CIVIL CONSTRUCTION PLANS FOR:

PROPOSED GAS STATION & CONVENIENCE STORE
5516 DAVISON ROAD, BURTON
PART OF NORTHEAST 1/4, SECTION 11, T7N-R7E, CITY OF BURTON, GENESEE COUNTY, MICHIGAN

GOVERNMENT AGENCIES & UTILITY PROVIDERS LIST

AGENCY	FACILITY	CONTACT PERSON
CONSUMER ENERGY ELECTRIC UTILITY DEPARTMENT 3201 E. COURT ST FLINT, MI 48501	ELECTRIC	TRACY MAHAR 517) 204-9018 pobox3PTY_LVDEZ6@cmsenergy.com
CONSUMER ENERGY GAS UTILITY DEPARTMENT 1801 W. MAIN ST OWOSSO, MI 48867	GASMAINS	TONNA WILCOX (810) 760-3486 tonna.wilcox@cmsenergy.com
AT&T COMMUNICATIONS BOX 32, 54 N. MILL ST. PONTIAC, MI 48342	TELEPHONE COMMUNICATIONS	MICHIGAN LEGAL MANDATES (248) 456-9371 g25564@att.com
COMCAST COMMUNICATIONS 25625 TELEGRAPH ROAD SOUTHFIELD, MI 48034	CABLE TV COMMUNICATIONS	JEFF DOBIES (248) 808-2722 jeffw1216@aol.com
CITY OF BURTON ENGINEERING DIVISION 4093 MANOR DRIVE BURTON, MI 48519	SOIL EROSION CONTROL	PETER WINGBLAD (810) 742-9230 p.wingblad@burtonmi.gov
CITY OF BURTON UTILITIES DIVISION 4093 MANOR DRIVE BURTON, MI 48519	SANITARY SEWERS & WATERMAINS	JACOB CEASE (810) 742-9230 (EXT. 3106) j.cease@burtonmi.gov
GENESEE COUNTY DRAIN COMMISIONER DIVISION OF SURFACE WATER MANAGEMENT G-4608 BEECHER ROAD FLINT, MI 48532	COUNTY DRAINS & STORM SEWER	HEATHER KRONENBERG (810) 732-1590 HKronenberg@co.genesee.mi.us
CITY OF BURTON ROAD DIVISION 4093 MANOR DRIVE BURTON, MI 48519	CITY ROADWAY & STORM	CHRIS HOWSER (810) 742-9230 (EXT. 3105) c.howser@burtonmi.gov
GENESEE COUNTY DRAIN COMMISSIONER DIVISION OF WATER & WASTE SERVICES G4608 BEECHER ROAD FLINT, MI 48532	SANITARY SEWER WATERMAIN & IPP PERMIT	LYNNETTE MEINZ, PE (810) 732-7870 lmeinz@gcdcwws.com

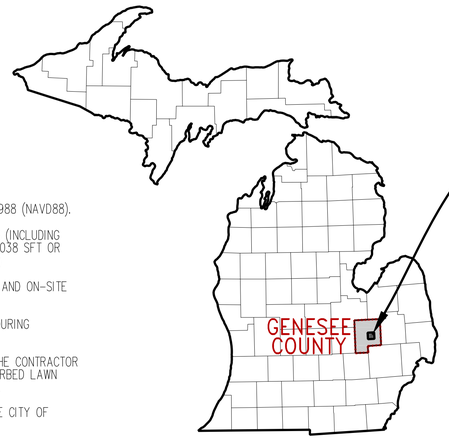
CONTRACTOR ALERT STATEMENT

THIS PROJECT HAS BEEN DESIGNED IMPLEMENTING THE LATEST GENESEE COUNTY AND CITY OF BURTON DESIGN SPECIFICATIONS. CAREFULLY REVIEW THE NOTES, DETAILS, AND DESIGN PRIOR TO SUBMITTING A BID. FULL COMPLIANCE WITH THE LATEST STANDARDS WILL BE REQUIRED.

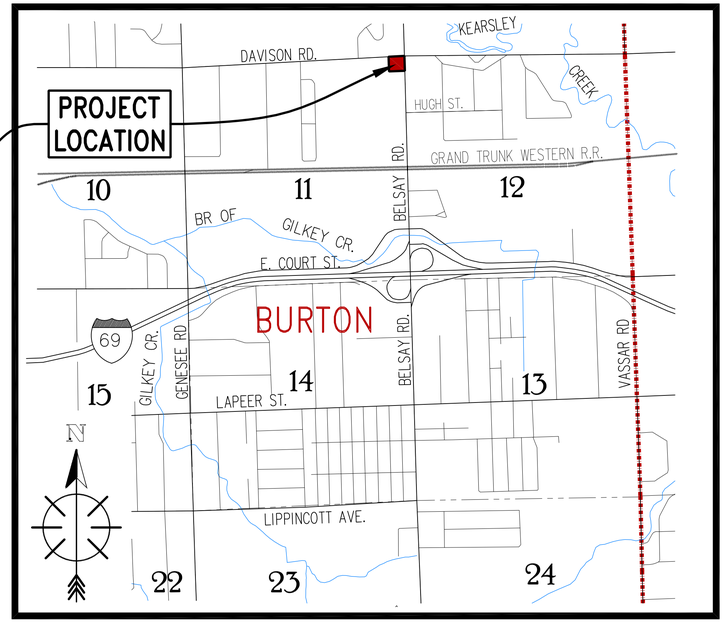
SHEET INDEX

UTILITY STATEMENT

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS, IF AVAILABLE. THE SURVEYOR AND/OR ENGINEER MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR AND/OR ENGINEER FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR AND/OR ENGINEER HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.



PROJECT LOCATION



LOCATION MAP

SITE PLAN NOTES:

1. THE VERTICAL DATUM IS NORTH AMERICAN VERTICAL DATUM 1988 (NAVD88).
2. TOTAL GROSS PROPERTY AREA = 52,447 SFT or 1.204 ACRES (INCLUDING THE ROAD RIGHT-OF-WAY. THE TOTAL NET USEABLE AREA = 32,038 SFT OR 0.735 ACRES OF LAND (NOT INLUDING THE ROAD RIGHT-OF-WAY)
3. NO OUTDOOR LONG TERM STORAGE IS ALLOWED ON THE SITE, AND ON-SITE BURNING WILL NOT BE ALLOWED.
4. THE CONTRACTOR MUST KEEP ALL DRIVES CLEAN AND OPEN DURING CONSTRUCTION.
5. AFTER ALL PROPOSED CONSTRUCTION WORK IS COMPLETED, THE CONTRACTOR MUST CLEAN ALL DISTURBED PAVEMENT AREAS, SEED ALL DISTURBED LAWN AREAS, AND REMOVE TEMPORARY SOIL EROSION CONTROL ITEMS.
6. ALL CONSTRUCTION WORK SHALL BE IN ACCORDANCE WITH THE CITY OF BURTON STANDARDS AND SPECIFICATIONS.

NATURAL FEATURES IMPACTS:

FLOOD PLAIN NOTE:
THIS PROPERTY IS IN ZONE "X" (AREAS OF MINIMAL FLOODING) OF THE FLOOD INSURANCE RATE MAP COMMUNITY PANEL NO. 26049C0211D WHICH BEARS AN EFFECTIVE DATE OF SEPTEMBER 25, 2009, AND IS NOT IN A SPECIAL FLOOD HAZARD AREA.

WETLAND NOTE:
ACCORDING TO THE FINAL WETLAND INVENTORY MAPS OF MICHIGAN, THERE ARE NO WETLAND AREAS ON THIS PROPERTY.

TREE NOTE:
THERE ARE NO REGULATED WOODLANDS ON THE SUBJECT PROPERTY.

POLLUTION/CONTAMINATION ON SITE:
THERE ARE NO KNOWN POLLUTION OR CONTAMINATES ON THE SUBJECT SITE.

PROJECT MANAGEMENT:

TRAFFIC IMPACT:
NO TRAFFIC STUDY OR IMPACT STUDY WAS COMPLETED BY THIS FIRM.

DRIVES AND DRIVEWAYS:
THE SITE HAS ONE (1) NEW DRIVEWAY APPROACH PROPOSED FOR THE SITE PROJECT. A PROPOSED RIGHT-IN AND RIGHT-OUT DRIVE APPROACH ALONG DAVISON ROAD. IF THE CONTRACTOR DOES DAMAGE TO ANY OF THE EXISTING ROADS, DRIVES, OR DRIVEWAYS, THEY SHALL BE REPAIRED, IN KIND, AT THE CONTRACTORS EXPENSE.

PROJECT NARRATIVE:
IT IS NOT ANTICIPATED THAT THERE WILL BE ANY SUBSTANTIAL INCREASE IN DUST, ODOR, SMOKE, FUMES, NOISE, OR LIGHTS. THE CONTRACTOR WILL BE REQUIRED TO COMPLY WITH ANY APPLICABLE ZONING ORDINANCE REQUIREMENTS REGARDING THESE ITEMS. THE ON-SITE CONSTRUCTION ACTIVITIES WILL INCLUDE THE USE OF EQUIPMENT SUCH AS A BACK HOE, DOZER, TRUCKS, CONCRETE MIXER, GENERATORS, COMPRESSORS, POWER SAWS, AND ELECTRIC DRILLS, ETC.

SEWER & WATER DEMAND BASIS OF DESIGN:

WATER USAGE = 50 GALLONS PER DAY (GPD) PER EMPLOYEE AND 10 GPD PER VISITOR

TOTAL EMPLOYEES PER DAY = 6 EMPLOYEES AT 50 GPD/PERSON; PLUS
TOTAL VISITORS PER DAY = 300 CUSTOMERS PER DAY AT 10 GPD/PERSON; PLUS
ADDITIONAL MULTIPLIER OF 10% = 300 + 3,000 = 3,300 x 10% = 3,630 GPD
TOTAL WATER DEMAND = 3,630 GALLONS PER DAY (GPD)

DAILY SEWAGE FLOW = 6 x 50 = 300 GPD + 300 x 10 = 3,000 GPD = 3,300 GPD TOTAL

TOTAL DAILY PEAK FLOW = 3,300 GPD x 1.1 x 4 = 14,520 GPD.
14,520 GPD / 1 DAY/24 HR / 1 HR/60 MIN = 10.083 GPM
TOTAL NEW SEWER FLOW FROM SITE = 10.083 GPM OR 0.0270 CFS

NOTES:
1. AN EXTERIOR GREASE TRAP/SEPARATOR IS PROPOSED. NO WASTE OR CHEMICAL BYPRODUCTS, OTHER THAN THE GREASE/OIL AND NORMAL HUMAN WASTE WILL BE PUT IN THE WASTEWATER SYSTEM. THE PROPOSED BUILDING WILL BE CONNECTED TO THE EXISTING SANITARY SEWER SYSTEM.

ALL REQUIRED PERMITS & APPROVALS FOR THE PROJECT:

1. CITY OF BURTON FOR PRELIMINARY & FINAL SITE PLANS. (APPROVAL RECEIVED)
2. CITY OF BURTON BUILDING DEPARTMENT (APPROVAL REQUIRED)
3. CITY OF BURTON FIRE DEPARTMENT (APPROVAL RECEIVED)
4. GENESEE COUNTY SURFACE WATER MANAGEMENT STORMWATER DISCHARGE TO RUMPH DRAIN (ROADWAY SYSTEM) (APPROVAL RECEIVED)
5. GENESEE COUNTY DIVISION OF WATER & WASTE SERVICES SITE PLAN APPROVAL. (APPROVAL REQUIRED)
6. CITY OF BURTON SOIL EROSION & SEDIMENTATION CONTROL DEPARTMENT. (PERMIT & APPROVAL REQUIRED)

EXISTING ZONING INFORMATION:
ACCORDING TO THE CURRENT CITY OF BURTON ZONING ORDINANCE THIS PROPERTY IS CURRENTLY ZONED C-1 (LOCAL BUSINESS DISTRICT), AND IS SUBJECT TO THE FOLLOWING CONDITIONS:

1) MINIMUM LOT AREA = NO LESS THAN 4,000 SQ FT
2) MINIMUM LOT WIDTH = 150 FEET (MIN FOR GAS STATION)
3) FRONT SETBACK = 25 FEET
4) SIDE SETBACK = 10 FEET
5) REAR SETBACK = 25 FEET
6) MAXIMUM BUILDING HEIGHT = 30 FEET (2 STORIES)
7) MAXIMUM LOT COVERAGE = 40 PERCENT

DRAINAGE DISTRICT LOCATION:
THIS SITE IS IN THE DRAINAGE DISTRICT OF THE RUMPH DRAIN, AN ENCLOSED COUNTY DRAIN (#0120). THE CLOSEST BODY OF WATER IS THE KEARSLEY CREEK, 1100'± NORTHEASTERLY OF THE SITE.

LANDSCAPING NOTE:
ALL LANDSCAPE PLANTINGS SHALL IN ACCORDANCE WITH THE SPECIFICATIONS LISTED IN THE CITY OF BURTON ZONING ORDINANCE. ALL MECHANICAL EQUIPMENT WILL BE PLACED ON THE ROOF TOPS OF ALL BUILDINGS AND SCREENED.

SITE LIGHTING NOTE:
ALL SITE LIGHTING SHALL IN ACCORDANCE WITH THE SPECIFICATIONS LISTED IN THE CITY OF BURTON ZONING ORDINANCE. PROPOSED WALL PACKS SHALL BE USED ON THE OUTSIDE WALLS OF THE PROPOSED BUILDING SHIELDED FROM ALL ADJACENT PROPERTIES.

SIGN LOCATION NOTE:
NO NEW ADVERTISING SIGNS ARE PROPOSED AS PART OF THIS SITE PLAN APPROVAL, ALL PROPOSED SIGNS SHALL BE APPLIED FOR AFTER RECEIVING SITE PLAN APPROVALS.

HAZARDOUS MATERIALS NOTE:
THERE WILL BE NO SHIPMENT OR STORAGE OF HAZARDOUS MATERIALS ON-SITE AT ANY TIME. THERE ARE NO AREAS OF CONTAMINATION ON SUBJECT PROPERTY.

LEGAL DESCRIPTION (AS PROVIDED):

PARCEL NUMBER 59-11-200-006, 5516 DAVISON ROAD
TRANSNATION TITLE AGENCY: COMMITMENT NO. 424925CLK
LAND LOCATED IN THE CITY OF BURTON, COUNTY OF GENESEE, STATE OF MICHIGAN:
THE EAST 233 FEET OF THE NORTH 225 FEET OF THE NORTHEAST 1/4 OF SECTION 11, TOWN 7 NORTH, RANGE 7 EAST. (SUBJECT TO ALL EASEMENTS & RESTRICTIONS OF RECORD)

STANDARD NOTES FOR SITE PLANS:

* A. EXTENSION OF PUBLIC UTILITIES: ALL PUBLIC SANITARY SEWER AND/OR WATERMAIN SHALL BE EXTENDED TO THE FURTHEST LIMITS OF THE PROPERTY, INCLUDING CORNER LOTS, WITH THE PIPE SIZE AND MATERIAL APPROVED BY THE CITY OF BURTON. THIS IS NECESSARY FOR PLAN APPROVAL. FOR WATER SERVICE OF 1" OR LESS OR A BUILDING ON A CORNER LOT, THE REQUIREMENTS TO EXTEND THE PUBLIC WATERMAIN AND/OR SANITARY SEWER ALONG BOTH PROPERTY LINES WILL BE REVIEWED.

* B. WATERMAIN LOOPING: ALL PUBLIC WATERMAINS SHALL BE LOOPED WHENEVER POSSIBLE. THE PIPE SIZE REQUIREMENTS SHALL BE APPROVED BY THE CITY OF BURTON.

C. INDUSTRIAL PRETREATMENT PROGRAM (IPP): THIS PERMIT IS REQUIRED FOR ALL COMMERCIAL (NON-RESIDENTIAL) AND INDUSTRIAL DISCHARGES. THE OWNER SHALL OBTAIN AN INDUSTRIAL PRETREATMENT DISCHARGE PERMIT PRIOR TO THE ISSUANCE OF A SEWER CONNECTION PERMIT. INDUSTRIAL DISCHARGE PERMITS ARE NONTRANSFERABLE. CHANGES IN FACILITY USE WILL REQUIRE A NEW INDUSTRIAL DISCHARGE PERMIT. FOR MORE INFORMATION CALL THE ANTHONY RAGNONE TREATMENT PLANT AT (810) 232-7662.

D. SOIL EROSION: THE DEVELOPER AND/OR OWNER SHALL SUBMIT A DETAILED SOIL EROSION AND SEDIMENTATION CONTROL PLAN AND OBTAIN AN ACT 451 PART 91, SOIL EROSION AND SEDIMENTATION CONTROL PERMIT. THIS INCLUDES THE PAYMENT OF FEES AND THE PROVIDING OF NECESSARY BONDS. NO EARTH CHANGES OR EXCAVATION SHALL BE STARTED PRIOR TO THE ISSUANCE OF THIS PERMIT. THE DEVELOPER AND/OR OWNER SHALL PROTECT ALL EXISTING AND PROPOSED STORM SEWER FACILITIES ON AND ADJACENT TO THE SITE DURING EXCAVATION AND CONSTRUCTION. ALL SEDIMENT SHALL BE CONTAINED ON SITE. ANY SILT IN COUNTY DRAINS, STORM SEWER, CULVERTS, ETC. AS A RESULT OF THIS PROJECT, SHALL BE REMOVED BY THE DEVELOPER AND/OR OWNER AT THE COST OF THE DEVELOPER AND/OR OWNER.

