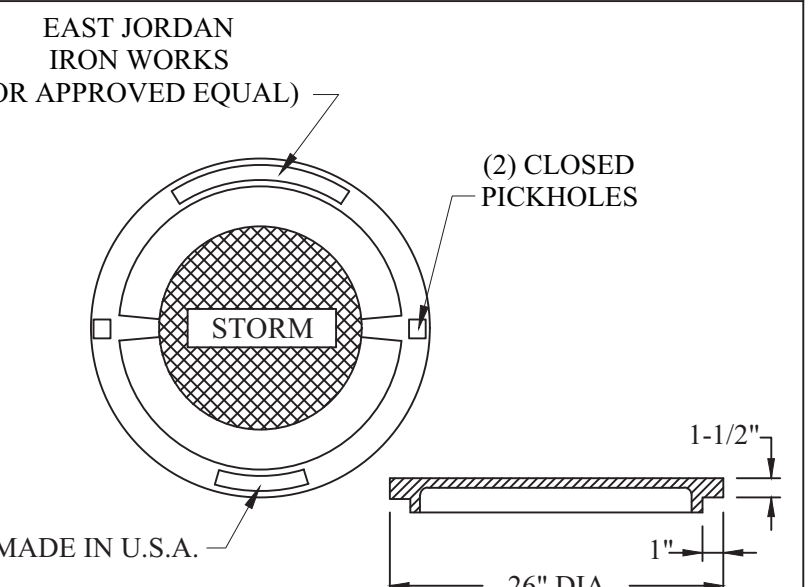
NOT TO SCALE DATE: 1/10/2019
SHEET 2 OF 2



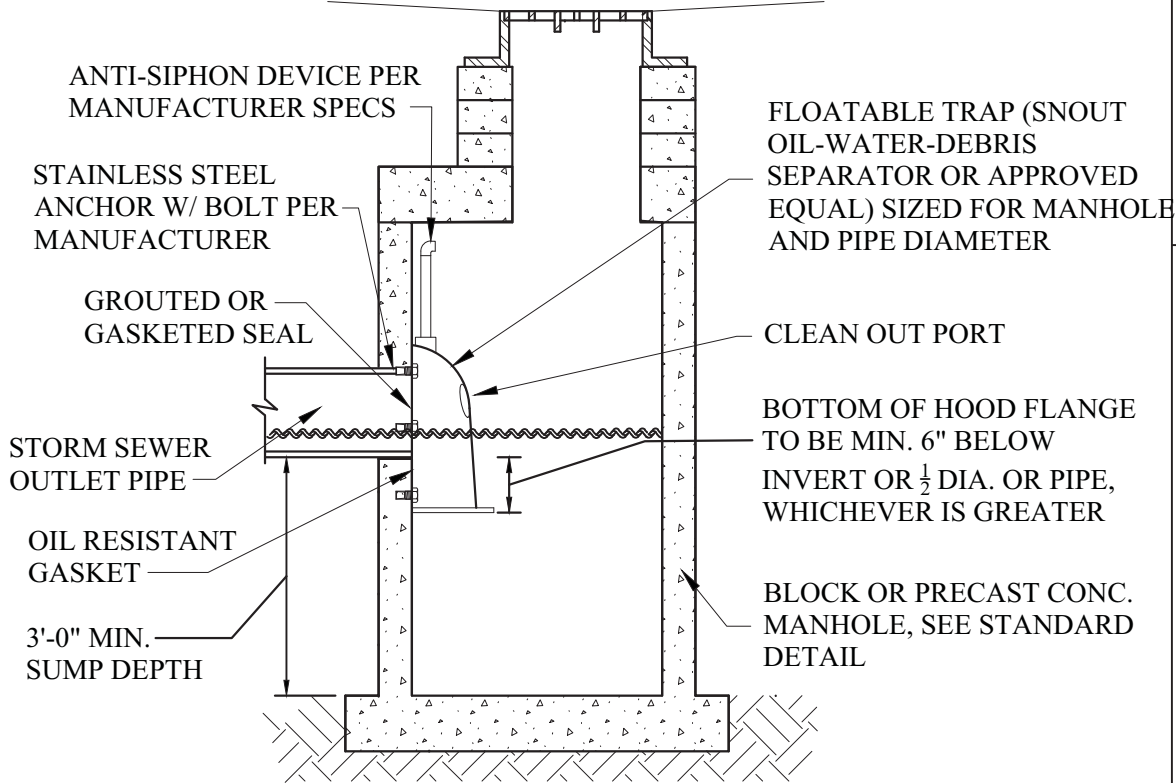
END VIEW

SIDE VIEW

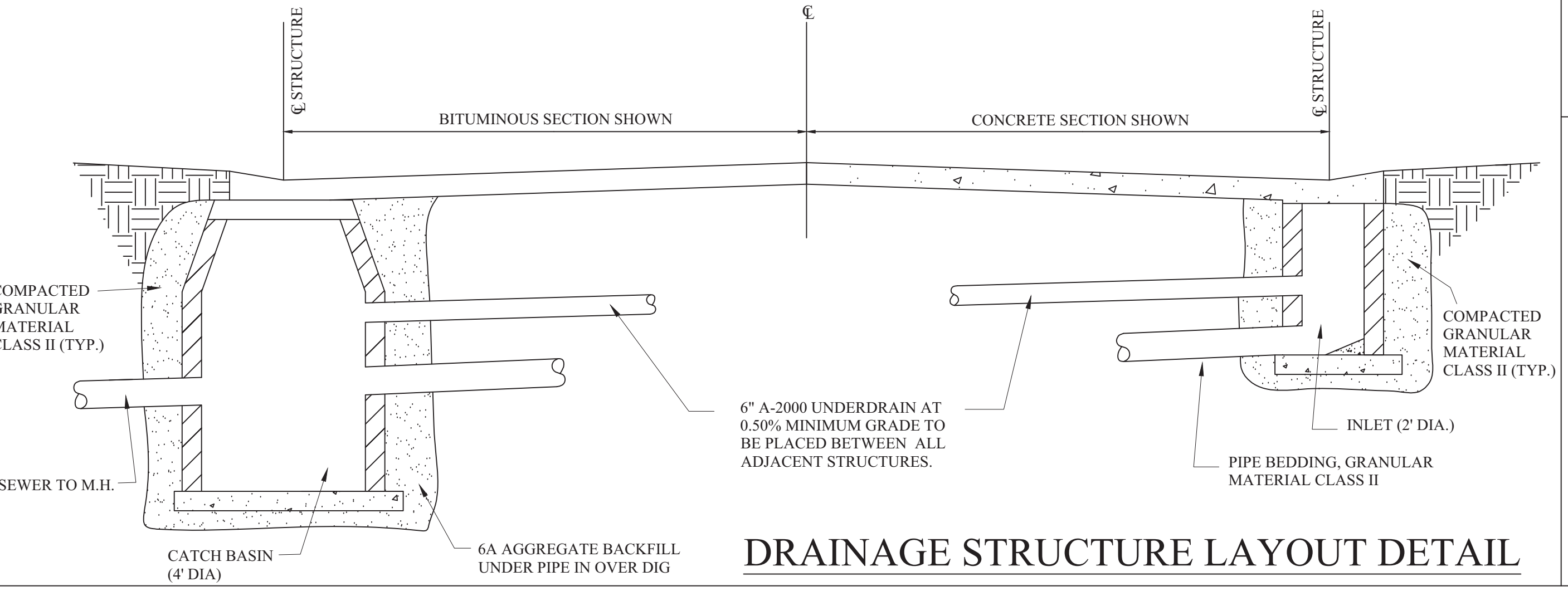
PRE-CAST STORM MANHOLE



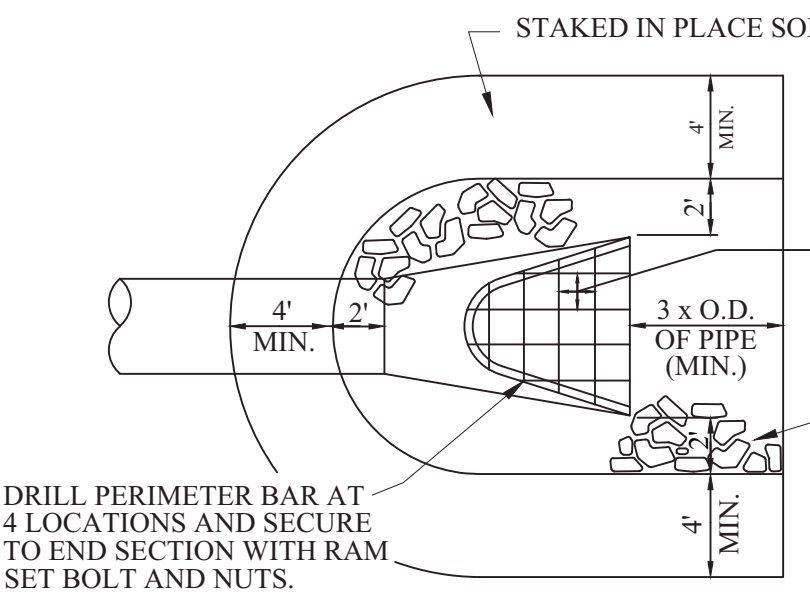
LETTERED MANHOLE COVER



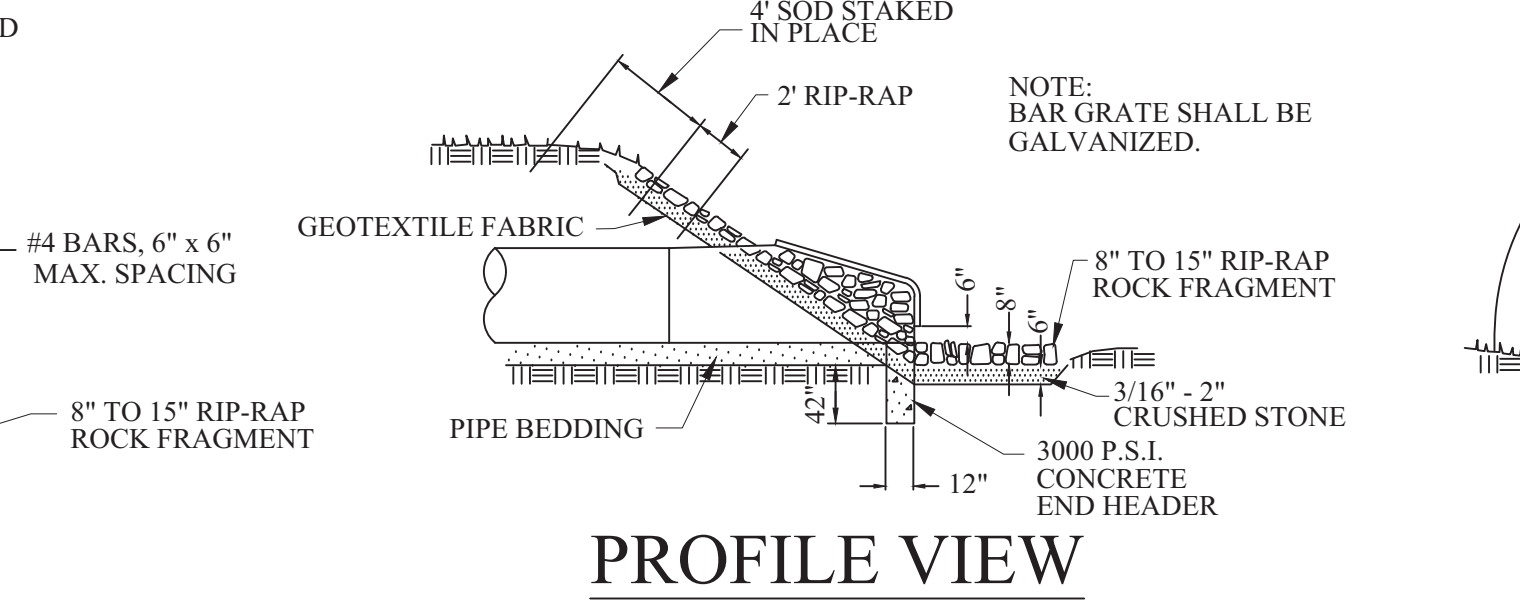
CATCH BASIN WITH FLOATABLE TRAP



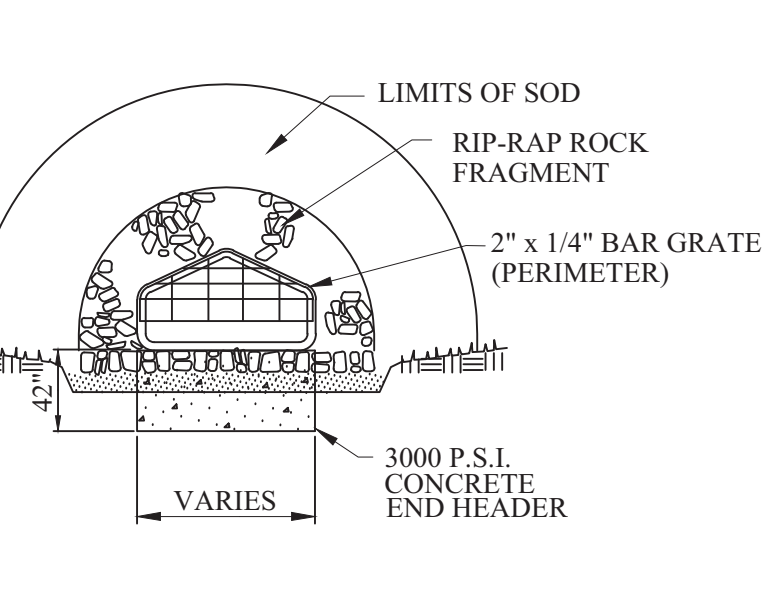
DRAINAGE STRUCTURE LAYOUT DETAIL



PLAN VIEW

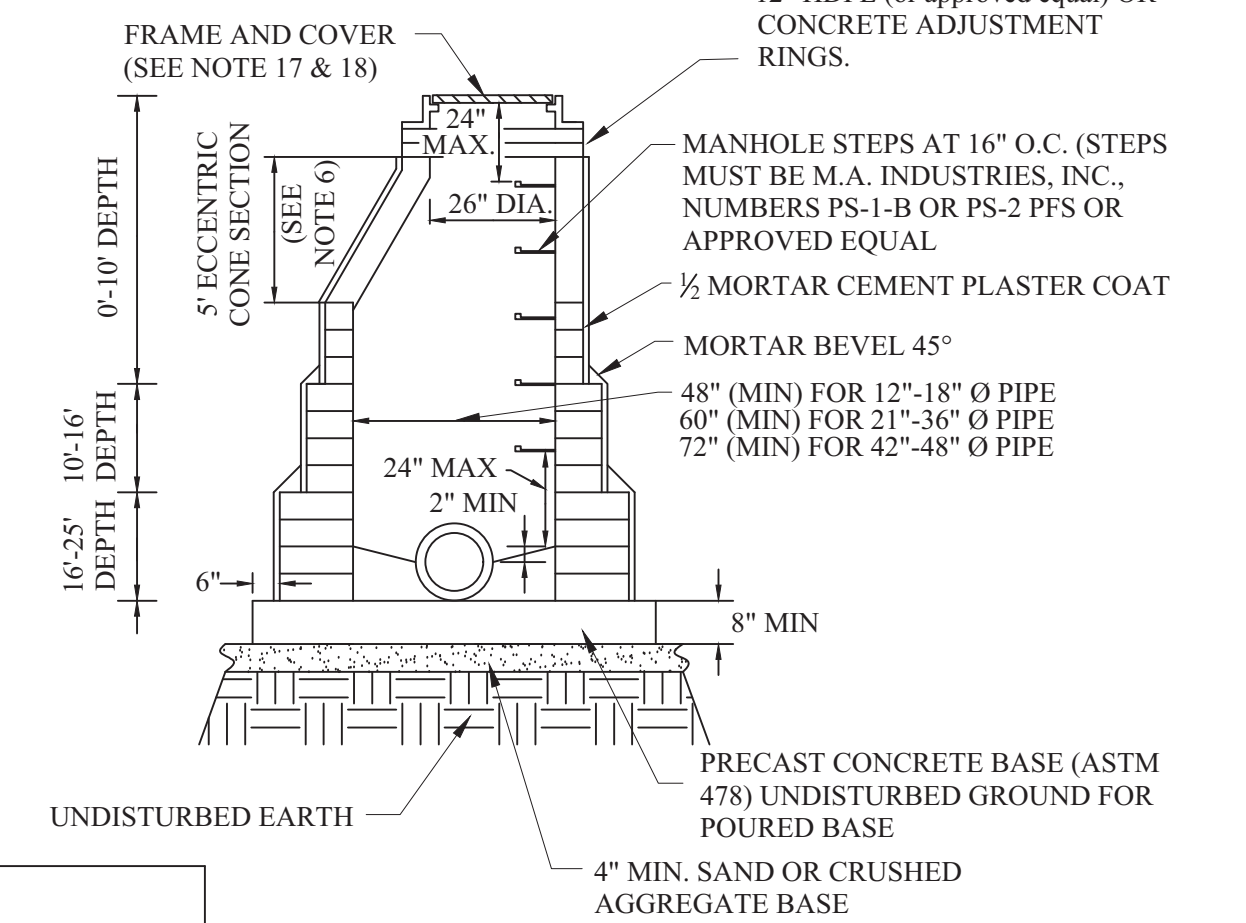


END SECTION AND BAR GRATE DETAIL



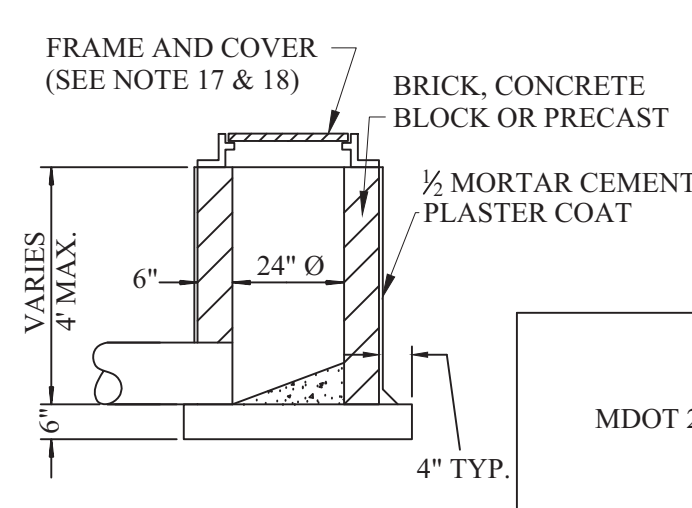
END VIEW

DEPTH	BRICK	BLOCK
0'-10"	8"	6"
10'-16"	12"	8"
16'-25"	16"	12"

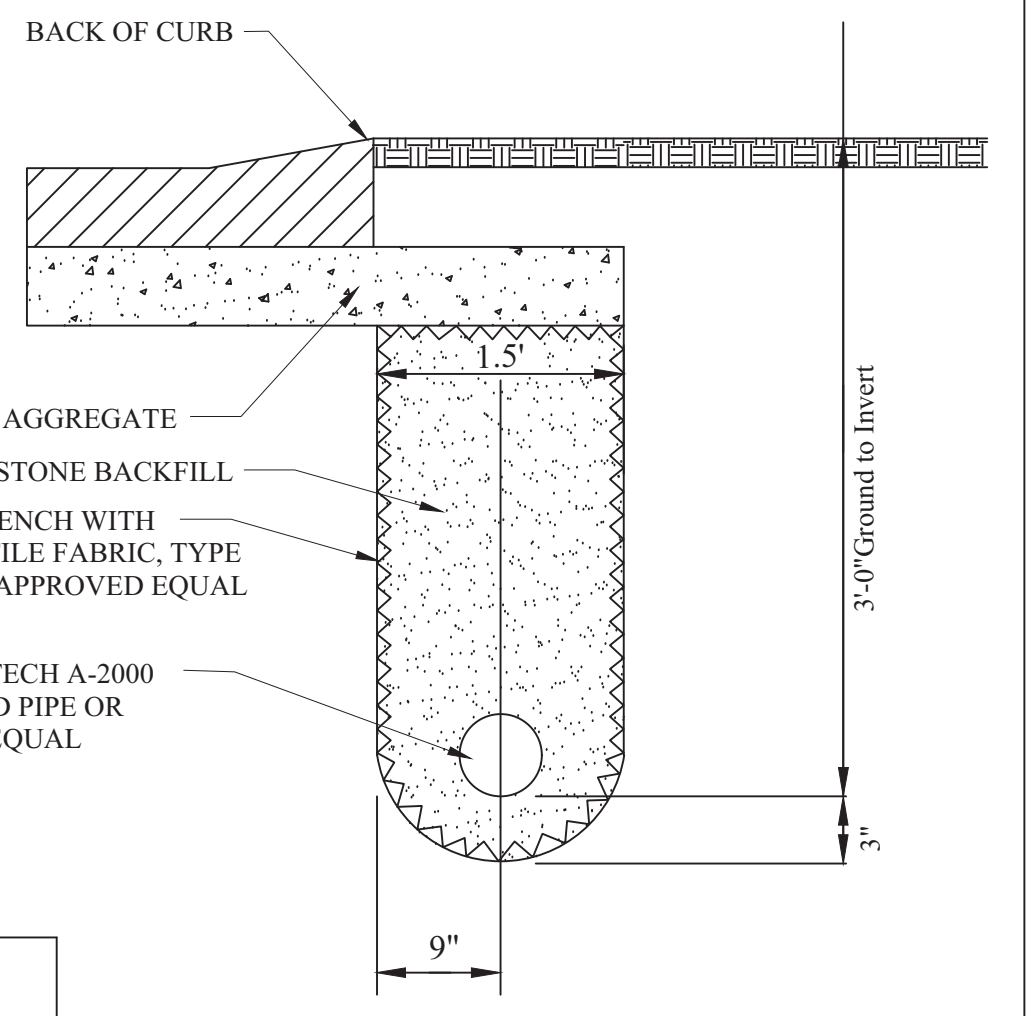


BRICK OR BLOCK MANHOLE

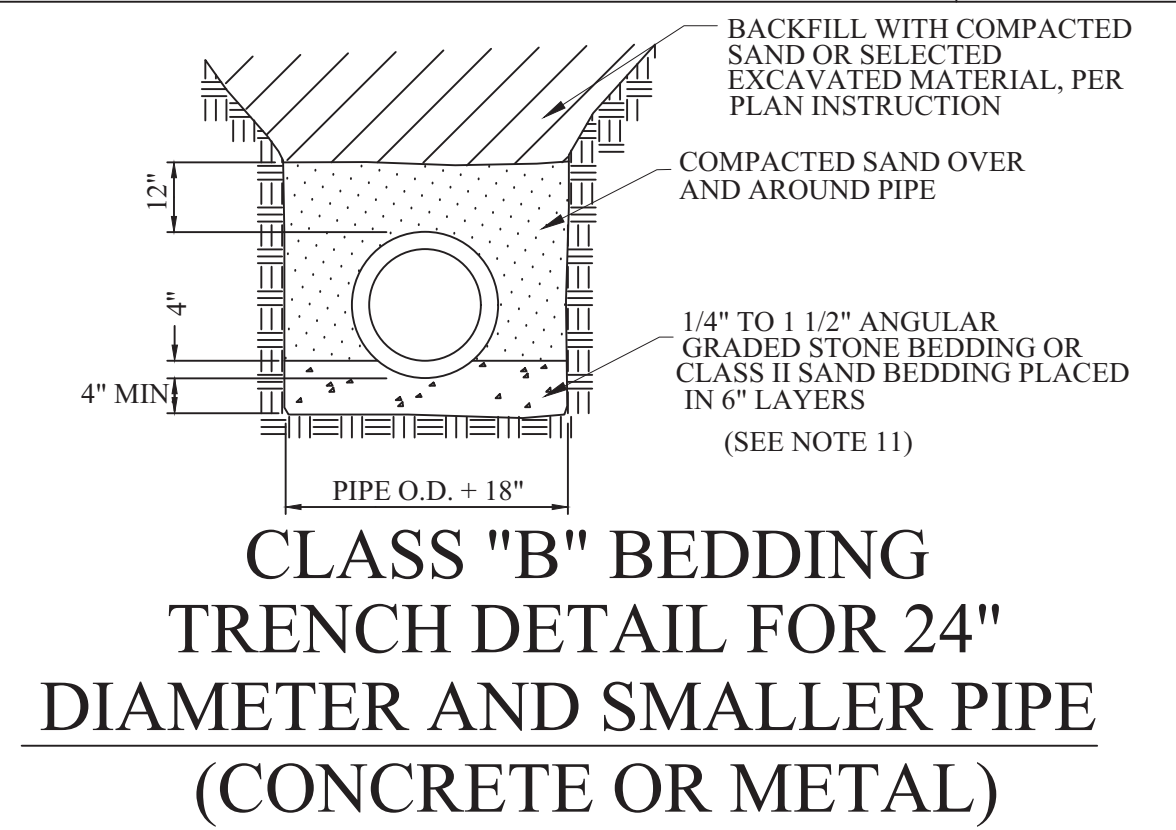
(NOTE: PERMITTED BY CITY ONLY FOR SPECIAL CIRCUMSTANCES)