* E. FLOOD PLAIN OR WETLAND CONSTRUCTION: THE DEVELOPER AND/OR OWNER SHALL APPLY TO MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY (EGLE) FOR A PERMIT FOR THE ALTERATION AND/OR OCCUPATION OF A FLOOD PLAIN OR FLOODWAY, AS REQUIRED UNDER PA 451. EVIDENCE OF THIS PERMIT MAY BE REQUIRED PRIOR TO PLAN APPROVAL BY CITY OF BURTON. NO EARTH CHANGES OR EXCAVATION SHALL BE STARTED PRIOR TO THE ISSUANCE OF THIS PERMIT.

* F. NPDES STORM WATER DISCHARGE PERMIT: THE OWNER OF THE PROPERTY SHALL OBTAIN A NPDES STORM WATER DISCHARGE PERMIT FOR CONSTRUCTION ACTIVITIES FROM EGLE AS REQUIRED UNDER PUBLIC ACT 451. THE NOTICE OF COVERAGE FORM SHALL BE SUBMITTED THROUGH THE CITY OF BURTON WITH THE SOIL EROSION CONTROL PERMIT APPLICATION. ALL EGLE FEES SHALL ACCOMPANY THE NOTICE OF COVERAGE. EVIDENCE OF THIS PERMIT MAY BE REQUIRED PRIOR TO PLAN APPROVAL BY CITY OF BURTON. LESS THAN 0.75 ACRES WILL BE DISTURBED IN CONSTRUCTION OF THIS PROJECT, THEREFORE A NPDES STORM WATER DISCHARGE PERMIT WILL NOT REQUIRED.

* G. CITY OF BURTON PERMIT TO CONSTRUCT A PUBLIC UTILITY: AFTER THE APPROVAL OF THIS PRELIMINARY PLAT OR SITE PLAN, THE DEVELOPER SHALL SUBMIT A DETAILED PLAN FOR CONSTRUCTION OF ALL PUBLIC SANITARY SEWER AND WATERMAIN. THE PLANS MUST HAVE CITY APPROVAL, A S-PERMIT ISSUED, AND APPROVAL FROM THE EGLE PRIOR TO BEGINNING CONSTRUCTION.

H. CITY OF BURTON ROAD RIGHT OF WAY PERMIT: THE DEVELOPER SHALL OBTAIN A PERMIT FROM THE CITY OF BURTON TO PERFORM WORK WITHIN THE CITY OF BURTON RIGHT-OF-WAY. ALL FEES FOR THE PERMIT, BONDS AND INSURANCES ARE THE RESPONSIBILITY OF THE DEVELOPER.

I. MUNICIPALITY SANITARY SEWER AND WATER PERMIT: PRIOR TO THE ISSUANCE OF A BUILDING PERMIT BY THE LOCAL MUNICIPALITY, THE DEVELOPER SHALL BE REQUIRED TO OBTAIN A SANITARY SEWER AND/OR WATER TAP-IN PERMIT FROM THE LOCAL MUNICIPALITY, IF AUTHORIZED.

* J. STATE CONSTRUCTION PERMITS: THE SANITARY SEWER AND WATERMAIN CONSTRUCTION PERMITS FROM THE MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES AND ENERGY SHALL BE SUBMITTED TO THE EGLE AFTER APPROVAL OF THE CITY OF BURTON. CONSTRUCTION SHALL NOT BEGIN UNTIL THESE STATE PERMITS ARE ISSUED.

*NOT APPLICABLE TO THIS PROJECT

Know what's **below.**
Call before you dig.

CIVIL SITE PLANS BY:
FENTON LAND SURVEYING & ENGINEERING, INC
14165 N FENTON ROAD, SUITE 101A
FENTON, MI 48430
PHONE: 810.354.8115
ATTN: RADE BESLAC &
JENNIFER B MILLER, PE #45076

STATE OF MICHIGAN — JENNIFER B. MILLER — ENGINEER — NO. 6201044076 — LICENSED PROFESSIONAL ENGINEER

FLSE JOBS/24-313/SECT 11/BURTON/5516 DAVISON/COVER SHEET.DWG - G-1

SCALE: NONE	PREPARED FOR: DAVISON & BELSAY, LLC C/O DONOVAN SHANGO 3358 CREEKVIEW DRIVE DAVISON, MI 48423 EMAIL: DONOVAN.SHANGO@YAHOO.COM	PART OF THE NORTHEAST 1/4, SECTION 11, T7N-R7E CITY OF BURTON, GENESEE CO, MI	Fenton Land Surveying & Engineering, Inc 14165 N. FENTON ROAD, SUITE 101A, FENTON, MI 48430 PHONE: 810.354.8115 EMAIL:INFO@FENTONLSE.COM	GENERAL PLAN COVER & NOTE SHEET: PROPOSED GAS STATION & CONVENIENCE STORE 5516 DAVISON ROAD, BURTON, MI 48509	SHEET NO: G-1
JOB NO. 24-313					

REVISIONS			
07.28.2026	DRN. BY:	J.R.B.	03.17.2025
08.26.2026 GCDC WWS - CASE SP26-46	DSN BY:	J.R.B.	"
	CHK'D BY:	D.J.K.	"
	APPR BY:	J.B.M.	"

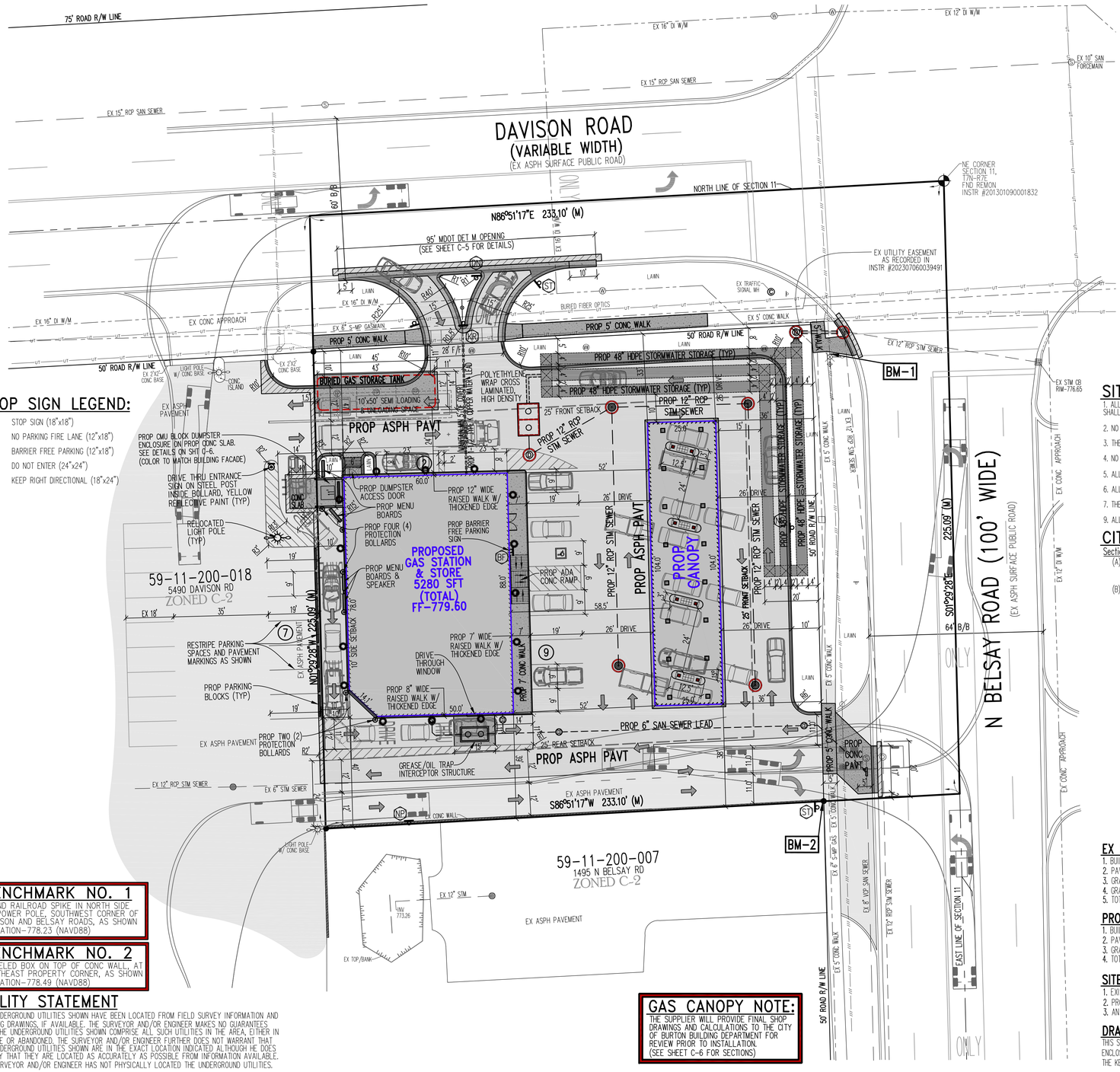
OVERALL SITE PLAN LAYOUT

NORTH

GRAPHIC SCALE
0 10 20
(IN FEET)
1 inch = 20 ft.

DESCRIPTION OF PROJECT USE & TIMING:

THIS PROJECT IS DESIGNED TO BECOME A FUELING GAS STATION AND CONVENIENCE STORE THAT WILL ALSO SERVE FAST FOOD BREAKFAST AND LUNCH ITEMS. CONSTRUCTING A NEW 5,280 SFT CONVENIENCE STORE AND PUTTING UP ONE (1) GAS CANOPY WITH FOUR (4) GAS PUMPS INSTALLED. THE ENTIRE SITE WILL HAVE A DRAINAGE STORMWATER SYSTEM THAT HEADS INTO A UNDERGROUND 48 INCH PIPE NETWORK DETENTION BASIN SYSTEM THAT IS SIZED TO ACCOMMODATE THE ENTIRE SITE. THE CONSTRUCTION TIMELINE WERE LOOKING AT IS TO COMMENCE AROUND MAY 2025 AND FINISHING UP JUST AFTER NEW YEAR OF 2026.



PROP SIGN LEGEND:

- (ST) STOP SIGN (18"x18")
- (NP) NO PARKING FIRE LANE (12"x18")
- (BF) BARRIER FREE PARKING (12"x18")
- (DN) DO NOT ENTER (24"x24")
- (KR) KEEP RIGHT DIRECTIONAL (18"x24")

BENCHMARK NO. 1

FOUND RAILROAD SPIKE IN NORTH SIDE OF POWER POLE, SOUTHWEST CORNER OF DAVISON AND BELSAY ROADS, AS SHOWN ELEVATION-778.23 (NAVD88)

BENCHMARK NO. 2

CHISELED BOX ON TOP OF CONC WALL, AT SOUTHEAST PROPERTY CORNER, AS SHOWN ELEVATION-778.49 (NAVD88)

UTILITY STATEMENT

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS, IF AVAILABLE. THE SURVEYOR AND/OR ENGINEER MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR AND/OR ENGINEER FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR AND/OR ENGINEER HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

GAS CANOPY NOTE:

THE SUPPLIER WILL PROVIDE FINAL SHOP DRAWINGS AND CALCULATIONS TO THE CITY OF BURTON BUILDING DEPARTMENT FOR REVIEW PRIOR TO INSTALLATION. (SEE SHEET C-6 FOR SECTIONS)

GASOLINE STATION REQUIREMENTS:

1. CONVENIENCE STORE AND GASOLINE SALES SHALL BE SUBJECT TO THE FOLLOWING REQUIREMENTS, IN ADDITION TO ALL REQUIREMENTS OF SECTION 157.092 (SITE PLAN REVIEW):

(A) THE MULTI-USE CONVENIENCE STORE SHALL BE OF A MINIMUM SIZE OF 2,000 SQUARE FEET PER USE;

(B) GASOLINE SALES SHALL BE IN CONJUNCTION WITH A CONVENIENCE STORE OR RESTAURANT USE AND SHALL NOT BE CONDUCTED FROM A SEPARATE STRUCTURE. PROVISIONS ALSO ALLOW FAST FOOD RESTAURANTS WITH OR WITHOUT A DRIVE-THROUGH; ALL OF THESE USES MAY BE WITH OR WITHOUT SEATING.

(C) THE CONVENIENCE STORE SHALL BE OF A SIZE SO AS TO ACCOMMODATE WALK-IN TRADE AND INDOOR BEVERAGE COOLERS, SHALL OFFER ITEMS NORMALLY FOUND IN CONVENIENCE STORES.

L E G E N D

- EX ROAD SIGNS
- EX TRANSFORMER
- EX UTILITY POLE
- EX SERVICE PEDESTAL
- EX OVERHEAD POWERLINES
- EX BURIED GASMAIN
- EX STORM SEWER
- EX STORM MANHOLE
- EX STORM CATCHBASINS
- EX SANITARY SEWER
- EX SANITARY MANHOLE
- EX WATER MANHOLE
- EX WATERMAIN LINE
- EX BUILDING AREA
- EX ASPH PAVEMENT AREAS
- EX CONC PAVEMENT AREAS
- PROP CONCRETE AREAS
- PROP GAS CANOPY AREA
- PROP HEAVY-DUTY ASPHALT AREAS
- PROP STANDARD ASPHALT AREAS
- PROP THICKENED EDGE WALK
- PROP 24" CURB & GUTTER, DET F4
- PROP WATER SHUT-OFF VALVE & LEAD
- PROP STORM CATCHBASIN/MANHOLE
- PROP STORM SEWER
- PROP PARKING SPACE NO.
- PROP BARRIER FREE (ADA) PARKING
- PROP PAINTED TRAFFIC FLOW ARROW
- PROP RECESSED CANOPY LIGHT (TYPE A)
- PROP 20' HIGH LIGHT POLE (TYPE B)
- PROP 12' HIGH WALL PACK LIGHT (TYPE C)
- PROP TRAFFIC/PARKING SIGN & SYM
- PROP FINISHED FLOOR

SITE DATA:

1) SITE ZONING = C-1 (COMMERCIAL DISTRICT)
   GAS SERVICE STATIONS PERMITTED UNDER C-2 ZONING
   DRIVE THRU WINDOWS PERMITTED UNDER C-2 ZONING
2) ADJACENT ZONING = C-2 (WEST & SOUTH) (EXCEPT THIS PARCEL)
3) TOTAL GROSS OVERALL AREA = 52,447 SFT or 1.204 ACRES
   TOTAL USEABLE AREA (EXCLUDING ROAD R/W) = 32,038 SFT or 0.735 ACRES
4) TOTAL GROSS BUILDING/CANOPY AREAS:
   PROPOSED BUILDING FLOOR AREA = 5,280 SFT
   PROPOSED AUTO CANOPY AREA = 2,600 SFT
   TOTAL PROPOSED STRUCTURE AREA = 7,880 SFT
5) MAXIMUM BUILDING HEIGHT ALLOWED = 30'-0"
   PROPOSED BUILDING HEIGHT = 20 FEET
   PROPOSED CANOPY HEIGHT = 18'-6" FEET (TO TOP)
6) MAXIMUM BUILDING LOT COVERAGE = 40%
   BUILDING + CANOPY = 7,880/32,038 = 0.2459
   TOTAL SITE BUILDING COVERAGE = 24.6%
7) MAXIMUM IMPERVIOUS LOT COVERAGE = NONE SPECIFIED
   BUILDING + PAVEMENT = 29,117/32,038 = 0.9088
   TOTAL SITE IMPERVIOUS COVERAGE = 90.88%
8) PARKING SPACE & LANE SIZE REQUIREMENTS
   a) REGULAR PARKING SPACE (90°) = 9' x 19' (171 SFT)
   b) BARRIER FREE SPACE = 9' x 18' W/5' or 8' AISLE (VAN ACCESSIBLE)
   c) DRIVE LANE WIDTH (90°) = 25' (MIN)
   d) PARALLEL PARKING SPACE (0°) = 8' x 23' (184 SFT)
9) PARKING REQUIRED (CONVENIENCE STORE WITH GASOLINE):
   1 SPACE FOR 200 SFT OF GROSS FLOOR AREA =
   5280 SFT/200 = 26.4 or 26 SPACES, AND ONE (1) SPACE
   PER EACH EMPLOYEE ON-SHIFT = 3 SPACES
   TOTAL PARKING SPACES REQUIRED = 26 + 3 = 29 SPACES
10) SITE PARKING REQUIRED & PROVIDED:
    THE AREA ON EACH SIDE OF A GAS PUMP CONSTITUTES
    A PARKING SPACE "2 SPACES/PUMP"
    TOTAL GAS PUMP SPACES PROVIDED = 8 SPACES
    TOTAL REGULAR PARKING SPACES PROVIDED = 18 SPACES
    (7 PARKING SPACES ARE WEST OF SITE WITHIN A VEHICULAR ACCESS EASEMENT)
    TOTAL DRIVE-THRU STACKING SPACES PROVIDED = 8 PROVIDED
    TOTAL PARKING SPACES PROVIDED ON-SITE = 34 SPACES
11) BARRIER FREE PARKING REQUIRED = 1 SPACE
    BARRIER FREE PARKING PROVIDED = 1 SPACE
12) DESIGNATED LOADING SPACE REQUIRED & PROVIDED = 1
13) EXISTING LAND USE = VACANT LAND
14) PROPOSED LAND USE = GAS STATION & CONVENIENCE STORE
15) EXISTING ADDRESS = 5516 DAVISON ROAD

SITE PLAN SPECIFIC NOTES:

1. ALL OUTDOOR LIGHTING SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS LISTED IN THE CITY OF BURTON ZONING ORDINANCE, AND SHALL BE SHIELDED FROM PROJECTING ONTO OR INTO AN ADJOINING RESIDENTIAL DISTRICT AND SHALL NOT INTERFERE WITH DRIVER VISIBILITY ON A PUBLIC RIGHT-OF-WAY.
2. NO VEHICLES OR MERCHANDISE FOR SALE SHALL BE DISPLAYED WITHIN ANY REQUIRED FRONT YARD SETBACK, COMMERCIAL VEHICLES SHALL BE PARKED/STORED IN THE REAR YARD.
3. THERE SHALL BE NO BROADCAST OF CONTINUOUS MUSIC OR ANNOUNCEMENTS OVER ANY LOUDSPEAKER OR PUBLIC ADDRESS SYSTEM.
4. NO OUTDOOR SALES OR DISPLAY AREAS ARE ALLOWED WITHIN THE FRONT YARD SETBACK.
5. ALL FIRE ACCESS ROADS/DRIVES ARE A MINIMUM AND SHALL BE MIN 20 FEET OF CLEAR WIDTH AND "NO PARKING FIRE LANE" SIGNS POSTED ALONG THIS ROUTE.
6. ALL LANDSCAPE PLANTINGS SHALL IN ACCORDANCE WITH THE SPECIFICATIONS LISTED IN THE CITY OF BURTON ZONING ORDINANCE. ALL MECHANICAL EQUIPMENT WILL BE PLACED ON THE ROOFTOPS OF ALL BUILDINGS AND SCREENED.
7. THERE WILL BE NO SHIPMENT OR STORAGE OF HAZARDOUS MATERIALS ON-SITE AT ANY TIME. THERE ARE NO AREAS OF CONTAMINATION ON SUBJECT PROPERTY.
9. ALL ACTIVITIES, EXCEPT THOSE REQUIRED TO BE PERFORMED AT THE SERVICE ISLAND, SHALL BE CONDUCTED ENTIRELY WITHIN THE ENCLOSED BUILDING.