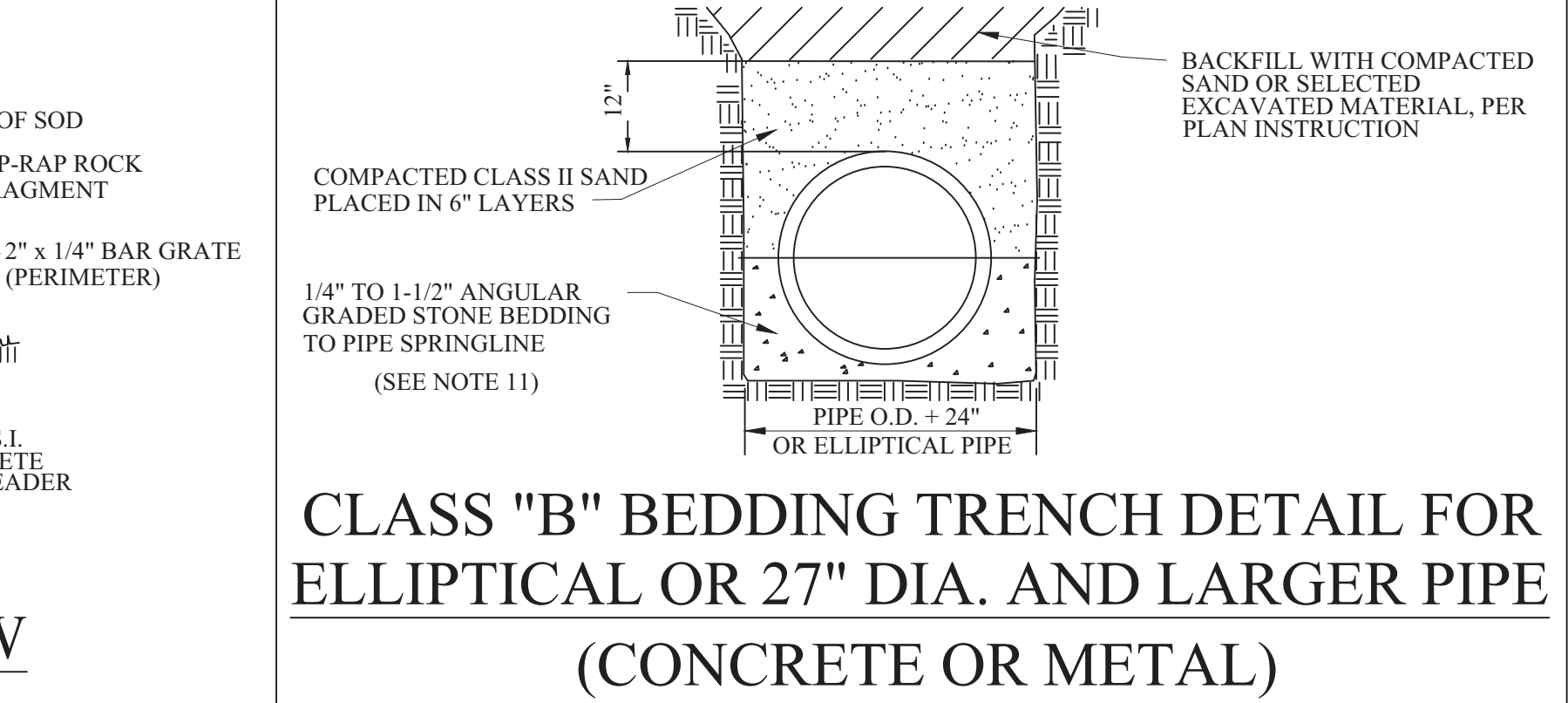
INLET DETAIL



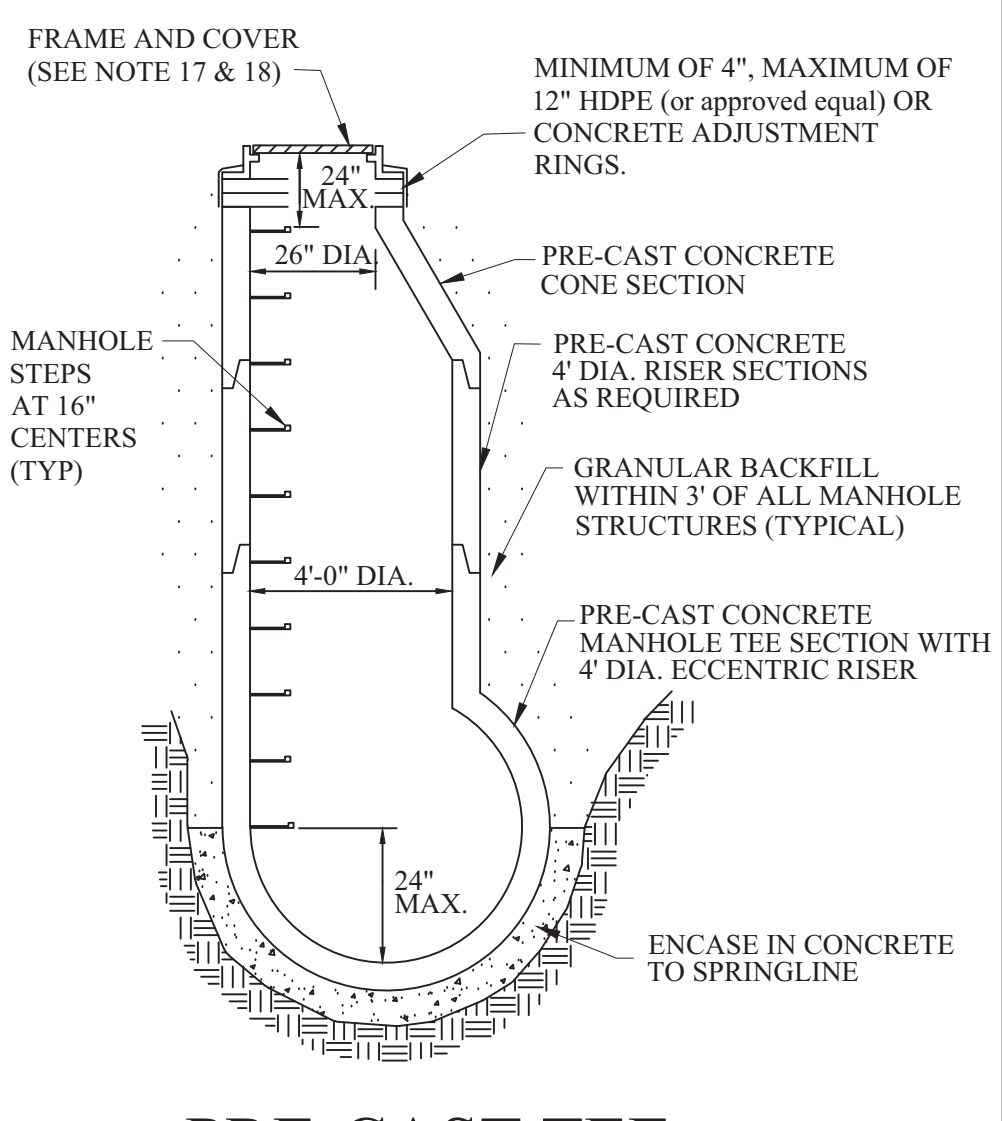
EDGE DRAIN DETAIL FOR PUBLIC AND PRIVATE ROADS



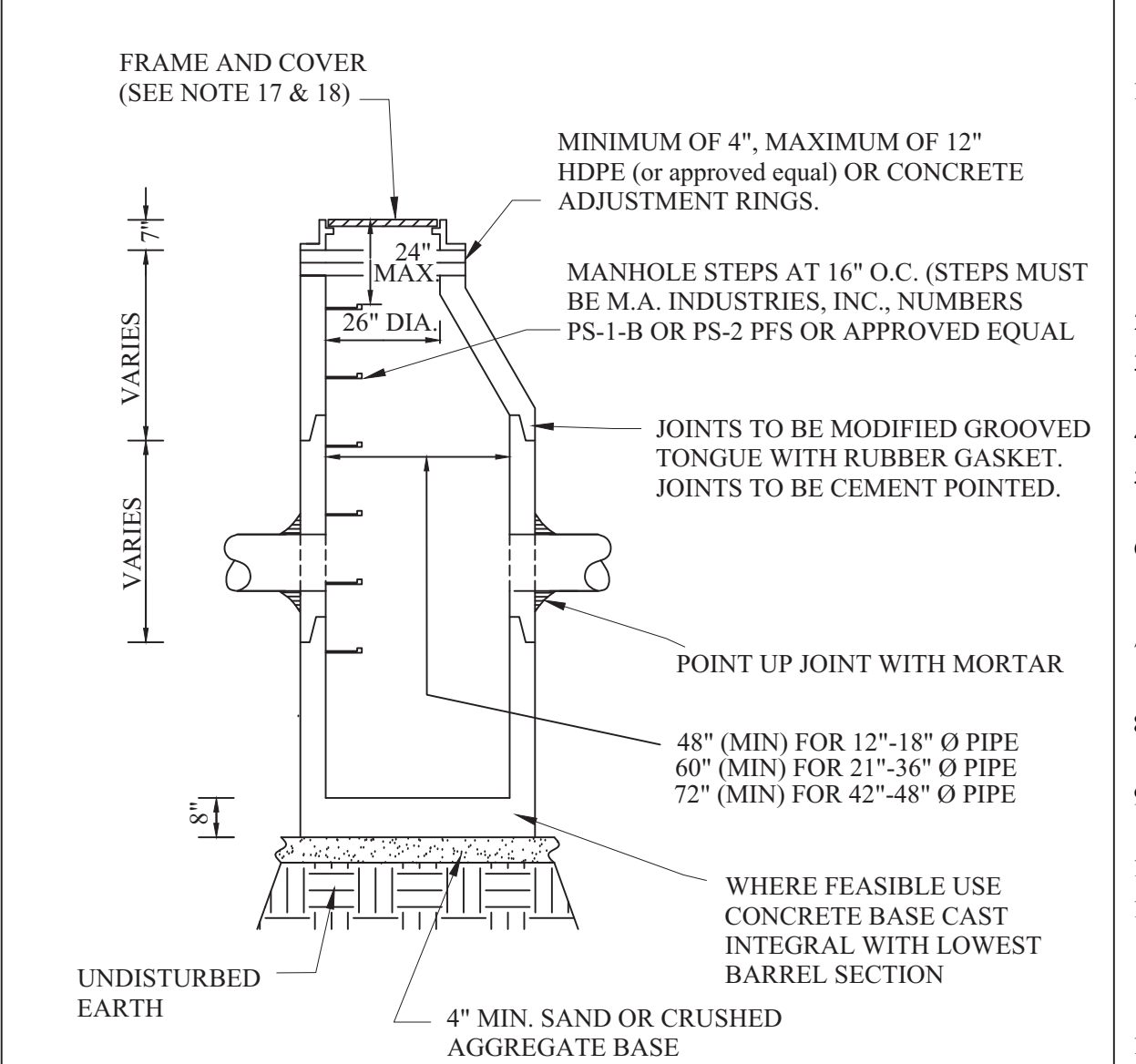
CLASS "B" BEDDING TRENCH DETAIL FOR 24" DIAMETER AND SMALLER PIPE (CONCRETE OR METAL)



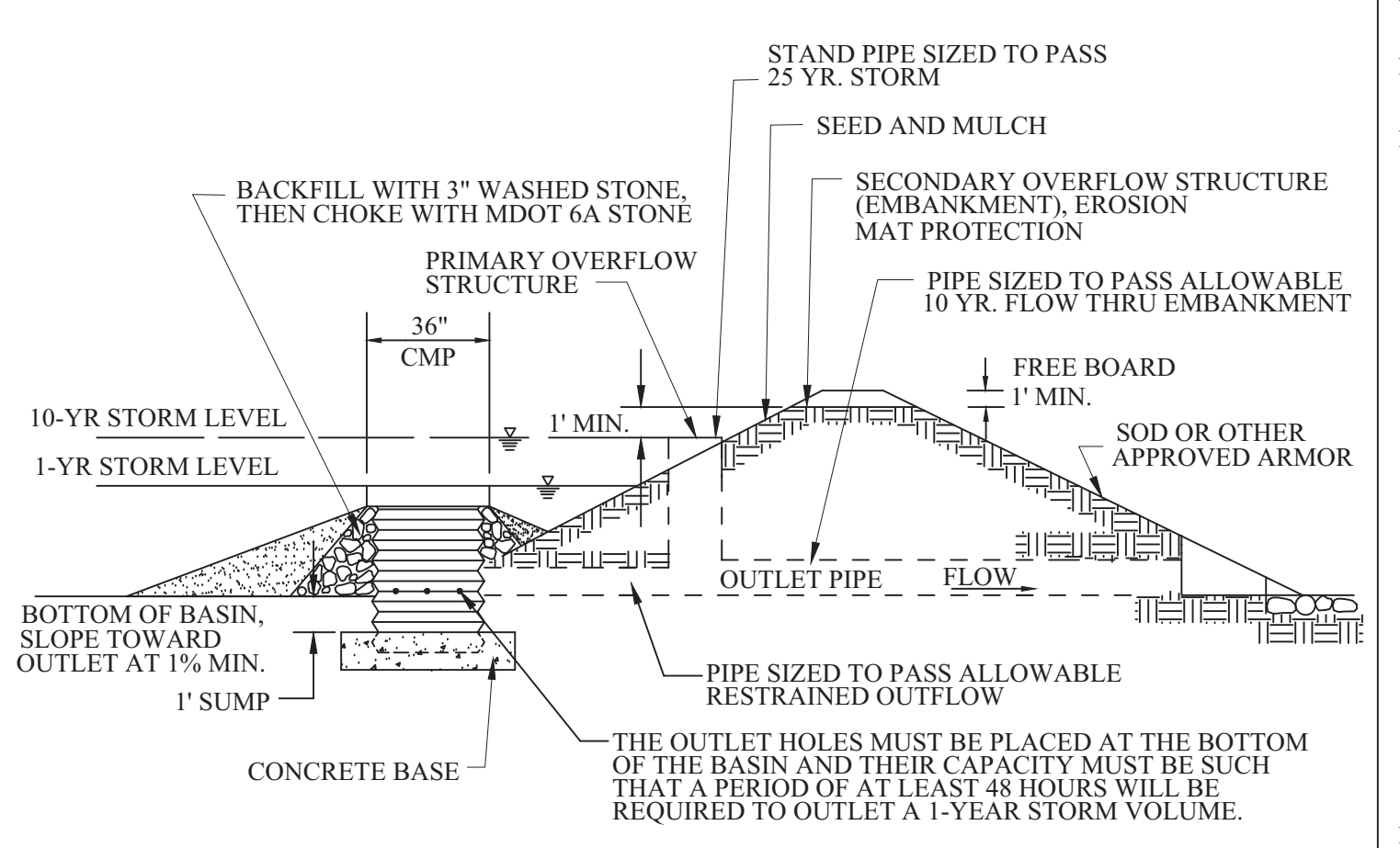
CLASS "B" BEDDING TRENCH DETAIL FOR ELLIPTICAL OR 27" DIA. AND LARGER PIPE (CONCRETE OR METAL)



PRE-CAST TEE MANHOLE DETAIL

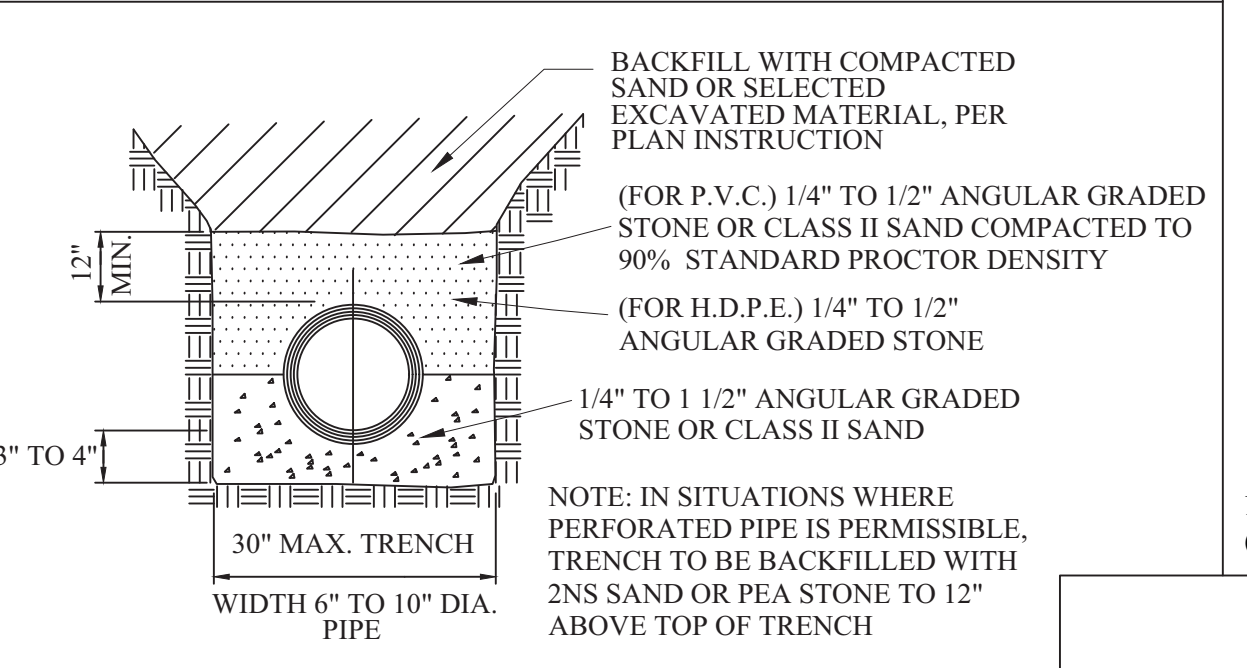


PRECAST STORM CATCH BASIN

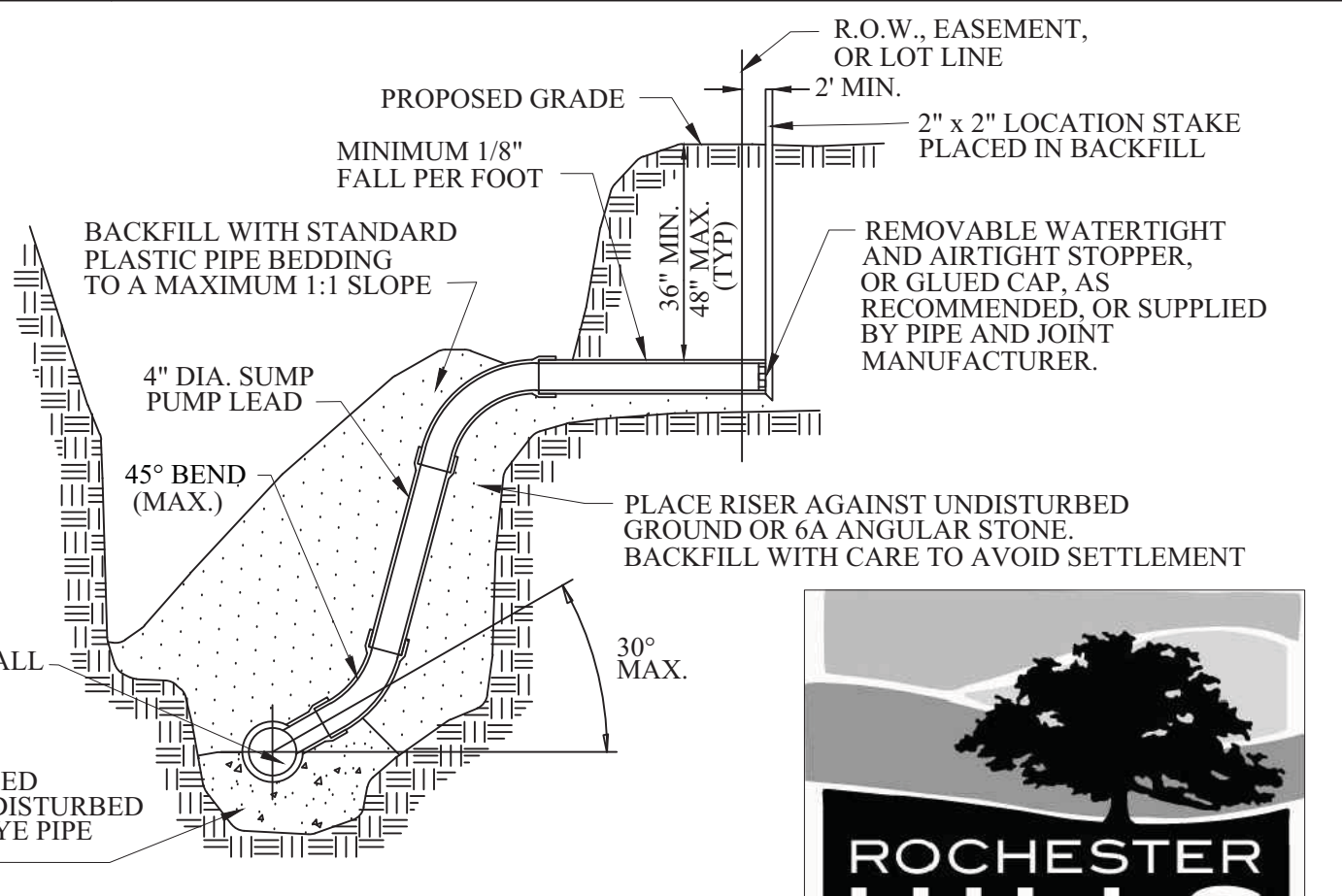


PROFILE VIEW

SO-2 FOREBAY OUTLET FILTER (CMP)



H.D.P.E. OR P.V.C. BEDDING DETAIL



HOUSE LEAD DETAIL FOR 3" OR 4" DIA. PLASTIC SUMP PUMP LEADS

GENERAL NOTES:

- ALL EXISTING AND NEW STORM SYSTEMS SHALL BE CLEANED AND FLUSHED ONCE SITE IS 90% BUILT OUT AND VEGETATED. SEDIMENT, ROCK, AND OTHER DEBRIS SHALL BE COLLECTED AND DISPOSED OF IN A PROPER MANNER. IN NO CASE SHALL DEBRIS BE FLUSHED DOWN A STORM OR SANITARY SEWER FOR DISPOSAL. ALL DAMAGED IRRIGATION AND HOUSE DRAINAGE PIPE, DRAIN TILES, SEWER LATERALS AND CULVERTS SHALL BE REPAIRED EXPEDITIOUSLY. DEBRIS COLLECTED SHALL BE DISPOSED IN A COMMERCIAL LANDFILL OR OTHER APPROVED LOCATION.
- STORM SEWER PIPE SHALL BE OF SIZE AND TYPE NOTED ON THE APPROVED PLANS.
- REINFORCED CONCRETE PIPE (RCP) SHALL BE MODIFIED GROOVED TONGUE JOINTS WITH O-RING TYPE RUBBER GASKET, PER ASTM C443.
- ALL CATCH BASIN LEADS AND INLET LEADS SHALL BE ASTM C76-CLASS IV PIPE.
- MINIMUM PIPE SIZE FOR SEWERS, CATCH BASINS LEADS, AND INLET LEADS SHALL BE 12" NOMINAL INTERNAL DIAMETER.
- ECCENTRIC CONES SHALL BE PROVIDED ON ALL STRUCTURES, REGARDLESS OF THE MATERIAL USED. PRECAST REINFORCED CONCRETE MANHOLE, BLOCK, OR BRICK TO PROVIDE A TRUE VERTICAL FACE FOR PLACEMENT OF MANHOLE STEPS.
- THE INSIDE JOINTS OF PIPES SIZES 42" AND LARGER DIAMETER SHALL BE POINTED UP WITH MORTAR UPON COMPLETION OF BACKFILLING OPERATIONS.
- ALL PIPES SHALL HAVE CLASS, LOT NUMBER, AND DATE OF MANUFACTURE CONSPICUOUSLY MARKED ON EACH LENGTH BY MANUFACTURER.
- ALL END SECTIONS 18" AND LARGER SHALL BE PROVIDED WITH A GALVANIZED BAR SCREEN.
- PRECAST REINFORCED CONCRETE SECTIONS SHALL CONFORM TO ASTM 2478.
- IN DRY, STABLE SOILS, PEASTONE (EQUIVALENT TO M.D.O.T. 34R SPECIFICATIONS) MAY BE SUBSTITUTED FOR THE STANDARD BEDDING. IF THE TRENCH IS WET OR UNSTABLE A GEOTEXTILE FABRIC MUST BE USED TO LINE THE TRENCH PRIOR TO THE PLACEMENT OF THE 2NS SAND, PEASTONE, OR 1/4" - 1 1/2" ANGULAR GRADED STONE.
- SCHEDULE INSPECTIONS 48 HOURS PRIOR TO START OF CONSTRUCTION BY CALLING THE CITY'S INSPECTION LINE AT 248-841-2510. FULL TIME INSPECTION SHALL BE REQUIRED FOR ALL UNDERGROUND STORM SEWER CONSTRUCTION.
- THE CONTRACTOR SHALL CONTACT MISS DIG 72 HOURS BEFORE CONSTRUCTION AT (811) TO LOCATE EXISTING UNDERGROUND UTILITIES.
- PRIOR TO START OF CONSTRUCTION CONTRACTOR SHALL HAVE IN HIS POSSESSION A CURRENT SOIL EROSION CONTROL PERMIT AS ISSUED BY THE OCWRC.
- MINIMUM SUMP DEPTH IS 2' FOR CATCH BASINS, MINIMUM SUMP DEPTH IS 3' FOR CATCH BASINS WITH FLOATABLE TRAP INSTALLATIONS.
- AS A MEANS OF INSURING PROPER INSTALLATION OF THE STORM SEWER PIPE, AT THE DISCRETION OF THE CITY ENGINEER, THE CONTRACTOR SHALL VIDEO INSPECT, ACCORDING TO THE CITY OF ROCHESTER HILLS VIDEO INSPECTION STANDARDS, 100% OF THE STORM SEWER PIPE 12" AND LARGER IN DIAMETER. IF VIDEO INSPECTION IS REQUIRED BY THE CITY ENGINEER THE CONTRACTOR SHALL PROVIDE 24 HOURS NOTICE TO THE CITY OF ROCHESTER HILLS PRIOR TO VIDEO INSPECTION, SO A REPRESENTATIVE MAY BE PRESENT. ROCHESTER HILLS WILL BE PROVIDED WITH A DIGITAL COPY OF THE VIDEO INSPECTION AND LOG IN ACCORDANCE WITH THE CITY OF ROCHESTER HILLS VIDEO INSPECTION STANDARDS.