CITY OF BURTON SERVICE STATION REQUIREMENTS:

Section 157.074 AUTOMOBILE SERVICE STATIONS.

(A) IN ORDER TO REGULATE AND CONTROL THE PROBLEMS OF NOISE, ODOR, LIGHT, FUMES, VIBRATION, DUST, DANGER OF FIRE AND EXPLOSION, AND TRAFFIC CONGESTION WHICH RESULT FROM THE UNRESTRICTED AND UNREGULATED CONSTRUCTION AND OPERATION OF AUTOMOBILE SERVICE STATIONS, AND TO REGULATE AND CONTROL THE ADVERSE EFFECTS WHICH THESE AND OTHER PROBLEMS INCIDENTAL TO THE AUTOMOBILE SERVICE STATION MAY EXERCISE UPON ADJACENT AND SURROUNDING AREAS, THE FOLLOWING ADDITIONAL REGULATIONS AND REQUIREMENTS ARE PROVIDED HEREIN FOR AUTOMOBILE SERVICE STATIONS LOCATED IN ANY ZONE.

(B) ALL AUTOMOBILE SERVICE STATIONS ERECTED AFTER THE EFFECTIVE DATE OF THIS ORDINANCE SHALL COMPLY WITH ALL REQUIREMENTS OF THIS SECTION. NO AUTOMOBILE SERVICE STATION EXISTING ON THE EFFECTIVE DATE OF THIS ORDINANCE SHALL BE STRUCTURALLY ALTERED SO AS TO PROVIDE A LESSER DEGREE OF CONFORMITY WITH THE PROVISIONS OF THIS SECTION THAN EXISTED ON THE EFFECTIVE DATE OF THIS ORDINANCE.

(1) AN AUTOMOBILE SERVICE STATION SHALL BE LOCATED ON A LOT HAVING A FRONTAGE ALONG THE PRINCIPAL STREET OF NOT LESS THAN 150 FEET, AND HAVING A MINIMUM AREA OF NOT LESS THAN 15,000 SQUARE FEET.

(2) AN AUTOMOBILE SERVICE STATION BUILDING HOUSING AN OFFICE OR FACILITIES FOR SERVICING, GREASING, OR WASHING MOTOR VEHICLES SHALL BE LOCATED NOT LESS THAN 40 FEET FROM ANY STREET LOT LINE, AND NOT LESS THAN 25 FEET FROM ANY SIDE OR REAR LOT LINE ADJOINING A RESIDENTIALLY ZONED DISTRICT. (NO VEHICLE SERVICING GARAGES PROPOSED)

(3) ALL DRIVEWAYS PROVIDING INGRESS TO OR EGRESS FROM AN AUTOMOBILE SERVICE STATION SHALL BE NOT MORE THAN 30 FEET WIDE AT THE PROPERTY LINE. NO MORE THAN 1 CURB OPENING SHALL BE PERMITTED FOR EACH 50 FEET OF FRONTAGE OR MAJOR FRACTION THEREOF ALONG ANY STREET. NO DRIVEWAY OR CURB OPENING SHALL BE LOCATED NEARER THAN 20 FEET TO ANY CORNER OR EXTERIOR LOT LINE, AS MEASURED ALONG THE PROPERTY LINE. NO DRIVEWAY SHALL BE LOCATED NEARER THAN 30 FEET, AS MEASURED ALONG THE PROPERTY LINE, TO ANY OTHER DRIVEWAY GIVING ACCESS TO OR FROM THE SAME AUTOMOBILE SERVICE STATION.

(4) A RAISED CURB 6 INCHES IN HEIGHT SHALL BE ERECTED ALONG ALL STREET LOT LINES, EXCEPT FOR DRIVEWAY OPENINGS.

(5) ALL LUBRICATION EQUIPMENT, MOTOR VEHICLE WASHING EQUIPMENT, HYDRAULIC HOISTS, AND PITS SHALL BE ENCLOSED ENTIRELY WITHIN A BUILDING. (NOT APPLICABLE)

(6) AN AUTOMOBILE SERVICE STATION LOCATED ON A LOT HAVING AN AREA OF 15,000 SQUARE FEET SHALL INCLUDE NOT MORE THAN 8 GASOLINE PUMPS AND 2 ENCLOSED STALLS FOR SERVICING, LUBRICATING, GREASING, AND WASHING MOTOR VEHICLES. AN ADDITIONAL 2 GASOLINE PUMPS AND 1 ENCLOSED STALL MAY BE INCLUDED WITH THE PROVISION OF EACH ADDITIONAL 2,000 SQUARE FEET OF LOT AREA. (NO VEHICLE SERVICING GARAGES PROPOSED, JUST CONVENIENCE STORE AND SELLING FUELS)

(7) ALL GASOLINE PUMPS SHALL BE LOCATED NOT LESS THAN 15 LINEAL FEET FROM ANY LOT LINE, AND SHALL BE ARRANGED SO THAT MOTOR VEHICLES SHALL NOT BE SUPPLIED WITH GASOLINE OR SERVICE WHILE PARKED UPON OR OVERHANGING ANY PUBLIC SIDEWALK, STREET, OR RIGHT-OF-WAY.

(8) WHERE AN AUTOMOBILE SERVICE STATION ADJOINS PROPERTY LOCATED IN ANY RESIDENTIAL ZONE, A MASONRY WALL 5 FEET IN HEIGHT SHALL BE ERECTED AND MAINTAINED ALONG THE SERVICE STATION PROPERTY LINE. ALL MASONRY WALLS SHALL BE PROTECTED BY A FIXED CURB OR BARRIER TO PREVENT VEHICLES FROM CONTACTING THE WALL.

(9) ALL EXTERIOR LIGHTING, INCLUDING ILLUMINATED SIGNS, SHALL BE ERECTED AND HOODED OR SHIELDED SO AS TO BE DEFLECTED AWAY FROM ADJACENT AND NEIGHBORING PROPERTY.

(10) (A) WHEN A STRUCTURE DESIGNED AND USED FOR AUTOMOBILE SERVICE STATION OR FILLING STATION PURPOSES CEASES TO OPERATE ON A CONTINUING BASIS FOR A PERIOD OF 90 DAYS WITHIN ANY PERIOD OF 18 MONTHS, THE OWNER OF THE PREMISES SHALL BE SERVED WRITTEN NOTICE BY THE ZONING ADMINISTRATOR OF THE REQUIREMENT, WITHIN 60 DAYS OF THE DATE OF THE NOTICE, TO EITHER:
1. RESUME OPERATION OF THE PREMISES ON A CONTINUING BASIS AS A LAWFUL AUTOMOBILE SERVICE STATION OR FILLING STATION; (NO VEHICLE SERVICING GARAGES PROPOSED)
2. LAWFULLY CONVERT THE STRUCTURE TO ANOTHER PERMITTED USE IN THAT DISTRICT; OR
3. DEMOLISH THE STRUCTURE AND COMPLETELY REMOVE THE DEBRIS FROM THE PREMISES.

(B) ALL NEW AUTOMOBILE SERVICE STATIONS OR FILLING STATIONS CONSTRUCTED AFTER THE EFFECTIVE DATE OF THIS ORDINANCE SHALL BE REQUIRED TO POST A BOND WITH THE ZONING ADMINISTRATOR IN AN AMOUNT EQUAL TO THE ESTIMATED COST OF DEMOLITION AND CLEARANCE OF IMPROVEMENTS ON THE PREMISES. FAILURE TO COMPLY WITH ONE OF THE ABOVE MENTIONED 3 ALTERNATIVES SHALL EMPOWER THE ZONING ADMINISTRATOR TO UTILIZE THE BOND FOR THE DEMOLITION AND CLEARANCE OF THE PREMISES IN QUESTION. IF THERE SHOULD BE DECLARED A NATIONAL EMERGENCY WHICH WOULD CURTAIL THE OPERATION OF MOTOR VEHICLES OR IF THE PLANNING COMMISSION SHOULD DETERMINE THAT THERE EXISTS A STATE OF GENERAL ECONOMIC DEPRESSION OR HARDSHIP, THE PROVISIONS OF THIS SUBSECTION (B)(10) SHALL NOT APPLY.

EX SITE AREA TYPES & CALCS:

1. BUILDING AREAS = 0/32,833 = 0.00%
2. PAVEMENT AREAS = 11,111/32,833 = 33.84%
3. GRAVEL AREAS = 6,238/32,833 = 19.00%
4. GRASS/LAWN AREAS = 15,484/32,833 = 47.16%
5. TOTAL SITE AREA IS 32,833 SFT or 0.754 ACRES

PROP SITE AREA TYPES & CALCS:

1. BUILDING AREAS = 5,280/32,833 = 16.08%
2. PAVEMENT AREAS = 25,128/32,833 = 76.53%
3. GRASS/LAWN AREAS = 2,425/32,833 = 7.39%
4. TOTAL SITE AREA IS 32,833 SFT or 0.754 ACRES

SITE IMPERVIOUS/PERVIOUS CALCS:

1. EXISTING SITE IMPERVIOUS COVERAGE = 17,349/32,833 = 0.5284 or 52.84%
2. PROPOSED SITE IMPERVIOUS COVERAGE = 30,408/32,833 = 0.9261 or 92.61%
3. AN INCREASE OF 92.61-52.84 = 39.77% IMPERVIOUS SURFACE or 13,059 SFT

DRAINAGE DISTRICT LOCATION:

THIS SITE IS IN THE DRAINAGE DISTRICT OF THE RUMPH DRAIN, AN ENCLOSED COUNTY DRAIN (#0120). THE CLOSEST BODY OF WATER IS THE KEARSLEY CREEK, 1100'± NORTHEASTERLY OF THE SITE.

EXISTING ZONING INFORMATION:

ACCORDING TO THE CURRENT CITY OF BURTON ZONING ORDINANCE THIS PROPERTY IS CURRENTLY ZONED C-1 (LOCAL BUSINESS), AND IS SUBJECT TO THE FOLLOWING CONDITIONS:

1) MINIMUM LOT AREA = NO LESS THAN 4,000 SQ FT
2) MINIMUM LOT FRONTAGE = 150 FEET (FOR GAS STATIONS)
3) FRONT SETBACK = 25 FEET
4) SIDE SETBACK = NONE IF WALLS ABUTTING THOSE LOT LINES ARE OF FIREPROOF CONSTRUCTION AND WHOLLY WITHOUT WINDOWS OR OTHER OPENINGS. IF SIDEWALL IS NOT FIREPROOF OR HAS WINDOWS/OPENINGS, A 10 FOOT SIDE YARD SHALL BE PROVIDED.
5) REAR SETBACK = 25 FEET
6) MAXIMUM BUILDING HEIGHT = 30 FEET (2 STORIES)
7) MAXIMUM LOT COVERAGE = 40 PERCENT

SURVEYOR NOTES:

1. DATE OF LAST FIELD WORK: SEPTEMBER 12, 2024.
2. THE BEARINGS ARE RELATIVE TO THE MICHIGAN COORDINATE SYSTEM, SOUTH ZONE (2113) AS DEFINED BY MICHIGAN P.A. 9 OF 1964 AND AMENDED BY P.A. 154 OF 1988 (NAD 83 [2011]).
3. THE VERTICAL DATUM IS NORTH AMERICAN VERTICAL DATUM 1988 (NAVD88).
4. THE CURRENT ZONING AS EVIDENCED BY THE CITY OF BURTON IS C-1, LOCAL BUSINESS DISTRICT.
5. TOTAL PROPERTY AREA = 52,447 SFT or 1.204 ACRES, NET AREA (NOT INCLUDING ROAD RIGHT-OF-WAY AREA = 32,038 SFT or 0.735 ACRES

SANITARY SEWER & WATERMAIN NOTE:

THE PROJECT SITE CURRENTLY HAS ACCESIBILITY TO AN EXISTING PUBLIC WATERMAIN SYSTEM (ALONG NORTH SIDE OF PROPERTY), AND AN EXISTING PUBLIC SANITARY SEWER SYSTEM (ALONG THE EAST SIDE OF PROPERTY).

811 Know what's below. Call before you dig.

FILSE JOBS/24-313/BURTON/SITE PLAN LAYOUT.DWG - C-1

SCALE: 1"=20'
JOB NO. 24-313

PREPARED FOR:
DAVISON & BELSAY, LLC
C/O DONOVAN SHANGO
3358 CREEKVIEW DRIVE
DAVISON, MI 48423 EMAIL: DONOVAN.SHANGO@YAHOO.COM

PART OF THE NORTHEAST 1/4, SECTION 11, T7N-R7E CITY OF BURTON, GENESEE CO, MI

F&S

Fenton Land Surveying & Engineering, Inc
14165 N. FENTON ROAD, SUITE 101A, FENTON, MI 48430
PHONE: 810.354.8115 EMAIL:INFO@FENTONLSE.COM

OVERALL SITE PLAN LAYOUT FOR:
PROPOSED GAS STATION & CONVENIENCE STORE
5516 DAVISON ROAD, BURTON, MI 48509

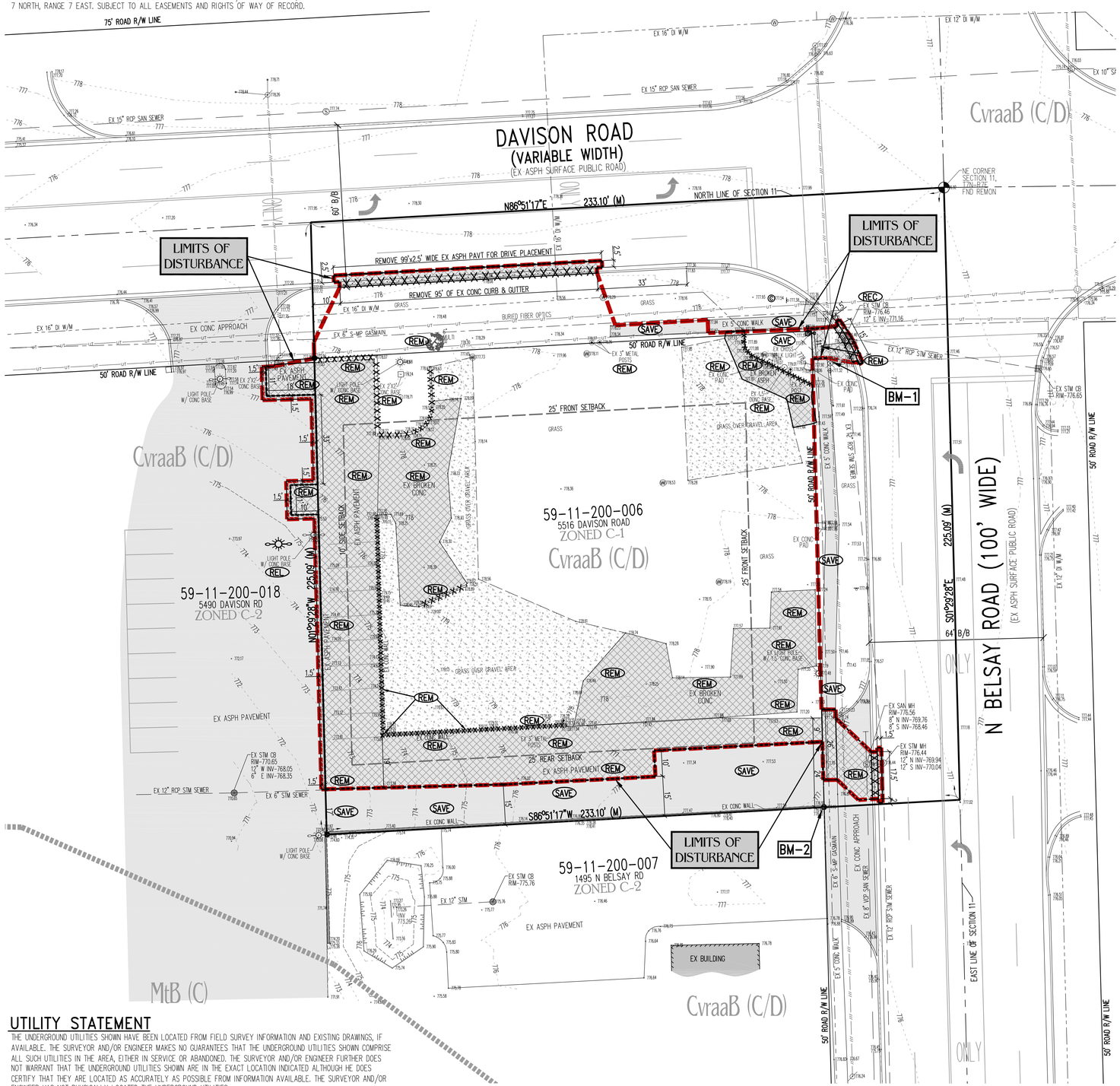
REVISIONS	DRN. BY:	J.R.B.	03.17.2025
08.26.2026 GCDC WWS - CASE SP26-46	DSN BY:	J.R.B.	"
	CHK'D BY:	D.J.K.	"
	APPR BY:	J.B.M.	"

SHEET NO: C-1

EXISTING CONDITIONS SURVEY AND REMOVAL PLAN

PROPERTY DESCRIPTION

PARCEL NUMBER 59-11-200-006, 5516 DAVISON ROAD
TRANSUNION TITLE AGENCY: COMMITMENT NO. 424925CLK
LAND SITUATED IN THE CITY OF BURTON, COUNTY OF GENESEE, STATE OF MICHIGAN:
THE EAST 233 FEET OF THE NORTH 225 FEET TO THE NORTHEAST 1/4 OF SECTION 11, TOWN 7 NORTH, RANGE 7 EAST. SUBJECT TO ALL EASEMENTS AND RIGHTS OF WAY OF RECORD.



UTILITY STATEMENT

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS, IF AVAILABLE. THE SURVEYOR AND/OR ENGINEER MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR AND/OR ENGINEER FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR AND/OR ENGINEER HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

NORTH

GRAPHIC SCALE
20 0 10 20
(IN FEET)
1 inch = 20 ft.

BENCHMARK NO. 1

FOUND RAILROAD SPIKE IN NORTH SIDE OF POWER POLE, SOUTHWEST CORNER OF DAVISON AND BELSAY ROADS, AS SHOWN ELEVATION-778.23 (NAVD88)

BENCHMARK NO. 2

CHISELED BOX ON TOP OF CONC WALL, AT SOUTHEAST PROPERTY CORNER, AS SHOWN ELEVATION-778.49 (NAVD88)

EX SITE AREA TYPES & CALCS:

1. BUILDING AREAS = 0/32,833 = 0.00%
2. PAVEMENT AREAS = 11,111/32,833 = 33.84%
3. GRAVEL AREAS = 6,238/32,833 = 19.00%
4. GRASS/LAWN AREAS = 15,484/32,833 = 47.16%
5. TOTAL SITE AREA IS 32,833 SFT or 0.754 ACRES

SITE IMPERVIOUS/PERVIOUS CALCS:

1. EXISTING SITE IMPERVIOUS COVERAGE = 17,349/32,833 = 0.5284 or 52.84%
2. PROPOSED SITE IMPERVIOUS COVERAGE = 30,408/32,833 = 0.9261 or 92.61%
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DRAINAGE DISTRICT LOCATION:

THIS SITE IS IN THE DRAINAGE DISTRICT OF THE RUMPH DRAIN, AN ENCLOSED COUNTY DRAIN (#0120). THE CLOSEST BODY OF WATER IS THE KEARSLEY CREEK, 1100'± NORTHEASTERLY OF THE SITE.

SOIL EROSION CONTROL NOTES:

1. THE CONTRACTOR SHALL SUBMIT A DETAILED SOIL EROSION AND SEDIMENTATION CONTROL PLAN AND OBTAIN AN ACT 451 PART 91, SOIL EROSION AND SEDIMENTATION CONTROL PERMIT. THIS INCLUDES THE PAYMENT OF FEES AND THE PROVIDING OF NECESSARY BONDS.
2. NO EARTH CHANGES OR EXCAVATION SHALL BE STARTED PRIOR TO THE ISSUANCE OF THIS PERMIT.
3. THE DEVELOPER SHALL PROTECT ALL EXISTING AND PROPOSED STORM SEWER FACILITIES ON AND ADJACENT TO THE SITE DURING EXCAVATION AND CONSTRUCTION, WHILE MAINTAINING A CLEAN AND DUST FREE SITE
4. ALL SEDIMENT SHALL BE CONTAINED ON SITE, ANY SILT IN COUNTY DRAINS, STORM SEWER, CULVERTS, ETC. AS A RESULT OF THIS PROJECT, SHALL BE REMOVED BY THE CONTRACTOR AT THEIR COST.

DEMOLITION NOTES:

1. ALL DEMOLITION WORK SHALL CONFORM TO ALL LOCAL CODES AND ORDINANCES. ALL DEMOLITION OPERATIONS SHALL COMPLY WITH MIOSHA REGULATIONS INSOFAR AS THEY APPLY TO THE REQUIRED WORK. A SOIL EROSION CONTROL PERMIT MUST BE OBTAINED PRIOR TO DEMOLITION.
2. THE DEMOLITION CONTRACTOR SHALL FOLLOW DEMOLITION POLICY IN CITY OF BURTON. THE CONTRACTOR SHALL APPLY FOR AND RECEIVE ALL NECESSARY PERMITS AND BONDS PRIOR TO STARTING ANY REMOVAL AND/OR DEMOLITION WORK.
3. THE DEMOLITION CONTRACTOR SHALL REMOVE ALL TREES, FENCES, CURBS, ON-SITE STORM SEWER AND MANHOLE/CATCHBASINS, BOLLARDS LIGHT POLES, LIGHT POLE BASES, ASPHALT AND CONCRETE AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. MAKE PROVISIONS TO TRIM ALL TREES & SHRUBS IN THE WAY OF CONSTRUCTION.
4. ALL DEMOLITION MATERIAL SHALL BE PROPERLY REMOVED FROM THE SITE AND DISPOSED OF IN A LEGAL DESIGNATED DISPOSAL AREA. NO ON-SITE BURNING WILL BE PERMITTED. PERMITS AND FEES FOR DISPOSAL OF DEMOLITION MATERIAL SHALL BE OBTAINED AND PAID FOR BY THE CONTRACTOR.
5. THE CONTRACTOR SHALL DEMOLISH AND REMOVE ANY ITEMS INCLUDING WALLS, FOUNDATIONS, AND FOOTINGS, IF APPLICABLE. ALL BUILDING DRAINS AND UTILITY LEADS, IF ENCOUNTERED, SHALL BE LOCATED AND PLUGGED. UTILITY LEAD WORK SHALL BE COORDINATED WITH THE APPROPRIATE UTILITY COMPANIES.
6. BACKFILL EXCAVATED AREAS AND BASEMENTS WITH CLEAN GRANULAR FILL COMPACTED TO 95% DENSITY PER MODIFIED PROCTOR IN 9" LIFTS.
7. AT THE CONCLUSION OF THE DEMOLITION OPERATIONS, THE ENTIRE WORK AREA SHALL BE LEFT IN A CLEAN CONDITION WITH ANY PROTECTIVE DEVICES AND BARRIERS REMOVED. ALL EXPOSED AREAS SHALL BE SUITABLY TOP SOILED, SEEDED AND MULCHED.
8. THE CONTRACTOR MIGHT WANT TO VISIT THE SITE TO DETERMINE THE EXTENT OF DEMOLITION WORK WHICH MAY OR MAY NOT BE SHOWN ON THE PLANS.
9. CONTRACTOR SHALL INSTALL INFI-SHIELD OR AN APPROVED ALTERNATE FOR MANHOLES.
10. CONTRACTOR SHALL OBTAIN A MANHOLE CASTING ADJUSTING PERMIT FROM THE CITY OF BURTON FOR ANY SANITARY SEWER MANHOLES, WITHIN CONSTRUCTION, IF APPLICABLE.
11. THE CONTRACTOR MUST PROVIDE ALL MEASURES REQUIRED FOR TRAFFIC CONTROL DURING CONSTRUCTION AS REQUIRED BY CITY OF BURTON AND IN ACCORDANCE WITH ALL APPLICABLE REQUIREMENTS OF THE 2011 EDITION OF THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES AS AMENDED, AND SECTION 812 OF THE 2020 MDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION. THE CONTRACTOR MUST PLACE PLASTIC DRUMS, TEMPORARY SIGNING, LIGHTED ARROWS, YELLOW CONSTRUCTION WARNING TAPE, AND ANY OTHER MEASURES REQUIRED TO PROTECT THE PUBLIC DURING CONSTRUCTION.
12. ALL TRAFFIC SIGNS SHALL CONFORM WITH THE REQUIREMENTS OF THE 2011 EDITION OF THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, AS AMENDED, AND SECTION 810 OF THE 2020 MDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION.
13. THE CONTRACTOR SHALL CONTROL NOISE, CARRY OUT A PROGRAM OF DUST CONTROL AND SHALL ALLOW NO ON-SITE BURNING, WITHOUT APPROVAL FROM LOCAL FIRE DEPARTMENT.
14. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT ALL EXISTING UTILITIES AND PAVEMENT. THE CONTRACTOR MUST PROPERLY REPAIR ANY DAMAGE CAUSED BY THEIR OPERATIONS AT THEIR COST AS REQUIRED BY THE CITY, COUNTY, OWNER AND/OR ENGINEER.

GCDC-WWS STANDARD DEMOLITION NOTES:

A. PRIOR TO BEGINNING ANY OF THIS WORK, THE CONTRACTOR SHALL NOTIFY GCDC-WWS AT (810) 732-7870 AND FILL OUT THE NECESSARY FORMS OR PERMITS. THE CONTRACTOR SHALL CUT AND SEAL THE EXISTING SANITARY LEAD AT THE PROPERTY LINE AND SHALL DISCONNECT THE EXISTING WATER SERVICE LEAD AT THE CURB BOX SHUT-OFF VALVE ON THE HOUSE SIDE OF THE VALVE.

B. ALL DEMOLITION WORK SHALL CONFORM TO ALL LOCAL CODES AND ORDINANCES. ALL DEMOLITION OPERATIONS SHALL COMPLY WITH MIOSHA REGULATIONS INSOFAR AS THEY APPLY TO THE REQUIRED WORK. A SOIL EROSION AND SEDIMENTATION CONTROL PERMIT WILL BE REQUIRED PRIOR TO DEMOLITION.

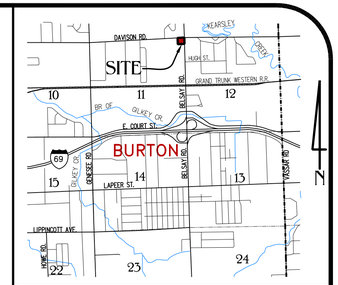
C. THE CONTRACTOR SHALL REMOVE AND CLEAR ALL TREES, BRUSH, FENCES, BUILDINGS, CURB, AND ASPHALT AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

D. ALL DEMOLITION MATERIAL SHALL BE PROPERLY REMOVED FROM THE SITE AND DISPOSED OF IN A LEGALLY DESIGNATED DISPOSAL AREA. NO ON-SITE BURNING WILL BE ALLOWED WITHOUT PROPER PERMISSION. PERMITS AND FEES FOR DISPOSAL OF DEMOLITION MATERIAL SHALL BE OBTAINED AND PAID FOR BY THE CONTRACTOR.

E. THE CONTRACTOR SHALL DEMOLISH AND REMOVE ANY ITEMS REMAINING FROM THE EXISTING BUILDING, IN ITS ENTIRETY, INCLUDING WALLS, FOUNDATIONS AND FOOTINGS. ALL BUILDING DRAINS AND UTILITY LEADS SHALL BE LOCATED AND PROPERLY PLUGGED. UTILITY LEAD WORK SHALL BE COORDINATED WITH THE APPROPRIATE UTILITY COMPANY.

F. BACKFILL EXCAVATED AREAS WITH CLEAN GRANULAR FILL COMPACTED TO 95% OF THE MATERIAL UNIT WEIGHT BY MODIFIED PROCTOR.

G. AT THE CONCLUSION OF THE DEMOLITION OPERATIONS, THE ENTIRE WORK AREA SHALL BE LEFT IN A CLEAN CONDITION. ALL PROTECTIVE DEVICES AND BARRIERS SHALL BE REMOVED.



LOCATION MAP

L E G E N D

SET IRON	EX CENTERLINE DITCH
FOUND IRON	EX TOP OF BANK
FOUND CONCRETE MONUMENT	EX FIRE HYDRANT
FND FOUND	EX GATEVALVE
EX UTILITY POLE	775.90 EX SURFACE ELEVATION
EX LIGHT POLE/CONC BASE	775 EX SURFACE CONTOUR
EX UTILITY PEDESTAL	EX BUILDING AREA
EX ROAD SIGN	EX PAVEMENT AREAS
EX DOWN SPOUT	EX CONC AREAS
EX STORM MANHOLE/CATCHBAIN	EX GRAVEL AREAS
EX STORM SEWER	EX STONE LANDSAPE AREAS
S EX SANITARY MANHOLE	REMOVE CURB & GUTTER
C EX SANITARY CLEANOUT	SAW CUT LINE
EX SANITARY SEWER	REMOVE PAVEMENT
W EX WATER WELL	COLDMILL ASPHALT SURFACE
EX GASMAIN	REM REMOVE ITEM(S)
EX GAS/ELEC METER	ADJ ADJUST ITEM(S)
EX A/C UNIT	REC RECONSTRUCT ITEM(S)
EX CONIFEROUS TREE	SAVE SAVE ITEM(S)
EX TREE LINE	SOILS TYPE LIMITS
CvraaB	SOILS TYPE ABBREVIATION

EXISTING ZONING INFORMATION:

ACCORDING TO THE CURRENT CITY OF BURTON ZONING ORDINANCE THIS PROPERTY IS CURRENTLY ZONED C-1 (LOCAL BUSINESS DISTRICT), AND IS SUBJECT TO THE FOLLOWING CONDITIONS:

1) MINIMUM LOT AREA = NO LESS THAN 4,000 SQ FT
2) MINIMUM LOT WIDTH = 150 FEET (MIN FOR GAS STATIONS)
3) FRONT SETBACK = 25 FEET
4) SIDE SETBACK = 10 FEET
5) REAR SETBACK = 25 FEET
6) MAXIMUM BUILDING HEIGHT = 30 FEET (2 STORIES)
7) MAXIMUM LOT COVERAGE = 40 PERCENT

FLOOD PLAIN NOTE:

THIS PROPERTY IS IN ZONE "X" (AREAS OF MINIMAL FLOODING) OF THE FLOOD INSURANCE RATE MAP COMMUNITY PANEL NO. 26049C0211D WHICH BEARS AN EFFECTIVE DATE OF SEPTEMBER 25, 2009, AND IS NOT IN A SPECIAL FLOOD HAZARD AREA.

PUBLIC SANITARY SEWER & WATER NOTE:

THE EXISTING SITE HAS ACCESS TO AN EXISTING PUBLIC WATERMAIN, AND AN PUBLIC SANITARY SEWER LINE.

SURVEYOR NOTES:

1. DATE OF LAST FIELD WORK: SEPTEMBER 12, 2024.
2. THE BEARINGS ARE RELATIVE TO THE MICHIGAN COORDINATE SYSTEM, SOUTH ZONE (2113) AS DEFINED BY MICHIGAN P.A. 9 OF 1964 AND AMENDED BY P.A. 154 OF 1988 (NAD 83 [2011]).
3. THE VERTICAL DATUM IS NORTH AMERICAN VERTICAL DATUM 1988 (NAVD88).
4. THE SECTION CORNERS WERE PART OF THE GENESEE COUNTY REMONUMENTATION PROGRAM AND HAVE BEEN FILED AT THE GENESEE COUNTY REGISTER OF DEEDS AS SHOWN ON DRAWINGS.
5. THE CURRENT ZONING AS EVIDENCED BY THE CITY OF BURTON IS C-1, COMMERCIAL BUSINESS DISTRICT.
6. PER OBSERVATION, THIS SITE IS EITHER CURRENTLY SUPPLIED BY OR HAS ACCESS TO THE FOLLOWING UTILITIES: WATER, SANITARY SEWER, STORM SEWER, GAS, ELECTRIC, AND TELEPHONE, EITHER LOCATED ADJACENT TO THE SUBJECT SITE OR WITHIN PUBLIC ROAD RIGHT-OF-WAY.
7. TOTAL PROPERTY AREA = 52,447 SFT OR 1.204 ACRES; NET AREA (NOT INCLUDING ROAD RIGHT-OF-WAY AREA = 32,038 SFT or 0.735 ACRES.