COVERS FOR MANHOLES, CATCH BASINS, AND INLETS

- PROJECTS THAT THE CITY ENGINEER MAY IMPOSE THESE REQUIREMENTS ARE:
- ALL PUBLIC PROJECTS OR PROJECTS BEING CONSTRUCTED ON PUBLIC PROPERTY.
 - ANY PROJECT INVOLVING A DEVELOPMENT, SUBDIVISION, SITE CONDOMINIUM, CONDOMINIUM, OR ASSOCIATION
 - ANY PROJECT THAT WILL RESULT IN MORE THAN ONE OWNER RESPONSIBLE FOR THE OPERATION AND MAINTENANCE OF THE COMPLETE STORM DRAINAGE SYSTEM
- MANHOLE FRAME AND COVER SHALL BE EJ 1040, TYPE A COVER OR EQUIVALENT.
 - CATCH BASINS AND INLET FRAME AND COVER SHALL BE AS FOLLOWS:
 - EJ 7045 WITH TYPE M1 GRATE AND 7050 T2 ADJUSTABLE BACK, OR EQUAL, FOR USE WITH CONCRETE CURB AND GUTTER, (STRAIGHT CURB/ M.D.O.T. F CURB) AND WITH CONCRETE PAVEMENT WITH INTEGRAL CURB.
 - EJ 7085 WITH TYPE M1 GRATE OR EQUAL, FOR USE WITH CONCRETE B-2 MODIFIED CURB AND GUTTER, AND WITH CONCRETE WITH B-2 MODIFIED INTEGRAL CURB.
 - EJ 7065 WITH TYPE M1 GRATE AND 7060 T1 DRIVE OVER CURB BACK, OR EQUAL, FOR USE WITH MOUNTABLE CURB AND GUTTER, AND WITH CONCRETE PAVEMENT WITH MOUNTABLE INTEGRAL CURB.
 - EJ FRAME 1040 WITH TYPE N OVAL GRATE OR TYPE O2 BEEHIVE GRATE, OR EQUAL, FOR USE ON OPEN DITCH STRUCTURES AND ON CATCH BASINS LOCATED IN SWALES, AND IN EASEMENTS OUTSIDE THE PUBLIC STREET RIGHT-OF-WAY.
 - EJ FRAME 7045Z WITH TYPE M4 VANE STYLE INLET GRATE (RIGHT HAND FLOW OR LEFT HAND FLOW) AND 7060 T1 BACK OR 7050 T2 BACK DEPENDING ON CURB STYLE, OR EQUAL, FOR USE WITH RELIEF BASINS WHICH ARE ON LONGITUDINAL ROAD SLOPES OF 4% OR GREATER.
 - EJ FRAME 5100 WITH TYPE M1 SINUSOIDAL GRATE, OR EQUAL, FOR USE IN NON-CURB PAVEMENT AREAS.
- NOTE: COVERS MUST HAVE THE "DUMP NO WASTE! DRAINS TO WATERWAY" LETTERING (WHEN APPLICABLE).

REVISIONS	DATE	APPROVED BY

APPROVED BY CITY COUNCIL, DATE: _____

PREPARED BY ENGINEERING DIVISION DEPARTMENT OF PUBLIC SERVICES

NOTIFY ROCHESTER HILLS ENGINEERING DEPARTMENT @ 248-841-2510 48 HRS. PRIOR TO START OF CONSTRUCTION

City of Rochester Hills
1000 Rochester Hills Drive, Rochester Hills, Michigan 48309

STORM SYSTEM STANDARD DETAILS



LANDSCAPE PLANTING NOTES:

- PLANTING**
- Installation of all plant material shall be in accordance with the latest edition of the *American Association of Nurserymen Standards for Nursery Stock* and with the specifications set forth by the City of Rochester Hills, Michigan.
 - The plant materials shall conform to the type stated on the plant list. Sizes shall be the minimum stated on the plant list or larger. All measurements shall be in accordance with the latest edition of the *American Association of Nurserymen Standards for Nursery Stock*.
 - The plant material shall be nursery grown and inspected by the Owner's representative before planting. The Owner's representative reserves the right to reject any plant material at any time.
 - Plants designated "B&B" shall be balled and burlapped with firm balls of earth.
 - Dig shrub pits one foot (1') larger than the shrub rootball, tree pits three (3) times the width of the tree rootball and backfill with one (1) part topsoil and one (1) part soil from excavated pit. Plant trees and shrubs at the same grade level at which they were planted at the nursery. If wet, clay soils are evident, plant trees and shrubs slightly higher.
 - The Contractor is responsible for planting the materials at the correct grades and spacing. The plants shall be oriented to give the best appearance.
 - When the plant has been properly set, the pit shall be backfilled with the topsoil mixture, gradually filling, patting, and settling with water.
 - Trees in lawn areas to have a four foot (4') circle of mulch, four inches (4") deep, and three inches (3") away from the trunk. Shrub beds are to be mulched with shredded bark mulch to a minimum depth of three inches (3"). Perennial beds are to be mulched with shredded bark mulch to a minimum depth of three inches (3"). Only natural color, finely shredded hardwood bark mulch will be accepted.
 - Remove all twine, wire, and burlap from the top one third (1/3) of tree and shrub root balls and from tree trunks. Remove all non-biodegradable material such as plastic or nylon completely from branches and stems. All tree wrap, stakes, and guys are to be removed after one (1) winter season.
 - All plant materials shall be pruned and injuries repaired. The amount of pruning shall be limited to the removal of dead or injured limbs and to compensate for the loss of roots from transplanting. Cuts should be flush, leaving no stubs. DO NOT apply tree paint to freshly cut wounds.
 - Organic, friable topsoil shall be evenly distributed and fine graded over all areas to receive lawns at uniform depth of four inches (4") after settlement.
 - All plantings shall be completed no later than November 30 in the fall season. The date of intended installation for landscape plant materials is approximately Spring, 2021. Plantings shall thereafter be reasonably maintained, including permanence and health of plant materials to provide a screen to abutting properties and including the absence of weeds and refuse.
 - Backfill directly behind all curbs and along sidewalks and compact to the top of curbs or walk to support vehicle and pedestrian weight without settling.

- MATERIAL**
- Required landscape material shall satisfy the criteria of the *American Association of Nurserymen Standards for Nursery Stock* and be: a.) Northern nursery grown; b.) State Department of Agriculture inspected; c.) No. 1 grade material with a straight, unscarred trunk, and well-developed uniform crown (park grade trees will not be accepted); d.) Staked, wrapped, watered, and mulched according to the details provided; and e.) Guaranteed for one (1) year.
 - Topsoil shall be friable, fertile soil of clay loam character containing at least five percent (5%) but not more than twenty percent (20%) by weight of organic matter with a pH range between 6.0 and 7.0. The topsoil shall be free from clay lumps, coarse sand, plant roots, sticks, and other foreign materials.

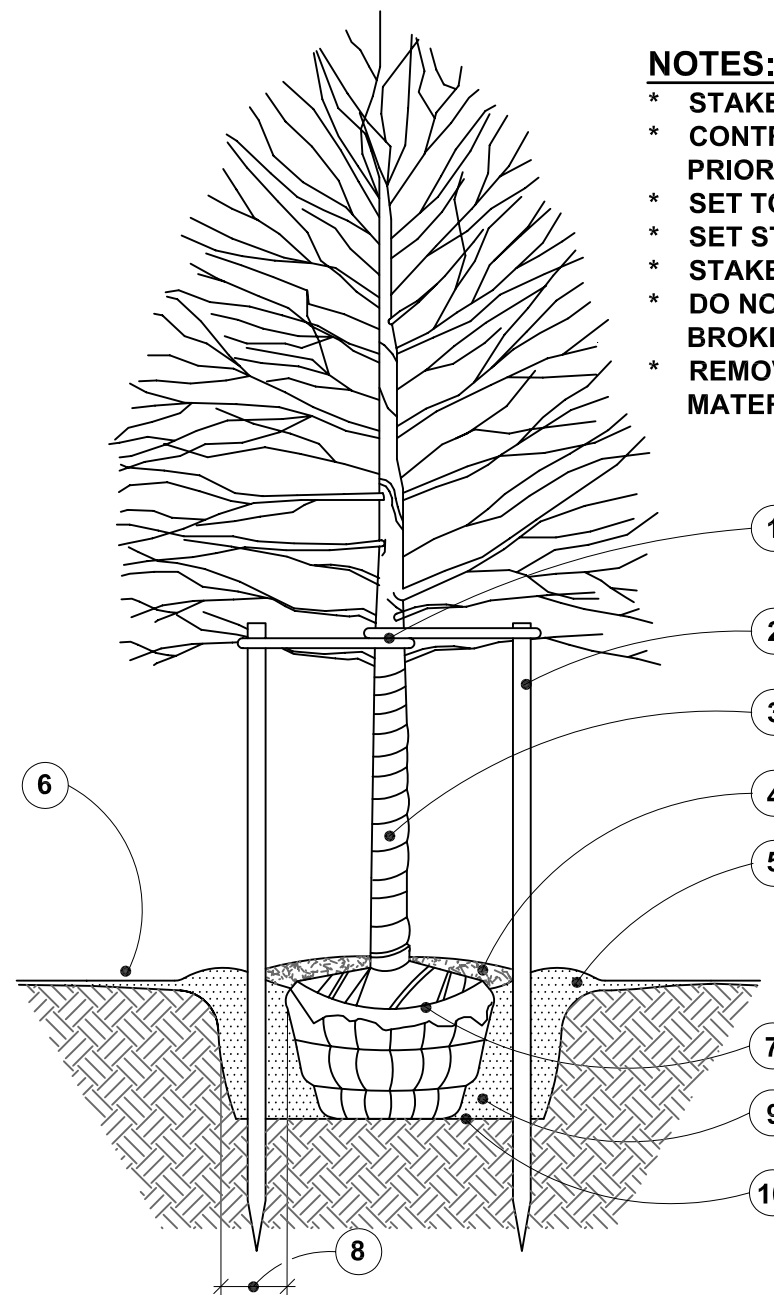
PLANT LIST

KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE
AGR	2	<i>Amelanchier x grandiflora</i> 'Robin Hill'	Robin Hill Single Stem Serviceberry	2" cal. B&B
GBF	3	<i>Gingko biloba</i> 'Fastigiata'	Fastigiata Maidenhair Tree	3" cal. B&B
LSS	1	<i>Liquidambar styraciflua</i> 'Slender Silhouette'	Slender Silhouette American Sweetgum	3" cal. B&B
RAG	14	<i>Rhus aromatica</i> 'Gro-Low'	Gro-Low Fragrant Sumac	24" ht., 3 gal. pot
CVM	8	<i>Coreopsis verticillata</i> 'Moonbeam'	Moonbeam Threadleaf Coreopsis	1 gal. pot, 24" o.c.
PAB	10	<i>Pennisetum alopecuroides</i> 'Burgandy Bunny'	Burgandy Bunny Dwarf Fountain Grass	1 gal. pot, 18" o.c.