ON-SITE SOIL TYPES:

PER USDA SOILS MAPS, THE FOLLOWING SOILS ARE FOUND ON-SITE:
CvraaB - Conover loam, 0 to 4 percent slopes, Somewhat poorly drained (C/D)

811 Know what's below. Call before you dig.

FILE: JOBS/24-313/BURTON/PROP GAS STA - SURVEY-REM.DWG - C-2

SCALE: 1"=20'
JOB NO. 24-313

PREPARED FOR:
DAVISON & BELSAY, LLC
C/O DONOVAN SHANGO
3358 CREEKVIEW DRIVE
DAVISON, MI 48423 EMAIL: DONOVAN.SHANGO@YAHOO.COM

PART OF THE NORTHEAST 1/4, SECTION 11, T7N-R7E CITY OF BURTON, GENESEE CO, MI

F&S

Fenton Land Surveying & Engineering, Inc
14165 N. FENTON ROAD, SUITE 101A, FENTON, MI 48430
PHONE: 810.354.8115 EMAIL:INFO@FENTONLSE.COM

EXISTING CONDITIONS SURVEY & REMOVAL PLAN FOR:
PROPOSED GAS STATION & CONVENIENCE STORE
5516 DAVISON ROAD, BURTON, MI 48509

REVISIONS			
08.26.2026 GCDC WWS - CASE SP26-46	DRN. BY:	J.R.B.	03.17.2025
	DSN BY:	J.R.B.	"
	CHK'D BY:	D.J.K.	"
	APPR BY:	D.J.K.	"

SHEET NO: C-2

GRADING, DRAINAGE, PAVING & UTILITY PLAN

NORTH

GRAPHIC SCALE
0 10 20
(IN FEET)
1 inch = 20 ft.

EX SITE AREA TYPES & CALCS:
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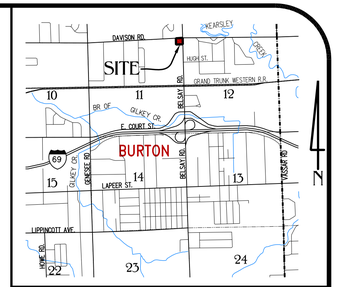
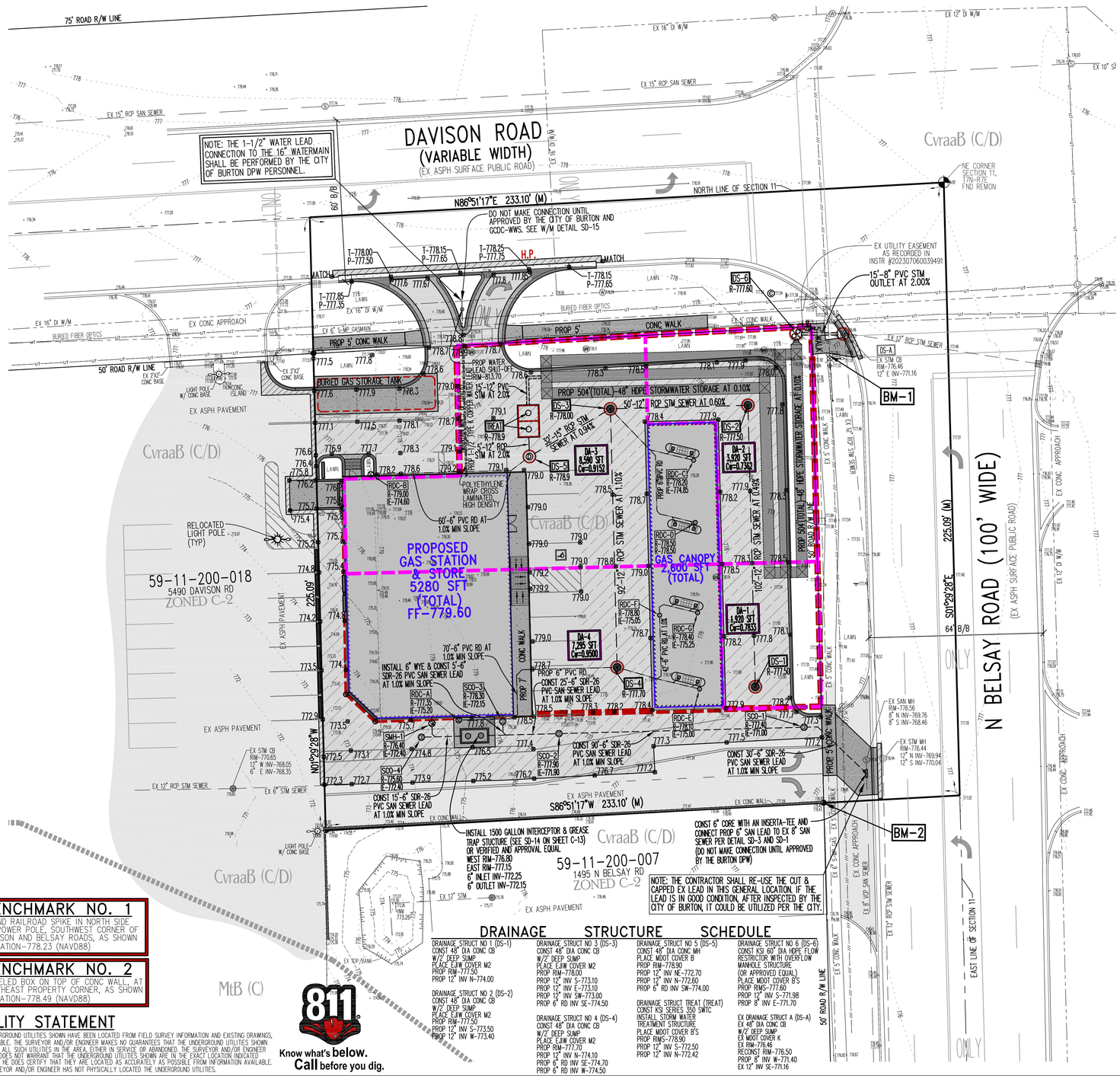
L E G E N D

- EX ROAD SIGNS
- EX TRANSFORMER
- EX UTILITY POLE
- EX SERVICE PEDESTAL
- 811.25 EX SURFACE ELEVATION
- 811 EX SURFACE CONTOUR
- EX OVERHEAD POWERLINES
- EX BURIED GASMAIN
- EX STORM SEWER
- EX STORM MANHOLE
- EX STORM CATCHBASINS
- EX SANITARY SEWER
- EX SANITARY LEAD
- EX SANITARY MANHOLE
- EX WATER MANHOLE
- EX WATERMAIN LINE
- EX WATER LEAD LINE
- EX BUILDING AREA
- EX CONC PAVEMENT AREAS
- EX DRAINAGE FLOW ARROW
- FF, FFE FINISHED FLOOR ELEV

- PROP CONCRETE AREAS
- PROP GAS CANOPY AREA
- PROP HEAVY-DUTY ASPHALT AREAS
- PROP STANDARD ASPHALT AREAS
- PROP THICKENED EDGE WALK
- PROP 8" CONCRETE CURB, DET E4
- PROP 24" CURB & GUTTER, DET F4
- PROP 6" ROOF DRAIN
- PROP 6" ROOF DRAIN CLEANOUT
- RDC-C PROP ROOF DRAIN CLEANOUT NO
- PROP WATER SHUT-OFF VALVE & LEAD
- ⊗814.5 PROP PAVEMENT ELEVATION
- PROP SIDEWALK ELEVATION
- DS-1 PROP DRAINAGE STRUCTURE NO
- R-777.50 PROP DRAINAGE STRUCTURE RIM ELEVATION
- PROP STORM CATCHBASIN/MANHOLE
- PROP STORM SEWER
- OVERALL DRAINAGE AREA BOUNDARY
- DRAINAGE AREA SUB-DISTRICT
- DA-2 DRAINAGE AREA



LOCATION MAP



ON-SITE SOIL TYPES:
PER USDA SOILS MAPS, THE FOLLOWING SOILS ARE FOUND ON-SITE:
CvraaB – Conover loam, 0 to 4 percent slopes, Somewhat poorly drained (C/D)

GENERAL UTILITY NOTES:
1. WATER SERVICE CONNECTION AND CURB BOX SHALL BE INSTALLED IN ACCORDANCE WITH CITY OF BURTON STANDARD DETAILS AND SPECIFICATIONS. THE CONTRACTOR SHALL COORDINATE UTILITY LEAD OPERATIONS WITH THE CITY OF BURTON DEPARTMENT OF PUBLIC WORKS (DPW). CHECK WITH THE DPW TO SEE IF ANY EXISTING LEADS, OR LEAD STUBS ARE IN USE, AND THEIR RESPECTIVE LOCATIONS, IF APPLICABLE.
2. SAND FILL UNDER ANY FLOOR SLAB, WALKS, PAVED AREAS, ETC. SHALL BE MINIMUM MDOT CLASS II SAND BACKFILL. FILL SAND SHALL NOT HAVE MOISTURE CONTENT GREATER THAN 15%. THE SAND SHALL BE COMPACTED TO 95% OF MATERIAL THE UNIT WEIGHT BY MODIFIED PROCTOR.
3. ALL EXISTING UTILITIES SERVING THE PROPERTY SHALL BE PROPERLY TERMINATED IN COMPLIANCE WITH LOCAL AND/OR COUNTY REGULATIONS. REMOVE ALL TREES, INCLUDING ROOT STRUCTURES, EXCEPT THOSE SPECIFICALLY NOTED TO REMAIN, AND THOSE ON PROPERTY LINES. DO NOT CLEAR SITE PRIOR TO COORDINATING WITH THE OWNER AND THE LANDSCAPING PLAN TO DETERMINE ALL TREES TO REMAIN.
4. VERIFY EXACT LOCATION OF UNDERGROUND UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
5. THE CONTRACTOR SHALL NOTIFY MISS DIG (811) THREE (3) WORKING DAYS PRIOR TO STARTING ANY EXCAVATION WITH POWER EQUIPMENT.
6. THE CONTRACTOR SHALL COMPLY WITH ALL LOCAL, COUNTY, STATE, AND LOCAL REGULATIONS FOR ALL WORK THAT TAKES PLACE ON THE SITE.
7. THE CONTRACTOR/DEVELOPER SHALL PAY FOR AND OBTAIN ALL PERMITS REQUIRED BY FEDERAL, STATE, LOCAL, OR PRIVATE AGENCIES AND PAY ALL CHARGES FOR INSPECTION AND TESTING.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING UP THE PREMISES, AND UPON COMPLETION OF THE PROJECT, LEAVE THE SITE IN AN ACCEPTABLE CONDITION AS DETERMINED BY THE ENGINEER OR OWNER.

PAVING & DRAINAGE CONSTRUCTION NOTES:
1. PROPOSED SPOT ELEVATIONS ARE TO TOP OF PAVEMENT UNLESS NOTED OTHERWISE. SEE SHEET C-5 FOR MISCELLANEOUS CONSTRUCTION DETAILS TO CALCULATE THE TOP OF WALK OR TOP OF CURB ELEVATIONS.
2. ALL PROPOSED ROOF DRAIN (RD) SYSTEMS SHALL BE 8 INCH OR 6 INCH SCH-40 PVC PIPE UNLESS NOTED OTHERWISE.
3. ALL UTILITIES UNDER PROPOSED PAVEMENT SHALL BE BACKFILLED WITH CLASS II SAND COMPACTED TO A MINIMUM 95% OF MAXIMUM UNIT WEIGHT BY MODIFIED PROCTOR FOR THE FULL DEPTH OF THE TRENCH.
4. SEE SHEET C-5 & C-6 FOR STANDARD CONSTRUCTION DETAILS AND NOTES.
5. THE BARRIER FREE RAMPS MUST BE BUILT PER ADA STANDARDS AND SPECIFICATIONS

SANITARY SEWER LEAD CONSTRUCTION NOTES:
A. SEE SHEET C-13 FOR THE SANITARY SEWER STANDARD CONSTRUCTION DETAILS AND SEE SHEET C-11 FOR SANITARY SEWER CONSTRUCTION NOTES.
B. SANITARY SEWER SADDLE TAPS SHALL BE MADE BY CITY OF BURTON DPW PERSONNEL. THE DEVELOPER SHALL OBTAIN THE REQUIRED MUNICIPALITY SANITARY SEWER PERMIT OR THE S CONSTRUCTION PERMIT, AND PAY CITY OF BURTON THE REQUIRED FEE FOR A SADDLE TAP.
C. THE CONTRACTOR SHALL VERIFY THE SANITARY SEWER DEPTH AND BE RESPONSIBLE FOR PROVIDING ADEQUATE SLOPE OF SEWER TOWARD THE MAINLINE SEWER IN STRICT ACCORDANCE WITH CITY OF BURTON AND GCDC-WWS STANDARD DETAILS AND SPECIFICATIONS.
D. SANITARY SERVICE LEADS SHALL BE ENCASED IN 6AA CRUSHED LIMESTONE (A1) IN ACCORDANCE WITH CITY OF BURTON AND GCDC-WWS STANDARD DETAILS AND SPECIFICATIONS. SEE SD-1 AND SD-3
E. VERIFY EXACT LOCATION OF ALL UNDERGROUND UTILITIES IN THE WORK AREA PRIOR TO BEGINNING CONSTRUCTION.
F. CONTRACTOR IS TO ADJUST ANY UTILITY ELEMENT MEANT TO BE FLUSH WITH GRADE (CLEAN OUT, VALVE BOXES, MANHOLES, CATCH BASINS, INLETS, ETC.) THAT IS AFFECTED BY SITE WORK OR GRADE CHANGES, WHETHER SPECIFICALLY NOTED ON PLANS OR NOT. THE CONTRACTOR SHALL OBTAIN ANY NECESSARY PERMITS FOR ADJUSTMENT AT THE CONTRACTOR'S EXPENSE. SEE SD-5
G. THE CONTRACTOR/DEVELOPER SHALL PAY FOR AND OBTAIN ALL PERMITS REQUIRED BY FEDERAL, STATE, LOCAL, OR PRIVATE AGENCIES AND PAY ALL CHARGES FOR INSPECTION AND TESTING.
H. COMMERCIAL BUILDINGS SHALL USE A 6" SANITARY RISER FROM THE MAIN TO THE STRUCTURE. THE SERVICE RISER SHALL CONNECT TO THE MAINLINE AND NOT AT A MANHOLE. SEE SD-3
I. THE CONTRACTOR SHALL INSTALL A SAMPLING MANHOLE STRUCTURE 5 FEET FROM THE BUILDING ON THE SAME LINE THAT THE GREASE TRAP IS CONNECTED. SEE SD-13
J. FOR COMMERCIAL ESTABLISHMENTS THAT GENERATE GRIT OR GREASE, AN EXTERNAL 1500 GALLON GREASE INTERCEPTOR SHALL BE PROVIDED (SEE SD-14). SHOW THE DETAIL ON THE PLANS WITH APPROPRIATE NOTES. THE DOMESTIC SEWAGE SHALL BE DESIGNED TO BYPASS THE GREASE/GRIT TRAP. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF THE GREASE TRAP STRUCTURE DETAILS PRIOR TO INSTALLATION.
K. THE MINIMUM SLOPE FOR A COMMERCIAL LEAD IS 1' OF FALL PER 100 FEET OF PIPE OR 1.00%. SEE PLANS FOR THE INVERT AT THE STRUCTURE AND THE SLOPE BACK TO MAIN LINE. SEE SD-3
L. ALL SANITARY SEWER LEADS/LATERALS SHALL BE SDR-26 PVC WITH CLEANOUTS SPACED EVERY 90 FEET. SEE SD-3

WATER LEAD CONSTRUCTION NOTES:
A. SEE SHEET C-12 FOR THE WATERMAIN STANDARD CONSTRUCTION DETAILS AND SEE SHEET C-11 FOR WATERMAIN CONSTRUCTION NOTES.
B. WATER SERVICE LEADS SHALL BE ENCASED IN 6AA CRUSHED LIMESTONE (A1) IN ACCORDANCE WITH CITY OF BURTON AND GCDC-WWS STANDARD DETAILS AND SPECIFICATIONS. SEE SD-1
D. WATER SERVICE CONNECTION AND CURB BOX SHALL BE INSTALLED IN ACCORDANCE WITH CITY OF BURTON AND GCDC-WWS STANDARD DETAILS AND SPECIFICATIONS.
D. ALL WATER SERVICE LEADS SHALL BE "K" COPPER. THE MINIMUM SIZE SHALL BE 1-1/2".
E. ALL WATERMAIN PRESSURE TAPS AND CUT IN VALVES 4" AND LARGER SHALL BE CONSTRUCTED WITH CAST IRON TAPPING SLEEVES AND WITHIN A MANHOLE STRUCTURE PER CITY OF BURTON AND GCDC-WWS STANDARD DETAILS AND SPECIFICATIONS.
F. THE WATER SUPPLY FOR ALL COMMERCIAL AND INDUSTRIAL BUILDINGS SHALL BE EQUIPPED WITH A BACKFLOW PREVENTION DEVICE IN ACCORDANCE WITH BUILDING CODES. AN APPROVAL OF METHODS MUST BE ACQUIRED FROM CITY OF BURTON AND GCDC-WWS.
G. ALL ON SITE WATER SERVICE SHALL MEET THE REQUIREMENTS OF CITY OF BURTON AND GCDC-WWS STANDARD DETAILS AND SPECIFICATIONS.

BENCHMARK NO. 1
FOUND RAILROAD SPIKE IN NORTH SIDE OF POWER POLE, SOUTHWEST CORNER OF DAVISON AND BELSAY ROADS, AS SHOWN ELEVATION=778.23 (NAVD88)

BENCHMARK NO. 2
CHISELED BOX ON TOP OF CONC WALL, AT SOUTHEAST PROPERTY CORNER, AS SHOWN ELEVATION=778.49 (NAVD88)

UTILITY STATEMENT
THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS, IF AVAILABLE. THE SURVEYOR AND/OR ENGINEER MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR AND/OR ENGINEER FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR AND/OR ENGINEER HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

811 Know what's below. Call before you dig.

DRAINAGE STRUCTURE SCHEDULE

DRAINAGE STRUCT NO 1 (DS-1)
CONST 48" DIA CONC CB
W/2' DEEP SUMP
PLACE EJIW COVER M2
PROP RIM-777.50
PROP 12" INV N-774.00

DRAINAGE STRUCT NO 2 (DS-2)
CONST 48" DIA CONC CB
W/2' DEEP SUMP
PLACE EJIW COVER M2
PROP RIM-777.50
PROP 12" INV S-773.50
PROP 12" INV W-773.40

DRAINAGE STRUCT NO 3 (DS-3)
CONST 48" DIA CONC CB
W/2' DEEP SUMP
PLACE EJIW COVER M2
PROP RIM-778.00
PROP 12" INV S-773.10
PROP 12" INV E-773.10
PROP 12" INV SW-773.00
PROP 6" RD INV SE-774.50

DRAINAGE STRUCT NO 4 (DS-4)
CONST 48" DIA CONC CB
W/2' DEEP SUMP
PLACE EJIW COVER M2
PROP RIM-777.70
PROP 12" INV N-774.10
PROP 6" RD INV SE-774.70
PROP 6" RD INV W-774.50

DRAINAGE STRUCT NO 5 (DS-5)
CONST 45" DIA CONC MH
PLACE MDOT COVER B
PROP RIM-778.90
PROP 12" INV NE-772.70
PROP 12" INV N-772.60
PROP 6" RD INV SW-774.00

DRAINAGE STRUCT TREAT (TREAT)
CONST KSI SERIES 350 SWTC
INSTALL STORM WATER TREATMENT STRUCTURE
PLACE MDOT COVER B'S
PROP RIMS-778.90
PROP 12" INV S-772.50
PROP 12" INV N-772.42

DRAINAGE STRUCT NO 6 (DS-6)
CONST KSI 60" DIA HDPE FLOW RESTRICTOR WITH OVERFLOW MANHOLE STRUCTURE
(OR APPROVED EQUAL)
PLACE MDOT COVER B'S
PROP RIMS-777.60
PROP 12" INV S-771.98
PROP 8" INV E-771.70

EX DRAINAGE STRUCT A (DS-A)
EX 48" DIA CONC CB
W/2' DEEP SUMP
EX MDOT COVER K
EX RIM-776.46
RECONST RIM-776.50
PROP 8" INV W-771.40
EX 12" INV SE-771.16

PREPARED FOR:
DAVISON & BELSAY, LLC
C/O DONOVAN SHANGO
3358 CREEKVIEW DRIVE
DAVISON, MI 48423 EMAIL: DONOVAN.SHANGO@YAHOO.COM

PART OF THE NORTHEAST 1/4, SECTION 11, T7N-R7E CITY OF BURTON, GENESEE CO, MI

Fenton Land Surveying & Engineering, Inc
14165 N. FENTON ROAD, SUITE 101A, FENTON, MI 48430
PHONE: 810.354.8115 EMAIL:INFO@FENTONLSE.COM

GRADING, DRAINAGE, PAVING & UTILITY PLAN:
PROPOSED GAS STATION & CONVENIENCE STORE
5516 DAVISON ROAD, BURTON, MI 48509

SCALE: 1"=20'
JOB NO. 24-313

REVISIONS	DRN. BY:	J.R.B.	03.17.2025
08.26.2026 GCDC WWS - CASE SP26-46	DSN BY:	J.R.B.	"
	CHK'D BY:	D.J.K.	"
	APPR BY:	J.B.M.	"

SHEET NO: C-3

FILSE: JOBS/24-313/BURTON/GDPU PLAN.DWG - C-3

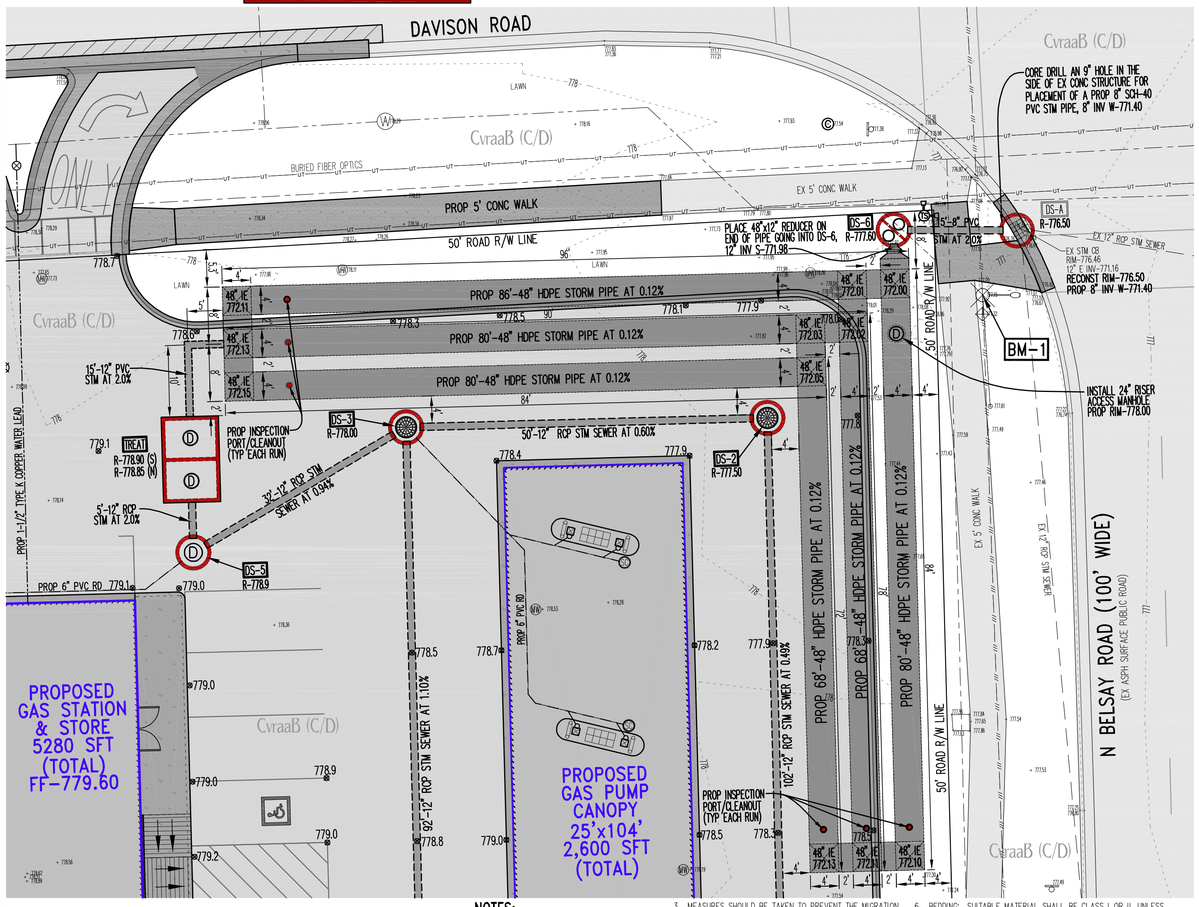
UNDERGROUND DETENTION BASIN PLAN & CALCULATIONS

NORTH

GRAPHIC SCALE
0 5 10
(IN FEET)
1 inch = 10 ft.

BENCHMARK NO. 1
FOUND RAILROAD SPIKE IN NORTH SIDE OF POWER POLE, SOUTHWEST CORNER OF DAVISON AND BELSAY ROADS, AS SHOWN
ELEVATION=778.23 (NAVD88)

BENCHMARK NO. 2
CHISELED BOX ON TOP OF CONC WALL AT SOUTHEAST PROPERTY CORNER, AS SHOWN
ELEVATION=778.49 (NAVD88)



PROPOSED DETENTION BASIN STORAGE VOLUME PROVIDED:

A) VOLUME IN 48" PIPES = 504 FT x 12.566 CFT/FT = 6333.3 CFT
B) MAX HIGHWATER ELEVATION USED (100-YEAR HW) = 775.50
C) MAX FREEBOARD ELEVATION USED (FB) = 776.00
D) TOTAL STORAGE VOLUME REQUIRED PER CALCULATONS = 5,122 CFT
E) VOLUME PROVIDED = 5,275 CFT WHICH IS GREATER THAN 5,122 CFT REQUIRED

NOTES:

1. ALL REFERENCES TO CLASS I OR II MATERIAL ARE PER ASTM D2321 "STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY FLOW APPLICATIONS", LATEST EDITION.
2. ALL RETENTION AND DETENTION SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321, LATEST EDITION AND THE MANUFACTURER'S PUBLISHED INSTALLATION GUIDELINES.
3. MEASURES SHOULD BE TAKEN TO PREVENT THE MIGRATION OF NATIVE FINES INTO THE BACKFILL MATERIAL, WHEN REQUIRED. SEE ASTM D2321.
4. FILTER FABRIC: A GEOTEXTILE NON-WOVEN FABRIC SHALL BE USED AS SPECIFIED BY THE ENGINEER TO PREVENT THE MIGRATION OF FINES FROM THE NATIVE SOIL INTO THE SELECT BACKFILL MATERIAL.
5. FOUNDATION: WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH SUITABLE MATERIAL AS SPECIFIED BY THE ENGINEER. THE TRENCH BOTTOM SHALL BE STABILIZED USING A GEOTEXTILE MATERIAL.
6. BEDDING: SUITABLE MATERIAL SHALL BE CLASS I OR II, UNLESS OTHERWISE NOTED BY THE ENGINEER, MINIMUM BEDDING THICKNESS SHALL BE 9" (150mm) FOR 48" (750mm~1500mm).
7. INITIAL BACKFILL: SUITABLE MATERIAL SHALL BE CLASS I OR II IN THE PIPE ZONE EXTENDING NOT LESS THAN 6" ABOVE CROWN OF PIPE. MATERIAL SHALL BE INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION.
8. MINIMUM COVER: MINIMUM COVER OVER ALL RETENTION/DETENTION SYSTEMS IN NON-TRAFFIC APPLICATIONS (GRASS OR LANDSCAPE AREAS) IS 18" FROM TOP OF PIPE TO GROUND SURFACE. ADDITIONAL COVER MAY BE REQUIRED TO PREVENT FLOATATION. FOR TRAFFIC APPLICATIONS, MINIMUM COVER IS 24" OF COVER FOR 48" DIAMETER PIPE, MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TO TOP OF RIGID PAVEMENT.

ON-SITE SOIL TYPES:

PER USDA SOILS MAPS, THE FOLLOWING SOILS ARE FOUND ON-SITE:
CvraaB - Conover loam, 0 to 4 percent slopes, Somewhat poorly drained (C/D)

NOTE: SHOP DRAWINGS WILL BE PROVIDED FOR FINAL REVIEW AND APPROVALS.

DRAINAGE STRUCTURE SCHEDULE

DRAINAGE_STRUCT NO 1 (DS-1)
CONST 48" DIA CONC CB
W/2' DEEP SUMP
PLACE EJW COVER M2
PROP RIM=777.50
PROP 12" INV N-774.00

DRAINAGE_STRUCT NO 2 (DS-2)
CONST 48" DIA CONC CB
W/2' DEEP SUMP
PLACE EJW COVER M2
PROP RIM=777.50
PROP 12" INV S-773.50
PROP 12" INV W-773.40

DRAINAGE_STRUCT NO 3 (DS-3)
CONST 48" DIA CONC CB
W/2' DEEP SUMP
PLACE EJW COVER M2
PROP RIM=778.00
PROP 12" INV S-773.10
PROP 12" INV E-773.10
PROP 12" INV SW-773.00
PROP 6" RD INV SE-774.50

DRAINAGE_STRUCT NO 4 (DS-4)
CONST 48" DIA CONC CB
W/2' DEEP SUMP
PLACE EJW COVER M2
PROP RIM=777.70
PROP 12" INV N-774.10
PROP 6" RD INV SE-774.70
PROP 6" RD INV W-774.50

DRAINAGE_STRUCT NO 5 (DS-5)
CONST 48" DIA CONC MH
PLACE MDOT COVER B
PROP RIM=778.90
PROP 12" INV NE-772.70
PROP 12" INV W-772.60
PROP 6" RD INV SW-774.00

DRAINAGE STRUCT TREAT (TREAT)
CONST KSI SERIES 350 SWTC
KSI STORM WATER TREATMENT STRUCTURE
PLACE MDOT COVER B'S
PROP RIMS=778.90
PROP 12" INV S-772.50
PROP 12" INV N-772.42

DRAINAGE STRUCT NO 6 (DS-6)
KSI 60" DIA HDPE FLOW RESTRICTOR WITH OVERFLOW MANHOLE STRUCTURE (OR APPROVED EQUAL)
PLACE MDOT COVER B'S
PROP RIMS=777.60
PROP 12" INV S-771.98
PROP 8" INV E-771.70

EX DRAINAGE STRUCT A (DS-A)
EX 48" DIA CONC CB
W/2' DEEP SUMP
EX MDOT COVER K
EX RIM=776.46
RECONST RIM=776.50
PROP 8" INV W-771.40
EX 12" INV SE-771.16

UTILITY STATEMENT

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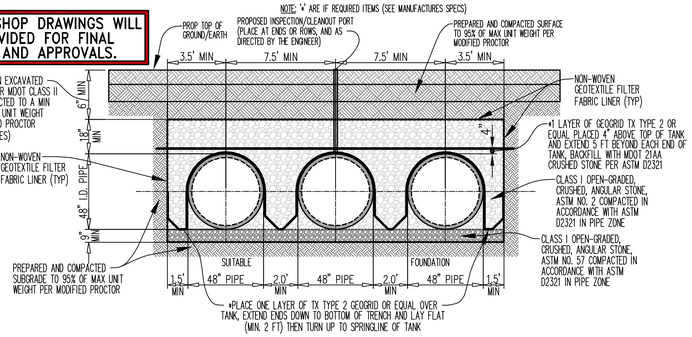


48 INCH HDPE WATERTIGHT (WT) PIPE INSTALLATION CROSS SECTION:

PROPOSED GAS STATION & C-STORE - BELSAY AT DAVISON - BURTON
REQUIRED DETENTION BASIN STORAGE VOLUME CALCULATIONS OA DA

Site Drainage Area =	21,720	Sft	0.4986	Acres

Weighted Runoff Coefficient

On-site Type of Surfaces	Total Sft	Multiply	Runoff Coeff	Value
Lawn Area	2,470	x	0.30	741
Pavement Area	13,970	x	0.95	13,272
Roof Area	5,280	x	0.95	5,016
Totals	21,720			19,029

Weighted "C" Formula = 19,029 / 21,720 = 0.8761 = 0.88

Site Weighted "C" Factor Used =		0.880	
Q Allowable (Per Genesee County Drain Commissioner)			
Q Allowable (Qa)	=	0.20	Cfs/Acre
Drainage Area 4 (DA-4) Qa (Max Discharge)=	0.4986 x 0.20 =	0.0997	Cfs

Total Volume of Storage Required for Water Quality Volume (Part 'A') = 1,564 Cft
Total Volume of Storage Required for 2 Year-24 Hour Event (Part 'B') = 1,699 Cft
Total Volume of Storage Required for 100 Year Storm (Part 'C') = 5,122 Cft
Per Rational Method & DNRE for Calculating Basin Voluimes (See Charts This Sheet)