NOTES:

- STAKE TREES UNDER FOUR INCH (4") CALIPER.
- CONTRACTOR TO VERIFY PERCOLATION OF PLANTING PIT PRIOR TO INSTALLATION.
- SET TOP OF BALL THREE INCHES (3") ABOVE FINISH GRADE.
- SET STAKES VERTICAL & EVENLY SPACED.
- STAKES OR GUYS TO BE SECURED ABOVE THE FIRST BRANCH.
- DO NOT PRUNE TERMINAL LEADER. PRUNE ONLY DEAD OR BROKEN BRANCHES.
- REMOVE ALL TAGS, STRING, PLASTICS, AND OTHER MATERIALS THAT ARE UNSIGHTLY OR COULD CAUSE DAMAGE.

- STAKE TREE JUST ABOVE THE FIRST BRANCH USING TWO INCH TO THREE INCH (2"-3") WIDE BELT-LIKE MATERIAL OF FABRIC. (NO WIRE OR HOSE TO BE USED TO GUY TREES.) THREE (3) GUYS EVENLY SPACED PER TREE. REMOVE AFTER ONE (1) WINTER SEASON.
- 2 x 2 HARDWOOD STAKES. POSITION SIX INCHES TO EIGHT INCHES (6"-8") OUTSIDE OF ROOTBALL AND EXTEND EIGHTEEN INCHES (18") BELOW TREE PIT INTO UNDISTURBED SOIL.
- APPLY TREE WRAP AND SECURE WITH A BIODEGRADABLE MATERIAL AT TOP AND BOTTOM. REMOVE AFTER ONE (1) WINTER.
- SHREDDED BARK MULCH OF A NATURAL COLOR AT FOUR INCH (4") MINIMUM DEPTH. LEAVE A THREE INCH (3") CIRCLE OF BARE SOIL AT THE BASE OF THE TREE.
- MOUND TO FORM TREE SAUCER.
- FINISH GRADE SLOPED AWAY FROM TREE.
- CUT AND REMOVE WIRE, BURLAP, AND BINDINGS FROM THE TOP ONE-THIRD (1/3) OF THE ROOTBALL.
- WIDTH OF ROOTBALL ON EACH SIDE.
- PLANTING MIXTURE SHALL CONSIST OF 50% TOPSOIL AND 50% SAND.
- SCARIFY BOTTOM AND SIDES OF PLANTING PIT TO FOUR INCH (4") DEPTH.



DECIDUOUS TREE

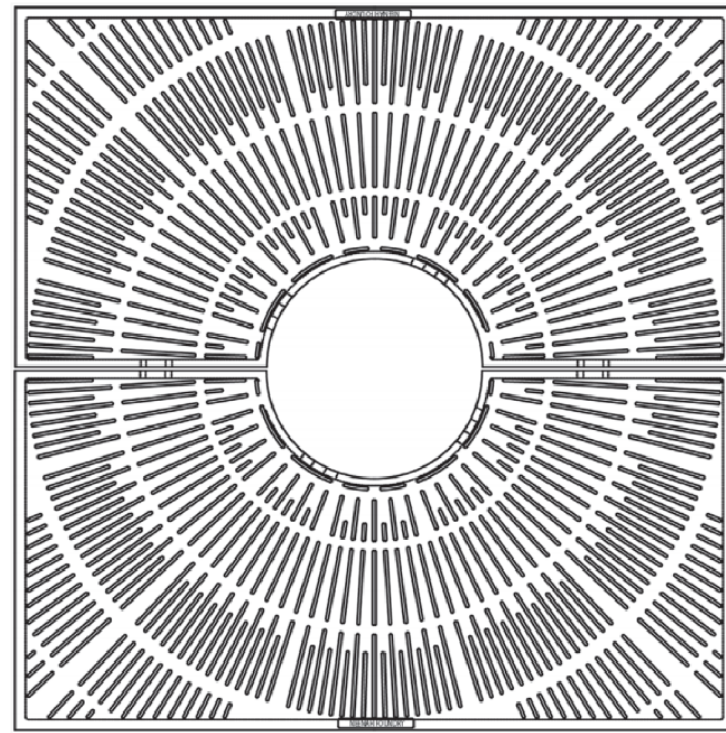
PLANTING DETAILS

- Proposed perennials shall be full, well-rooted plants.
 - Callery Pear (*Pyrus calleryana*) and Norway Maple (*Acer platanoides*) shall not be substituted for any tree species in the plant list. Contact the Landscape Architect for acceptable plant substitutions.
 - Cobblestone mulch to consist of two inch to six inch (2"-6") cobbles eight inches deep with geotextile fabric beneath.
- GENERAL**
- Do not plant deciduous or evergreen trees directly over utility lines or under overhead wires. Maintain a six foot (6') distance from the centerline of utilities and twenty feet (20') from the centerline of overhead wires for planting holes. Call MISS DIG forty-eight (48) hours prior to landscape construction for field location of utility lines.
 - The Contractor agrees to guarantee all plant material for a period of one (1) year. At that time, the Owner's representative reserves the right for a final inspection. Plant material with twenty-five percent (25%) die back, as determined by the Owner's representative shall be replaced. This guarantee includes the furnishing of new plants, labor, and materials. These new plants shall also be guaranteed for a period of one (1) year.
 - The work shall consist of providing all necessary materials, labor, equipment, tools, and supervision required for the completion as indicated on the drawings.
 - All landscape areas shall be irrigated by an automatic underground irrigation system. Lawns and shrub/landscape areas shall be watered by separate zones to minimize overwatering.
 - All written dimensions override scale dimensions on the plans.
 - All substitutions or deviations from the landscape plan must be approved by the City of Rochester Hills prior to installation.
 - All bidders must inspect the site and report any discrepancies to the Owner's representative.
 - All specifications are subject to change due to existing conditions.
 - The Owner's representative reserves the right to approve all plant material.

- MAINTENANCE**
- The Owner of the landscaping shall perpetually maintain such landscaping in good condition so as to present a healthy, neat, and orderly appearance, free from refuse and debris.
 - All unhealthy, damaged, diseased, and/or dead material shall be removed immediately and replaced within six (6) months after it dies or in the next growing season. The planting season for deciduous plants shall be between March 1 and June 1 and from October 1 until the prepared soil becomes frozen. The planting season for evergreen plants shall be between March 1 and June 1. Plant material installed to replace dead or diseased material shall be as close as practical to the size of the material it is intended to replace. The City may notify property owners of the need to replace dead, damaged, or diseased material.
 - The Owner shall conduct a seasonal landscape maintenance program including regular lawn cutting (at least once per week during the growing season), watering, and snow removal during winter. Pruning shall be minimal at the time of installation, only to remove dead or diseased branches. Subsequent pruning will assure proper maturation of plants to achieve their approved purpose.
 - The Contractor is responsible for watering and maintenance of all seed areas until a minimum of ninety percent (90%) coverage, as determined by the Owner's representative.
 - Any debris such as lawn clippings, fallen leaves, fallen limbs, and litter shall be removed from the site on a weekly basis at the appropriate season.
 - All planting beds shall be maintained by removing weeds, fertilizing, and replenishing mulch as needed.
 - The approved landscape plan will be considered a permanent record and integral part of the Site Plan Approval. Unless otherwise approved in accordance with the aforementioned procedures, any revisions to or removal of plant materials, or non-compliance with the maintenance requirements in Section 138-12.109 of the City Ordinance will place the parcel in non-conformity with the approved landscape plan and be a violation of the ordinance.

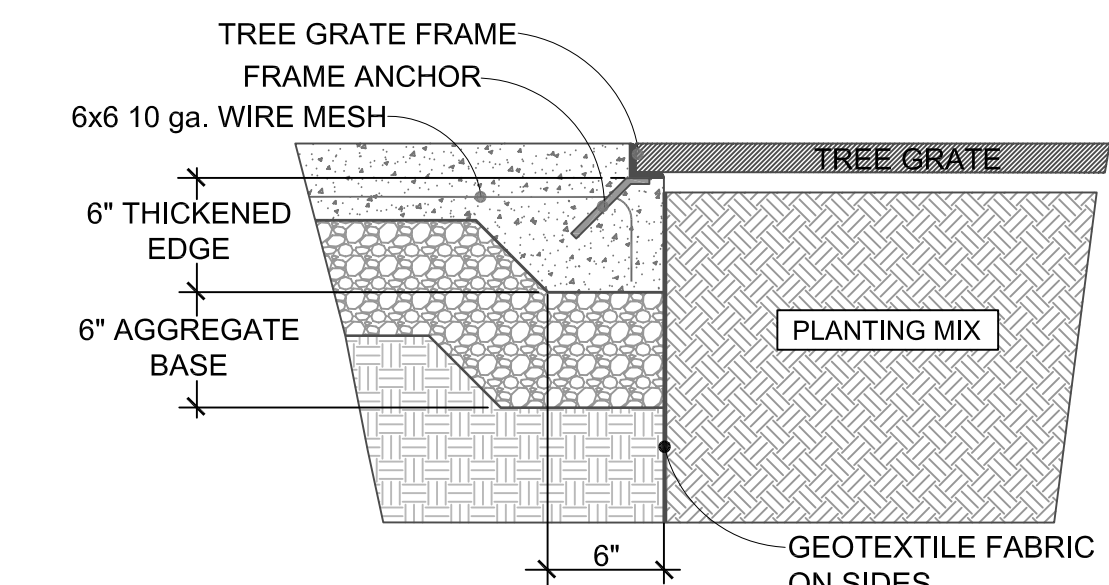
CITY OF ROCHESTER HILLS NOTES:

- All landscape areas must be irrigated. An irrigation plan must be submitted prior to Staff approval of the final site plan. Watering will occur only between the hours of 12 a.m. and 5 a.m.
- Prior to the release of the performance bond, the City of Rochester Hills must inspect all landscape plantings.
- Prior approval is required to plant any tree or shrub on the public right-of-way. All trees and shrubs must be planted at least 10' from the edge of the public road. (Trees must be planted at least 15' away from curb or road edge where the speed limit is more than 35mph). Shade trees and shrubs must be planted at least 5' from the edge of the public walkway. Evergreen and ornamental trees must be planted at least 10' from the edge of the public walkway. No tree or shrubs may be planted within the triangular area formed at the intersection of any street right-of-way lines at a distance along each line of 25' from their point of intersection. No trees or shrubs may be planted in the triangular area formed at the intersection of any driveway with a public walkway at a distance along each line of 15' from their midpoint of intersection. All trees and shrubs must be planted at least 10' from any fire hydrant. Shade and evergreen trees must be at least 15' away from the nearest overhead wire. Trees must be planted a minimum of 5' from an underground utility, unless the city's Landscape Architect requires a greater distance.
- Prior to the release of the performance bond, the City of Rochester Hills Forestry Division needs to inspect all trees, existing or planted, to identify any that pose a hazard to the safe use of the public right-of-way. Forestry may require the developerto remove, and possibly replace, any such trees.
- These requirements are incorporated into this plan.



TREE GRATES:

- Streetlife America, L.L.C.: Tree Grille Corten - Cloud of Nuts 59" x 59" square. Match color of existing tree grilles along E. Auburn Road.
- Install according to the Manufacturer's specifications.