Overall Detention Basin Design Summary			
Total Storage Volume Provided for the 100 Year Storm =	Vt Prov'd =	5,275	Cft
100 Year Highwater Elevation Proposed/Used =	Elevation =	775.50	(Prop HW)
Freeboard Elevation Proposed/Used =	Elevation =	776.00	(Prop FB)
Detention Basin Outlet Invert Elevation =	Elevation =	772.00	Outlet Invert
PART C: (Flood Protection) 100 Year Storage Volume Required			
Cw = (Per Above Weighted Runoff Coefficient)=	Cw =	0.880	"C" Weighted
Tc (Max Time Storage Occurs) = (Per Rational Method Spreadsheet)=	Time (Tc) =	200.00	Minutes
Vreq = ((Cw*Ixo*A)-Qout)*T*60 = (((0.88*1.20*0.4986)-0.0997)x200x60=	Volume Req'd	5,122	Cft (100 Year)
100 Year Highwater Elevation Calculated =	Elevation =	775.46	Calc'd HW
Proposed Elevation of Top of Weir / Emergency Overflow =	Elevation =	775.50	Top of Weir
PART B: (Channel Protection) 2 Year/24 Hour Event Storage Volume			
2 Year/24 Hour Event Volume Required (See Spreadsheet This Sheet)	Volume =	1,699	Cft
2 Year/24 Hour Event Elevation Calculated =	Elevation =	773.28	Elevation
Proposed Elevation of Holes in Bottom of Weir =	Elevation =	773.34	Lower Holes
PART A: (Sediment Treatment) Volumetric Runoff Coeficient (Rv) & Water Quality Volume (WQV)			
Percent Impervious = 0.4898 Ac / 0.7538 Ac =	% Imp =	65	% Impervious
Rv= 0.05 + 0.009(Imp) = 0.05 + 0.009(65) =	Rv =	0.635	Average 'CN'
WQV Volume Equation = P * Rv * A(sft)/12 = 0.9*0.635*232,835/12=	WQV Cft =	1,564	Total Volume
WQV Volume Required below Outlet Invert (Min 20% of Total) =	Min WQV =	313	Volume Req'd
WQV Volume Total Provided below Outlet Invert =	WQV 22% =	490	Volume Prov'd
Water Quality Volume Elevation Calculated =	Elevation =	773.20	Calc'd Elev
Water Quality Volume to be Treated (Q_{DS}) =	Cfs to SWTC	1.98	Cfs
Proposed 24 Inch Perforated Riser Design (PARTS A & B)			
Water Quality Volume Outlet Discharge Formula			
Q_{WQV} = WQVvol / 24 Hrs / 3600 Sec = 1,564/24/3600	Q_{WQV} =	0.0181	Cfs
h(avg) = 2/3 (WQVelev - Outlet Invert) = 2/3(773.20-772.00) =	h(avg) =	0.800	Ft
A = QWQV/0.62SQRT(64.4 x h(avg))=0.0181/0.62SQRT(64.4x0.80)=	A =	0.004068	Sft
Orifice Area = 7/16 inch Diameter	Orifice =	0.0010434	Sft
A / Orifice = 0.003908/0.0003407	# Holes Req'd =	3.90	4 Holes
Number of Holes Actually Used/Provided =	# Holes Prov'd=	2.00	Holes
Invert Elevation of 7/16 Inch Diameter Holes =	Invert =	772.00	Elevation
2 Year/24 Hour Event Volume Flood Control Formula			
h(avg) = 2/3 (2/24elev - Outlet Invert) = 2/3(773.34-772.00) =	h(avg) =	0.893	Ft
Q90 = 0.62(#WQVholes)(Orifice diameter)SQRT(64.4xh(avg))=	Q90 =	0.00981	Cfs
T90 = (1 sec/Q90)(1hr/3600sec)(2/24vol) =	T = (Time)	48.1	Hours Held
Volume Held = (Q90)(48hrs)(3600sec/hr) =	Volume Held =	1,696	Cft
Outlet Pipe Flow Design (Restrictor Pipe)			
Qtotal Formula = 0.62A x (2gh)^0.5			
Acceleration due to Gravity	g =	32.2	Feet/Sec2
Head on Pipe	H =	3.44	Ft
Diameter of Restrictor Cap Size	D =	1.3750	Inch
Actual Diameter of Restrictor Cap (In Inches)	D =	1-3/8	Inch
Cross-section area of pipe	A =	0.0103	SFT
Actual Q Discharge for Site Drainage Area	Qa =	0.0951	CFS
Total Site Q Allowable for Site Drainage Area	Qa =	0.0997	CFS
Invert Elevation of Restrictor Pipe =	Invert =	772.00	Elevation

Calculations for Stormwater Runoff Volume Control (2-Year, 24-Hour Event)

SITE NAME: BELSAY AT DAVSION GAS STATION
Total Site Disturbed Area: 0.7540 Acres 32,833.00 Sq Ft (Ft2)
2-Year, 24-Hour Rainfall): 2.26 Inches
(See Rainfall Tab for regional rainfall value or site specific rainfall event may be substituted with DNRE approval)

Pre-Development Conditions

Cover Type	Soil Type	Area (sf)	Area (ac)	CN (from TR-55)	S	Q Runoff[1] (in)	Runoff Vol [2] (ft3)
Formulas					$\frac{1000}{CN} - 10$	$\frac{(P - 0.2S)^2}{(P - 0.8S)}$	$Q \times 1/12 \times A$
Open Space (Lawn Areas)	C/D	12233	0.281	74	3.5	0.478261754	487.548003
Impervious: Gravel Areas	N/A	6190	0.142	85	1.8	0.99049739	510.9315701
Impervious: Pavement & Buildings	N/A	14410	0.331	98	0.2	2.03228931	2440.440746
Pre-Deveopment Total:	N/A	32833.0	0.754	N/A	N/A	N/A	3,439

Post-Development Conditions

Cover Type	Soil Type	Area (sf)	Area (ac)	CN*	S	Q Runoff[1] (in)	Runoff Vol [2] (ft3)
Impervious: Pavement & Buildings	N/A	29569	0.679	98	0.2	2.03228931	5007.730217
Open Space (Lawn Areas)	C/D	3264	0.075	74	3.5	0.478261754	130.0871971
Post-Development Total:	N/A	32833.0	0.754	N/A	N/A	N/A	5,138
Runoff Volume Increase (ft3):			1,699				

GENESEE COUNTY DRAIN COMMISSIONER - 100 YEAR STORM VOLUME REQUIRED

RATIONAL METHOD	Q=CIA	Area=	0.4986
DETENTION POND VOLUME CALCULATIONS		Cw=	0.88
FOR: BELSAY AT DAVISON GAS STATION & C-STORE		Qout=	0.0997

Time conc min	I 100	CwA	Qin	Qout/Qallow	Qin-Qout Ft^3/s	V=(Qin-Qout)*Tc*60 Ft^3
10	5.77	0.44	2.53	0.10	2.43	1,459.18
50	3.00	0.44	1.32	0.10	1.22	3,649.75
60	2.70	0.44	1.18	0.10	1.08	3,905.83
80	2.30	0.44	1.01	0.100	0.91	4,365.34
100	1.90	0.44	0.83	0.100	0.73	4,403.64
130	1.60	0.44	0.70	0.100	0.60	4,698.01
150	1.45	0.44	0.64	0.100	0.54	4,828.44
170	1.35	0.44	0.59	0.100	0.49	5,024.69
180	1.30	0.44	0.57	0.100	0.47	5,083.33
190	1.25	0.44	0.55	0.100	0.45	5,115.64
200	**1.20**	**0.44**	**0.53**	**0.100**	**0.43**	**5,121.62**
210	1.15	0.44	0.50	0.100	0.40	5,101.28
220	1.05	0.44	0.46	0.100	0.36	4,765.02
230	0.95	0.44	0.42	0.100	0.32	4,376.11

NOTES:

1. VERIFY EXACT LOCATION OF UNDERGROUND UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
2. THE CONTRACTOR SHALL NOTIFY MISS DIG (811) THREE (3) WORKING DAYS PRIOR TO STARTING ANY EXCAVATION WITH POWER EQUIPMENT.
3. THE CONTRACTOR SHALL COMPLY WITH ALL LOCAL, COUNTY, STATE, AND LOCAL REGULATIONS FOR ALL WORK THAT TAKES PLACE ON THE SITE.
4. THE CONTRACTOR/DEVELOPER SHALL PAY FOR AND OBTAIN ALL PERMITS REQUIRED BY FEDERAL, STATE, LOCAL, OR PRIVATE AGENCIES AND PAY ALL CHARGES FOR INSPECTION AND TESTING.
5. SEE SHEET C-7 FOR DETAILS, SECTIONS, AND NOTES FOR THE KSI MODEL 350 SWTCM AND THE 60 INCH HDPE OUTLET CONTROL STRUCTURE

GAS STATION & C-STORE - STORM SEWER & DETENTION BASIN OUTLET DESIGN

Manning Equation: $Q = (1.486/n)\ A\ (Rh^{2/3})\ S^{1/2}$ | $Q = C\ I\ A$ | $I = \frac{175}{T + 25}$

Job Name: Belsay at Davison Gas Station
By: JRB / JBM
Date: March 8, 2025
Revised:

DRAINAGE AREA (DA) OR DRAINAGE STRUCTURE (DS) No.	INCREMENT AREA Ai	INCREMENT AREA Ai	TOTAL AREA A	RUNOFF COEF C	TIME T	RAINFALL INTENSITY I	FLOW Q = CI Ai	TOTAL FLOW	PIPE CAPACITY FLOWING FULL	DIAMETER OF PIPE	LENGTH OF PIPE TO NEXT STRUCT	SLOPE OF PIPE	VELOCITY OF FLOW	TIME OF FLOW	INVERT ELEV: UPPER END PIPE INVERT ELEVATION	INVERT ELEV: LOWER END PIPE INVERT ELEVATION	STRUCTURE: RIM ELEVATION	STRUCTURE: DIAMETER (INCHES)	STRUCTURE: COVER TYPE
	SFT	ACRE	ACRE	'C'	MIN	IN/HR	CFS	CFS	CFS	INCH	FEET	%	FT/SEC	MIN					
DS-1	1,920	0.04	0.04	0.783	20.00	3.89	0.13	0.13	2.49	12	102.0	0.49	3.18	0.54	774.00	773.50	777.50	48	M2
DS-2	3,920	0.09	0.13	0.736	20.54	3.84	0.25	0.39	2.76	12	50.0	0.60	3.51	0.24	773.40	773.10	777.50	48	M2
DS-3	13,795	0.32	0.45	0.933	20.77	3.82	1.13	1.52	3.45	12	32.0	0.94	4.40	0.12	773.00	772.70	778.00	48	M2
DS-5	2,090	0.05	0.50	0.950	20.89	3.81	0.17	1.69	5.04	12	5.0	2.00	6.42	0.01	772.60	772.50	778.90	48	M2
TREAT	INSTALL KSI SERIES MODEL NO. 350 SWTC (STORM WATER TREATMENT CHAMBER)														772.50	772.42	778.90	SPECIAL	STRUCT
UG BASIN	TO THE UNDERGROUND STORMWATER DETENTION BASIN - 48 INCH PIPE SYSTEM														772.13	772.00	N/A	N/A	N/A
DS-4	7,295	0.17	0.17	0.950	20.00	3.89	0.62	0.62	3.73	12	92.0	1.10	4.75	0.32	774.10	773.10	777.70	48	M2
DS-3	TO PROPOSED DRAINAGE STRUCTURE NO. 3 (DS-3)														773.00		778.00	48	M2
KSI OCS	SITE AREA = 0.4986 ACRES x 0.20 Qa = 0.0997 cfs							0.0997	1.71	8	15.0	2.00	4.90	0.05	771.70	771.40	777.60	60	B
KSI OCS	Qin AT 200 MIN 100 YEAR STORM = 0.53 CFS							0.53	1.71	8	15.0	2.00	4.90	0.05	771.70	771.40	777.60	60	B
DS-A	END OF PROP 8" SCH-40 PVC STORM OUTLET PIPE AT EXISTING DS IN CURB LINE														771.40		776.50	48	K
NOTE:	USE 8" SCH-40 PVC PIPE BETWEEN KSI OCS AND EX-DS, W/8" TEE ON UPSTREAM END OF 8" OUTLET PIPE WITH 1-3/8" HOLE																		
NOTE:	PLACE TWO (2) 7/16" HOLES IN WEIR INSIDE OF THE KSI OCS (OUTLET CONTROL STRUCTURE), TOP OF WEIR = 775.50																		

SCALE: 1"=10'
JOB NO. 24-313

PREPARED FOR:
DAVISON & BELSAY, LLC
C/O DONOVAN SHANGO
3358 CREEKVIEW DRIVE
DAVISON, MI 48423 EMAIL: DONOVAN.SHANGO@YAHOO.COM

PART OF THE NORTHEAST 1/4, SECTION 11, T7N-R7E
CITY OF BURTON, GENESEE CO, MI

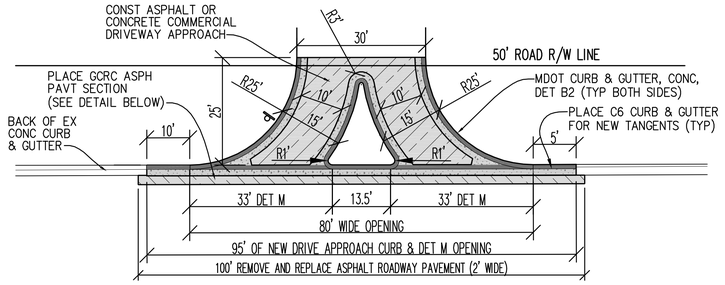
Fenton Land Surveying & Engineering, Inc
14165 N. FENTON ROAD, SUITE 101A, FENTON, MI 48430
PHONE: 810.354.8115 EMAIL:INFO@FENTONLSE.COM

UNDERGROUND DETENTION BASIN PLAN & CALCULATIONS:
PROPOSED GAS STATION & CONVENIENCE STORE
5516 DAVISON ROAD, BURTON, MI 48509

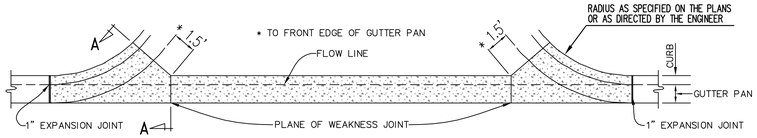
REVISIONS	DRN. BY:	J.R.B.	03.17.2025
12.08.2025	DSN BY:	J.R.B.	"
07.28.2026	CHK'D BY:	J.P.W.	"
	APPR BY:	J.B.M.	"

SHEET NO: C-4

FLSE JOBS/24-313/BURTON/JOB BASIN PLANDWG - C-4

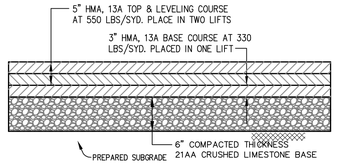


COMMERCIAL DRIVEWAY APPROACH DETAIL
(RIGHT-IN & RIGHT-OUT APPROACH)

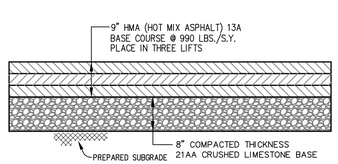


SECTION A-A

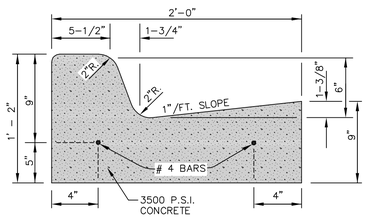
CONCRETE DRIVEWAY OPENING, DETAIL M
(APPLIES TO PUBLIC ROADS)



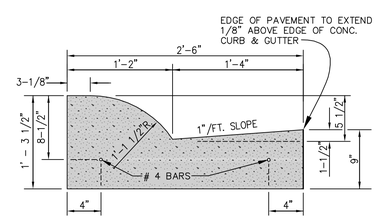
COMMERCIAL ASPHALT (HMA) DRIVEWAY APPROACH X-SECTION
(APPLIES TO DRIVEWAY APPROACHES)



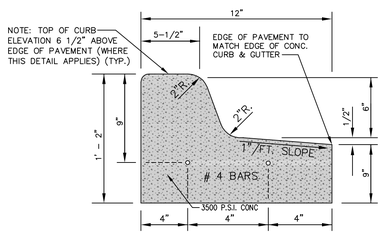
PUBLIC HMA ROADWAY ASPHALT X-SECTION
(APPLIES TO PUBLIC ROADS)



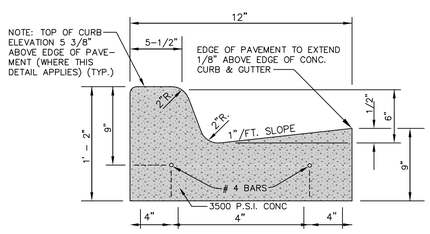
CONCRETE CURB & GUTTER MDOT DETAIL F4
(APPLIES TO PUBLIC ROADS)



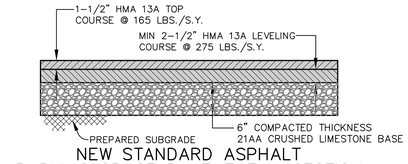
CONCRETE CURB & GUTTER DETAIL B2-MOD.
(APPLIES TO DRIVE APPROACHES)



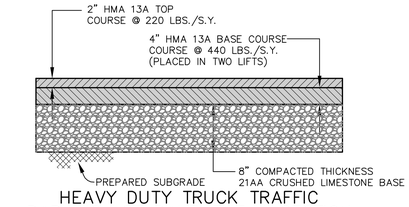
CONCRETE CURB & GUTTER DETAIL F2-MODIFIED
(W/REVERSE GUTTER GRADE IN PARKING LOTS)



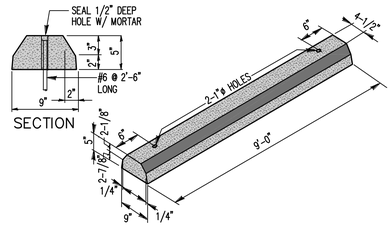
CONCRETE CURB & GUTTER DETAIL F2
(W/NORMAL GUTTER GRADE IN PARKING LOTS)



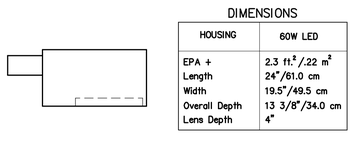
NEW STANDARD ASPHALT PARKING SPACE PAVEMENT X-SECTION



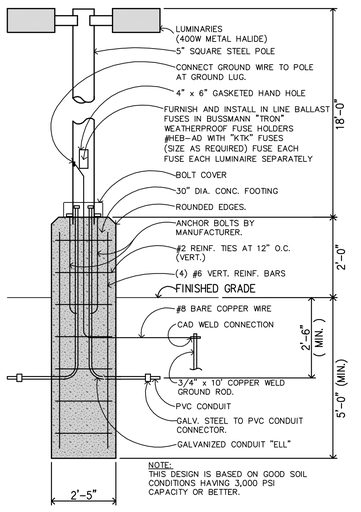
HEAVY DUTY TRUCK TRAFFIC PARKING LOT PAVEMENT X-SECTION



PRECAST CONCRETE WHEEL STOP
(LOCATIONS AS SHOWN ON PLANS)



DIMENSIONS	
HOUSING	60W LED
EPA +	2.3 ft.²/.22 m²
Length	24"/61.0 cm
Width	19.5"/49.5 cm
Overall Depth	13 3/8"/34.0 cm
Lens Depth	4"



LIGHT POLE DETAIL
NOTE: ALL 18'-0" POLES TO BE MOUNTED ON CONCRETE PEDESTALS 2'-0" ABOVE GRADE, FOR A TOTAL MOUNTING HEIGHT OF 20'-0" ABOVE TOP OF PROPOSED GRADE.