TREE GRATE CROSS SECTION not to scale

COST ESTIMATE

TOTAL MATERIALS SPECIFIED:

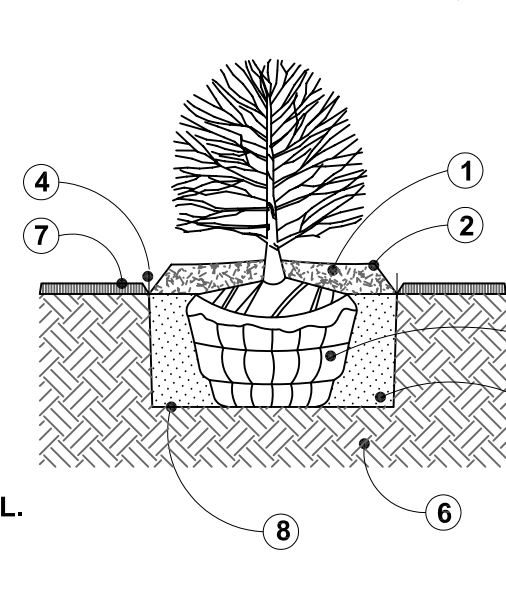
* Deciduous Trees	4	\$350	\$1,400.00
* Ornamental Trees	2	\$200	\$400.00
* Deciduous Shrubs	14	\$50	\$700.00
* Perennials	18	\$15	\$270.00
* Sodded Lawn			\$400.00
* Planting Soil Mix	6 cu. yds.	\$40	\$240.00
* Shredded Hardwood Bark	8 cu. yds.	\$30	\$240.00
* Tree Grates	3	\$800	\$2,400.00
* Underground Irrigation			\$3,000.00
TOTAL			\$9,050.00

GENERAL NOTES FOR ALL PLANTINGS:

- DO NOT CUT CENTRAL LEADER. PRUNE ONLY TO REMOVE DEAD OR BROKEN BRANCHES.
- REMOVE ALL TAGS, STRINGS, PLASTICS, AND ANY OTHER NON-BIODEGRADEABLE MATERIALS (EXCEPT LABEL FOR PLANT NAME) FROM PLANT STEMS OR CROWN WHICH ARE UNSIGHTLY OR COULD CAUSE GIRDLING.
- PLANTS SHALL BEAR THE SAME RELATIONSHIP TO FINISH GRADE AS IT BORE TO THE PREVIOUS GRADE IN THE NURSERY. SET THE BASE OF THE PLANT SLIGHTLY HIGHER THAN EXISTING GRADE IF PLANTING IN CLAY SOILS.
- CENTER THE ROOTBALL IN THE PLANTING HOLE. LEAVE THE BOTTOM OF THE HOLE FIRM. USE WATER TO SETTLE THE PLANTING MIX AND REMOVE ANY AIR POCKETS AND FIRMLY SET THE TREE OR SHRUB. GENTLY TAMP IF NEEDED.

NOTE:

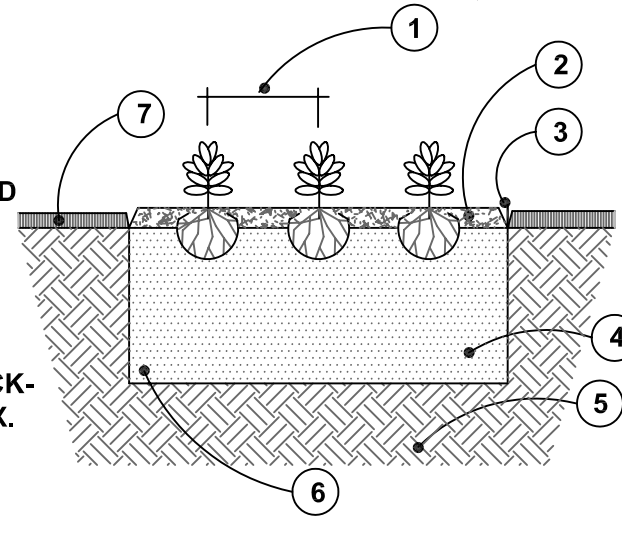
- CONTRACTOR TO VERIFY PERCOLATION OF PLANTING PIT PRIOR TO INSTALLATION.
- THE PLANTING MIXTURE SHALL CONSIST OF 20% TOPSOIL, 60% SAND, AND 20% COMPOST.



SHRUB

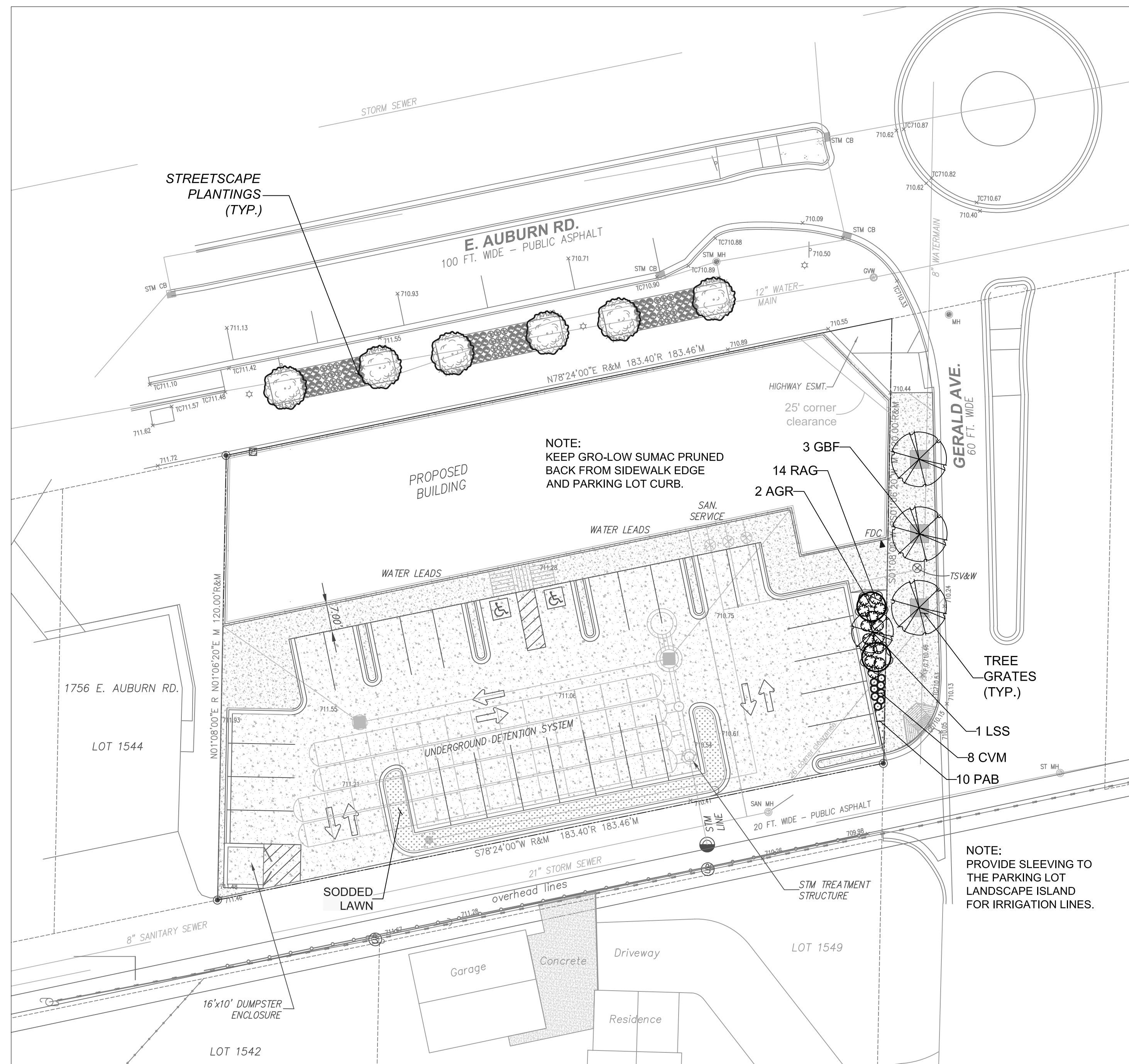
NOTE:

- CONTRACTOR TO VERIFY PERCOLATION OF PLANTING PIT PRIOR TO INSTALLATION.
- PERENNIALS TO BE PLANTED UP TO THE EDGE OF THE SAUCER AROUND A TREE OR SHRUB BED.
- THE PLANTING MIXTURE SHALL CONSIST OF 20% TOPSOIL, 60% SAND, AND 20% COMPOST.



PERENNIAL / GROUNDCOVER

not to scale



LANDSCAPE PLANTING PLAN

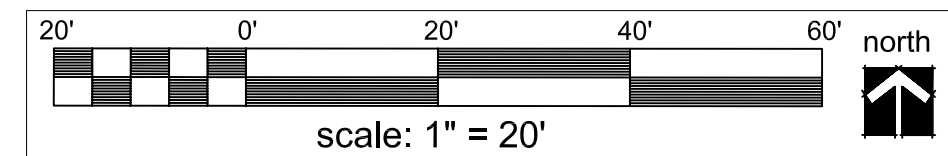
scale: 1" = 20'

LANDSCAPE CALCULATIONS:

- PERIMETER PARKING LOT LANDSCAPING (62 linear feet)
- One (1) deciduous tree for each twenty-five linear feet (25 l.f.) = 2.48 = 3 trees
 - Four (4) deciduous tree provided
 - One (1) ornamental tree for each thirty-five linear feet (35 l.f.) = 1.77 = 2 trees
 - Four (4) ornamental trees provided
- RIGHT-OF-WAY LANDSCAPING ALONG GERALD AVENUE (120 linear feet)
- One (1) deciduous tree for each thirty-five linear feet (35 l.f.) = 3.4 = 4 trees
 - Three (3) deciduous trees provided
 - One (1) ornamental tree for each sixty linear feet (60 l.f.) = 2.0 trees
 - Zero (0) ornamental trees provided
- (The tree planting requirements are deficient in quantity by five (5) trees, therefore, a contribution to the City Tree Fund will be made in the amount of \$1,520.)

NOTE:

- SEE ENGINEERING PLANS FOR THE SPECIFICATION OF SITE IMPROVEMENTS, UTILITY LAYOUT, AND SITE MODIFICATIONS. BEFORE IMPLEMENTING THE LANDSCAPE PLAN, REVIEW ALL ENGINEERING DOCUMENTS FOR ANY AMENDMENTS THAT MAY HAVE BEEN COMPLETED AFTER SITE PLAN APPROVAL. IF CONFLICTS OCCUR NOTIFY THE LANDSCAPE ARCHITECT SO APPROPRIATE MODIFICATIONS CAN BE MADE TO THE LANDSCAPE PLANTING PLAN.



scale: 1" = 20'



LOCATION MAP

not to scale

date: February 21, 2024
revised:

LANDSCAPE PLAN FOR:
Gerald Real Estate, L.L.C.
13500 Foley Street
Detroit, Michigan 48227
(313) 491-1815

PROJECT LOCATION:
Gerald Plaza
1760 East Auburn Road
at Gerald Avenue
Rochester Hills, Michigan

LANDSCAPE PLAN BY:
Nagy Devlin Land Design
31736 West Chicago Ave.
Livonia, Michigan 48150
(734) 634-9208



J. Brian Devlin
AUTOCAD SIGNATURE
ORIGINAL IN BLUE

LP - 1: LANDSCAPE PLANTING PLAN

* Base data provided by Tri-County Engineering Consultalts.

Statistics							
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min	Avg/Max
PARKING	✕	2.7 fc	9.7 fc	0.3 fc	32.3:1	9.0:1	0.3:1
PL	+	0.1 fc	0.2 fc	0.0 fc	N/A	N/A	0.5:1
SITE	+	0.6 fc	9.7 fc	0.0 fc	N/A	N/A	0.1:1



CNY LED Canopy/Ceiling Luminaire

Specifications

CNY LED P01/P2/P3 CNY LED P3/P4

Width: 10" 14"

Height: 4.5" 6"

Depth: 10" 14"

Weight: 5.5lbs 13lbs

Introduction

The CNY LED canopy luminaires are energy efficient and budget friendly, perfect for replacing up to 400W metal halide luminaires while saving up to 80% energy costs. Quick mount mechanism significantly reduces the installation time. An LED array and translucent lens create uniform and visually comfortable illumination. CNY LED luminaires are DLC Premium listed and deliver quick payback!

Ordering Information EXAMPLE: CNY LED P1 50K MVOLT DDB

Series	Performance Package	Color Temperature	Wattage	Stock
CNY LED	P1	40K	50W	128,274
	P2	40K	50W	128,274
	P3	40K	50W	128,274
	P4	40K	50W	128,274

Accessories

1. See contractor for P1/P2/P3/P4 kit availability.

2. Consideration required for outdoor use. See contractor for outdoor use.

3. See contractor for outdoor use. See contractor for outdoor use.

4. See contractor for outdoor use. See contractor for outdoor use.

FEATURES & SPECIFICATIONS

INTENDED USE

Canopy luminaires are designed for use in parking lots, walkways, loading areas, covered walkways and loading docks.

CONSTRUCTION

Canopy luminaires are constructed with a durable polycarbonate lens for long life. The lens is made of a clear, polycarbonate material that is resistant to impact and weathering.

ELECTRICAL

Canopy luminaires are designed for use with a 120V/277V AC power source. The luminaire is designed for use with a 120V/277V AC power source.

INSTALLATION

Canopy luminaires are designed for use with a 120V/277V AC power source. The luminaire is designed for use with a 120V/277V AC power source.



KAXW LED Wall Luminaire

Specifications

Length: 12" 18"

Height: 4" 6"

Weight: 1.5 lbs

Introduction

The KAXW LED wall luminaire is an A+ capable luminaire, which has been designed and tested to provide consistent color appearance and system-level interoperability.

All configurations of this luminaire meet the Acuity Brands' specification for chromatic consistency.

This luminaire is A+ Certified when ordered with DTL+ controls marked by a **shaded background**. DTL+ equipped luminaires meet the A+ specification for luminaire to photocell interoperability.

This luminaire is part of an A+ Certified solution for ICANET or XPower™ Wireless control networks, providing out-of-the-box control compatibility with simple commissioning, when ordered with **shaded background** and control options marked by a **shaded background**.

To learn more about A+, visit www.acuitybrands.com/a+.

1. See ordering tree for details.

Ordering Information EXAMPLE: KAXW LED P3 40K R3 MVOLT DDB/DX

Series	Performance Package	Color Temperature	Wattage	Stock
KAXW LED	P1	40K	40W	128,274
	P2	40K	40W	128,274
	P3	40K	40W	128,274

Accessories

1. See contractor for P1/P2/P3/P4 kit availability.

2. Consideration required for outdoor use. See contractor for outdoor use.

3. See contractor for outdoor use. See contractor for outdoor use.

4. See contractor for outdoor use. See contractor for outdoor use.

FEATURES & SPECIFICATIONS

INTENDED USE

Wall luminaires are designed for use in parking lots, walkways, loading areas, covered walkways and loading docks.

CONSTRUCTION

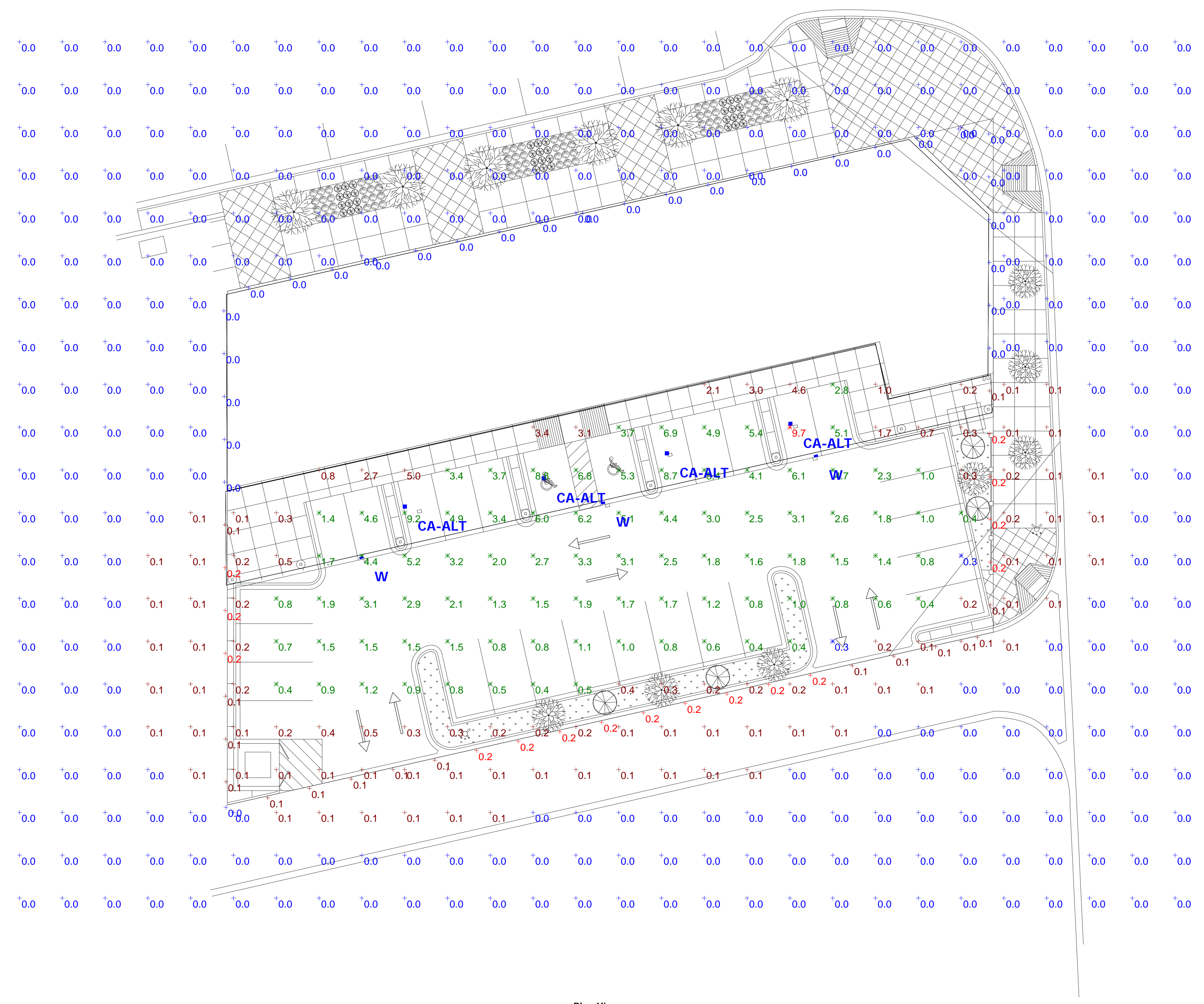
Wall luminaires are constructed with a durable polycarbonate lens for long life. The lens is made of a clear, polycarbonate material that is resistant to impact and weathering.

ELECTRICAL

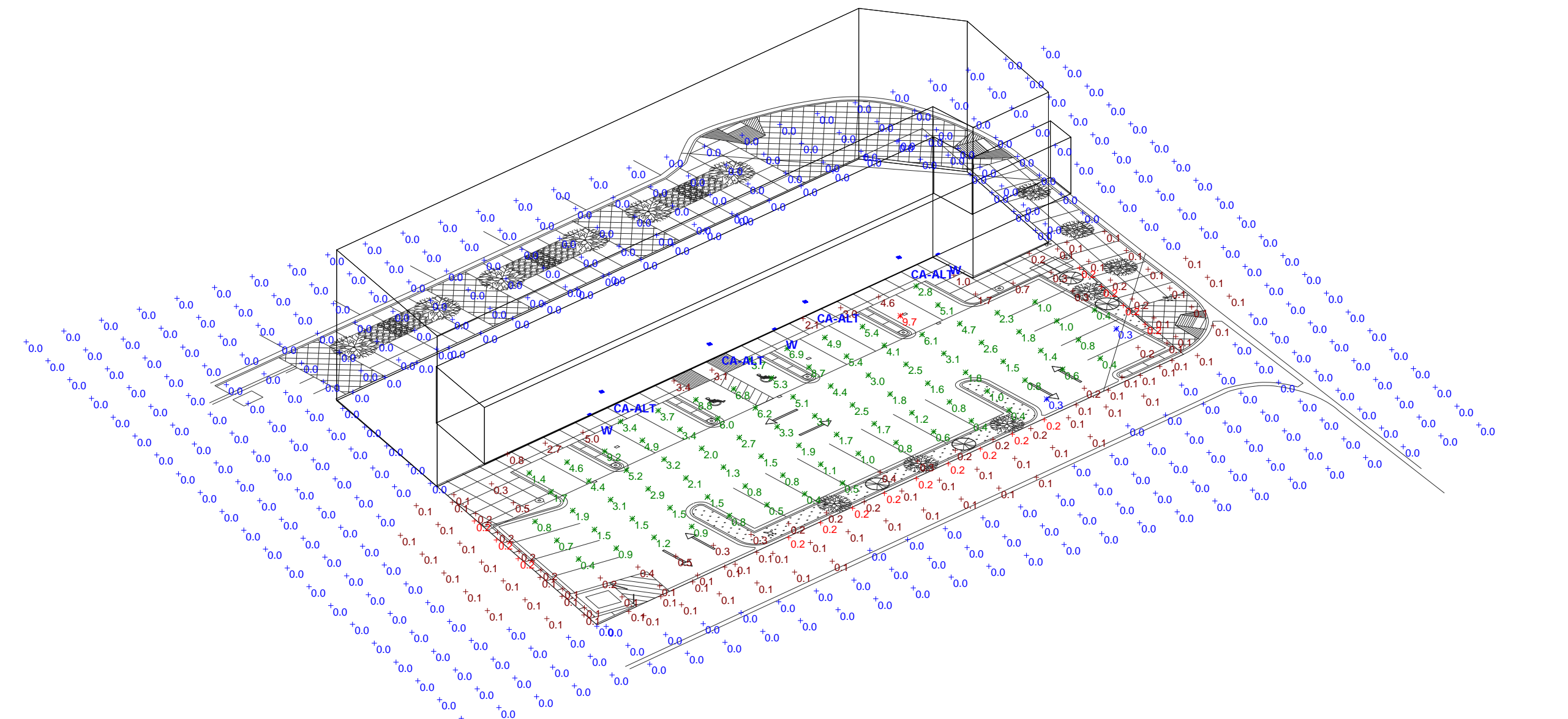
Wall luminaires are designed for use with a 120V/277V AC power source. The luminaire is designed for use with a 120V/277V AC power source.

INSTALLATION

Wall luminaires are designed for use with a 120V/277V AC power source. The luminaire is designed for use with a 120V/277V AC power source.



Plan View
Scale - 1" = 15'



South West View

Ordering Note

FOR INQUIRIES CONTACT GASSER BUSH AT QUOTES@GASSERBUSH.COM OR 734-266-6705.

Drawing Note

THIS DRAWING WAS GENERATED FROM AN ELECTRONIC IMAGE FOR ESTIMATION PURPOSE ONLY. LAYOUT TO BE VERIFIED IN FIELD BY OTHERS.

Mounting Height Note

MOUNTING HEIGHT IS MEASURED FROM GRADE TO FACE OF FIXTURE. POLE HEIGHT SHOULD BE CALCULATED AS THE MOUNTING HEIGHT LESS BASE HEIGHT.

General Note

1. SEE SCHEDULE FOR LUMINAIRE MOUNTING HEIGHT.
2. CALCULATIONS ARE SHOWN IN FOOTCANDLES AT: 0' - 0"

THE ENGINEER AND/OR ARCHITECT MUST DETERMINE APPLICABILITY OF THE LAYOUT TO EXISTING / FUTURE FIELD CONDITIONS. THIS LIGHTING LAYOUT REPRESENTS ILLUMINATION LEVELS CALCULATED FROM LABORATORY DATA TAKEN UNDER CONTROLLED CONDITIONS IN ACCORDANCE WITH ILLUMINATING ENGINEERING SOCIETY APPROVED METHODS. ACTUAL PERFORMANCE OF ANY MANUFACTURER'S LUMINAIRE MAY VARY DUE TO VARIATION IN ELECTRICAL VOLTAGE, TOLERANCE IN LAMPS, AND OTHER VARIABLE FIELD CONDITIONS. MOUNTING HEIGHTS INDICATED ARE FROM GRADE AND/OR FLOOR UP.

THESE LIGHTING CALCULATIONS ARE NOT A SUBSTITUTE FOR INDEPENDENT ENGINEERING ANALYSIS OF LIGHTING SYSTEM SUITABILITY AND SAFETY. THE ENGINEER AND/OR ARCHITECT IS RESPONSIBLE TO REVIEW FOR MICHIGAN ENERGY CODE AND LIGHTING QUALITY COMPLIANCE.

UNLESS EXEMPT, PROJECT MUST COMPLY WITH LIGHTING CONTROLS REQUIREMENTS DEFINED IN ASHRAE 90.1 2013. FOR SPECIFIC INFORMATION CONTACT GBA CONTROLS GROUP AT ASG@GASSERBUSH.COM OR 734-266-6705.

Schedule

Symbol	Label	QTY	Catalog Number	Description	Lamp	Number Lamps	Lumens per Lamp	LLF	Wattage	Mounting Height
W	W	3	KAXW LED P1 40K R4 MVOLT	KAXW LED, PERFORMANCE PACKAGE 1, 4000K, TYPE 4, 120-277V	LED	1	3643	0.9	29	15'
CA-ALT	CA-ALT	4	CNY LED P2 40K MVOLT	CNY LED Canopy P2=6,600lm	LED	168	6601	0.9	51.86	14'

3000 k required



AUBURN ROAD OFFICE
EXTERIOR PHOTOMETRIC SITE PLAN
PREPARED FOR: IBI
GASSER BUSH ASSOCIATES
WWW.GASSERBUSH.COM

Designer
nae
Date
7/13/2020
REV. 7/16/20
Scale
Not to Scale
Drawing No.
#20-51776 V4
1 of 1