GENERAL CONSTRUCTION NOTES:
(FOR WORK IN THE PUBLIC ROAD RIGHT-OF-WAY)

1. FOR PROTECTION OF UNDERGROUND UTILITIES AND IN CONFORMANCE WITH PUBLIC ACT 53, 1974, THE CONTRACTOR SHALL DIAL 1-800-482-7171 (or 811) A MINIMUM OF THREE FULL WORKING DAYS, EXCLUDING SATURDAYS, SUNDAYS, AND HOLIDAYS, PRIOR TO BEGINNING EACH EXCAVATION IN AREAS WHERE PUBLIC UTILITIES HAVE NOT BEEN PREVIOUSLY LOCATED. MEMBERS WILL THUS BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE A PART OF THE "MISS DIG" ALERT SYSTEM.

2. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO BEGINNING CONSTRUCTION, AND WILL BE RESPONSIBLE FOR ANY DAMAGE TO EXISTING UTILITIES DURING CONSTRUCTION.

3. THE CONTRACTOR SHALL COMPLY WITH ALL STATE AND LOCAL REGULATIONS FOR WORK AT THE SITE. THIS SHALL INCLUDE ALL M.I.O.S.H.A. REGULATIONS.

4. THE CONTRACTOR SHALL CONTROL NOISE, CARRY OUT A PROGRAM OF DUST CONTROL AND SHALL ALLOW NO ON-SITE BURNING, WITHOUT APPROVAL FROM LOCAL FIRE DEPARTMENT(S).

5. ALL WORK NECESSARY TO COMPLETE THIS PROJECT SHALL CONFORM TO ALL RELATED CITY OF BURTON CODES AND ORDINANCES, AND THE MICHIGAN DEPARTMENT OF TRANSPORTATION STANDARDS AND SPECIFICATIONS FOR CONSTRUCTION WITHIN THE PUBLIC ROAD RIGHT-OF-WAY

6. THE CONTRACTOR SHALL OBTAIN A PERMIT FROM THE CITY OF BURTON AND GENESEE COUNTY DRAIN COMMISSIONER DIVISION OF WATER AND WASTE SERVICES (PHONE 810-732-7870) FOR ALL WORK INVOLVING SANITARY SEWERS OR WATERMAINS PRIOR TO UNDERTAKING THE WORK.

7. THE CONTRACTOR SHALL OBTAIN A PERMIT FROM THE GENESEE COUNTY DRAIN COMMISSIONER DIVISION OF SURFACE WATER MANAGEMENT (810-732-1590) FOR ALL CONSTRUCTION WORK INVOLVING COUNTY DRAINS.

8. THE CONTRACTOR SHALL LOCATE ALL SPRINKLER SYSTEM HEADS WITHIN THE ROAD RIGHT-OF-WAY PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOTIFY THE ENGINEER TWO WEEK IN ADVANCE OF ANY WORK TO BE DONE THAT MAY AFFECT THOSE SYSTEMS. MODIFICATIONS OF THE SYSTEMS ARE THE RESPONSIBILITY OF THE OWNER AND ARE NOT A PART OF THIS CONTRACT.

9. ANY PROPERTY CORNERS OR GOVERNMENT CORNERS OUTSIDE THE CONSTRUCTION INFLUENCE AREA UNNECESSARILY DISTURBED OR REMOVED BY CONSTRUCTION OPERATIONS MUST BE RESET BY A LICENSED SURVEYOR AT THE EXPENSE OF THE CONTRACTOR.

10. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF ALL PUBLIC STORM SEWER PRIOR TO CONSTRUCTION, WHERE REQUIRED.

11. IF ANY UTILITY POLES ARE IMPACTED BY CONSTRUCTION THEY SHALL BE PROTECTED AND SUPPORTED BY THE CONTRACTOR AT THE CONTRACTORS EXPENSE.

12. THE CONTRACTOR SHALL BE REQUIRED TO MAINTAIN REASONABLE ACCESS TO AND FROM ALL DRIVEWAYS, AND THE TRAVELED PUBLIC ROADWAYS DURING CONSTRUCTION. THE CONTRACTOR SHALL IMPLEMENT MINOR TRAFFIC DEVICES, AND/OR OTHER DEVICES, AS DIRECTED BY THE ENGINEER.

13. THE CONTRACTOR SHALL FURNISH, PLACE AND MAINTAIN PLASTIC DRUM BARRICADES AS REQUIRED TO PROTECT THE TRAVELING PUBLIC DURING CONSTRUCTION OPERATIONS ON THIS PROJECT.

14. ALL LAWN OR TURF AREAS DISTURBED DURING CONSTRUCTION SHALL BE RESTORED WITH 4 INCHES OF TOPSOIL SURFACE, SEEDING, CLASS A FERTILIZER, MULCH, AND ANCHORING MULCH IN ACCORDANCE WITH SECTION 816 OF THE MDOT 2020 STANDARD SPECIFICATIONS FOR CONSTRUCTION. THE APPLICATION RATES SHALL BE AS CALLED FOR IN THE SPECIFICATIONS.

15. PUBLIC UTILITIES WHERE SHOWN ARE BASED ON INFORMATION PROVIDED BY THE UTILITY OWNERS. NEITHER THE CITY OF BURTON OR THE ENGINEER ARE RESPONSIBLE FOR THE ACCURACY OF THE INFORMATION. IT IS THE CONTRACTORS RESPONSIBILITY TO VERIFY THE EXACT LOCATION OF ALL UNDERGROUND UTILITIES, PRIOR TO CONSTRUCTION.

16. ALL PUBLIC UTILITIES WHICH ARE NOT TO BE MOVED SHALL BE PROTECTED AND SUPPORTED BY THE CONTRACTOR AT THEIR OWN EXPENSE.

17. ALL SAWCUTTING REQUIRED FOR THE REMOVAL OF PAVEMENT, SIDEWALK AND/OR CURB AND GUTTER SHALL BE COMPLETED AS SHOWN ON THE ACCOMPANYING PLANS OR AS DIRECTED BY THE ENGINEER. SEE DETAILS WITHIN THESE PLANS FOR ALL WORK INVOLVING CONSTRUCTUION WITH THE PUBLIC ROAD RIGHT-OF-WAY.

18. THE CONTRACTOR MUST COORDINATE ALL PAVEMENT AND CONCRETE CURB & GUTTER REMOVALS WITH THE CITY OF BURTON, AND/OR THE ENGINEER PRIOR TO COMMECING ANY REMOVAL WORK. THE CONTRACTOR MUST OBTAIN APPROVAL FROM THE CITY OF BURTON AND/OR THE ENGINEER PRIOR TO PROCEEDING WITH ANY REMOVALS. THE FULL DEPTH SECTION OF EXISTING PAVEMENT MUST REMAIN IN PLACE AS LONG AS POSSIBLE AS REQUIRED BY THE CITY OF BURTON AND/OR THE ENGINEER TO SUPPORT CONSTRUCTION TRAFFIC AND TO PROTECT THE EXISTING PAVEMENT FROM DAMAGE

19. AT THE COMPLETION OF CONSTRUCTION THE CONTRACTOR MUST CLEAN AND REMOVE ALL DIRT AND DEBRIS FROM ALL SIDEWALKS, PAVEMENT, AND THE GUTTER PAN OF ALL CURB & GUTTER AS REQUIRED BY THE CITY OF BURTON AND/OR THE ENGINEER.

REGULATORY & PARKING LOT SIGNS

SCALE: NONE	PREPARED FOR: DAVISON & BELSAY, LLC C/O DONOVAN SHANGO 3358 CREEKVIEW DRIVE DAVISON, MI 48423 EMAIL: DONOVAN.SHANGO@YAHOO.COM	PART OF THE NORTHEAST 1/4, SECTION 11, T7N-R7E CITY OF BURTON, GENESEE CO, MI	Fenton Land Surveying & Engineering, Inc 14165 N. FENTON ROAD, SUITE 101A, FENTON, MI 48430 PHONE: 810.354.8115 EMAIL:INFO@FENTONLSE.COM	STANDARD CONSTRUCTION DETAILS & NOTES PROPOSED GAS STATION & CONVENIENCE STORE 5516 DAVISON ROAD, BURTON, MI 48509	REVISIONS 12.08.2025 07.28.2026
JOB NO. 24-313					DRN. BY: J.R.B. 03.17.2025 DSN BY: J.R.B. " CHK'D BY: J.P.W. " APPR BY: J.B.M. "

SHEET NO: C-5

FLSE JOBS/24-313/BURTON/STND DETL.DWG - C-5

GENERAL CONSTRUCTION NOTES:

1. ALL SITE CONSTRUCTION WORK SHALL BE IN ACCORDANCE WITH ALL APPLICABLE REQUIREMENTS THE 2020 MICHIGAN DEPARTMENT OF TRANSPORTATION (MDOT) STANDARD SPECIFICATIONS FOR CONSTRUCTION, THE LATEST MDOT STANDARD ROAD PLANS, AND THE LATEST CITY OF BURTON ZONING ORDINANCE AND ENGINEERING DESIGN STANDARDS. COPIES OF ALL MDOT DOCUMENTS MAY BE OBTAINED FROM THEIR WEBSITE (WWW.MICHIGAN.GOV/MDOT)

2. THE CONTRACTOR SHALL PERFORM ALL WORK NECESSARY TO GRADE THE SITE TO THE GRADES SHOWN ON THE PLANS OR SPECIFIED BY THE ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL EXCAVATION, EMBANKMENT, AND THE FURNISHING AND PLACING OF ALL BORROW MATERIAL REQUIRED TO OBTAIN THE SPECIFIED GRADES.

3. SUBGRADE PREPARATION: REMOVE ALL ROCKS, DEBRIS, VEGETATION AND TOPSOIL FROM THE AREA TO BE PAVED. SHAPE THE SUBGRADE TO PROPER ELEVATIONS FOR PLACEMENT OF THE PAVEMENT. COMPACT SUBGRADE TO NOT LESS THAN 95% OF MAXIMUM UNIT WEIGHT IN 9 INCH LIFTS IN ACCORDANCE WITH THE MODIFIED PROCTOR T-180 METHOD. THE CONTRACTOR SHALL UNDERCUT ANY UNSUITABLE SUBGRADE MATERIAL AND REPLACE IT WITH SUITABLE MATERIAL COMPACTED TO MINIMUM 95% OF MAX UNIT WEIGHT.

4. ALL WORK NECESSARY TO COMPLETE THIS PROJECT SHALL CONFORM TO ALL RELATED CITY OF BURTON & GENESEE COUNTY DRAIN COMMISSIONER (GCDC) CODES AND ORDINANCES.

5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS, INSURANCE AND BONDS PRIOR TO CONSTRUCTION, INCLUDING THE PAYMENT OF ANY FEES, REQUIRED BY ANY FEDERAL, STATE, LOCAL, OR PRIVATE ORGANIZATIONS.

6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER DISPOSAL OF SURPLUS OR WASTE MATERIAL.

7. SOIL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE EMPLOYED IN ACCORDANCE WITH THE SOIL EROSION CONTROL PLAN, AND SHALL MEET THE APPROVAL OF THE CITY OF BURTON SOIL EROSION CONTROL DEPARTMENT. CONTRACTOR SHALL OBTAIN SOIL EROSION CONTROL PERMIT FROM THE CITY OF BURTON SOIL EROSION CONTROL DEPARTMENT (SESC).

8. ALL LAWN OR TURF AREAS SHALL BE ESTABLISHED WITH TOPSOIL AND APPLICATION OF FERTILIZER, SEED AND MULCH IN ACCORDANCE WITH THE FOLLOWING RATES:

TOPSOIL SURFACE = MINIMUM 4 INCHES
CHEMICAL FERTILIZER NUTRIENT = 240 LBS/ARCE
CLASS A SEEDING = 120 LBS/ACRE
MULCH = 2 TONS/ACRE
ALL LANDSCAPE BEDS SHALL HAVE 18" OF TOPSOIL.

ALL MATERIAL SHALL COMPLY WITH MDOT STANDARD SPECIFICATIONS.

9. CONTRACTOR SHALL NOTIFY ALL APPROPRIATE UTILITY COMPANIES PRIOR TO PERFORMING WORK, AND SHALL OBTAIN ANY REQUIRED PERMITS OR APPROVALS PRIOR TO PERFORMING WORK.

10. THREE (3) WORKING DAYS PRIOR TO BEGINNING CONSTRUCTION, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CONTACT MISS DIG UTILITY PROTECTION SERVICE (1-800-482-7171) TO VERIFY THE LOCATION OF ALL EXISTING UTILITIES. THE CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR THE PROTECTION OF ALL EXISTING UTILITIES DURING CONSTRUCTION. ALL UTILITIES DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED IN ACCORDANCE WITH THE UTILITY OWNERS REQUIREMENTS AT THE CONTRACTORS EXPENSE.

11. PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL BE REQUIRED TO EXPOSE ALL EXISTING UTILITIES THAT CROSS THE PROPOSED CONSTRUCTION IN ORDER TO DETERMINE IF A VERTICAL CONFLICT EXISTS BETWEEN THE EXISTING UTILITY AND THE PROPOSED CONSTRUCTION. ALL LABOR REQUIRED TO UNCOVER THE EXISTING UTILITY SHALL BE CONSIDERED AS BEING INCLUDED IN THE COST OF CONSTRUCTION. THE CONTRACTOR SHALL VERIFY THE DEPTH AND HORIZONTAL LOCATIONS OF ALL UTILITIES IN SUFFICIENT TIME SUCH THAT ANY CONFLICTS CAN BE RESOLVED BEFORE WORK IS STARTED IN THAT PORTION OF THE PROJECT. THE CONTRACTOR SHALL ARRANGE FOR THE VARIOUS UTILITY OWNERS TO LOCATE, REMOVE AND REPLACE, OR RELOCATE THEIR FACILITIES. ALL COST FOR THIS WORK SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

12. PRIOR TO BIDDING THE CONTRACTOR AND SUBCONTRACTORS SHALL MAKE A PERSONAL INVESTIGATION OF THE SITE AND EXISTING SURFACE AND SUBSURFACE CONDITIONS. THE CONTRACTOR IS RESPONSIBLE TO ACQUAINT THEMSELVES WITH CONDITIONS OF THE WORK AREA. THE CONTRACTOR IS ADVISED TO DETERMINE THE SUBSURFACE SOIL AND GROUND WATER CONDITIONS. DEWATERING, IF DETERMINED NECESSARY BY THE CONTRACTOR, WILL BE INCIDENTAL TO THE COST OF CONSTRUCTION.

13. ALL FILL ON THE PROPERTY SHALL BE ADEQUATELY COMPACTED BY ROLLING TO PRODUCE A SURFACE SATISFACTORY FOR THE PROPER INSTALLATION OF THE PROPOSED WORK. BEFORE COMMENCING PAVING WORK, THE PAVING CONTRACTOR MUST MAKE CERTAIN THAT THE SURFACES TO BE COVERED ARE IN PROPER CONDITION. SURFACES NOT ACCEPTABLE SHALL BE REPORTED TO THE OWNER IMMEDIATELY. THE APPLICATION OF PAVING MATERIALS SHALL BE HELD TO BE AN ACCEPTANCE OF THE SURFACES AND WORKING CONDITIONS BY THE PAVING CONTRACTOR WHO WILL BE HELD RESPONSIBLE FOR THE RESULTS. ANY UNSTABLE LIMESTONE BASE OR ASPHALT PAVEMENT MUST BE REMOVED AND REPLACED BY THE CONTRACTOR AT THEIR COST AS REQUIRED BY THE OWNER AND/OR ENGINEER.

14. CONTRACTOR SHALL REMOVE ALL EXISTING STRUCTURES, TREES, BRUSH, FENCES, SLABS, DRIVEWAYS AND/OR SIDEWALKS THAT ARE AFFECTED BY THE PROPOSED WORK. VISIT SITE TO DETERMINE EXTENT OF REMOVAL WORK WHICH MAY OR MAY NOT BE SHOWN ON PLANS.

15. THE FOLLOWING LATEST MDOT STANDARD ROAD PLANS SHALL APPLY TO THIS PROJECT UNLESS THEY ARE SUPERSEDED BY CITY OF BURTON & GCDC STANDARD DETAILS:

PLAN NO.	TITLE
R-1-G	DRAINAGE STRUCTURES
R-28-K	CURB RAMP AND DETECTABLE WARNING DETAILS
R-29-J	DRIVEWAY OPENINGS & APPROACHES AND CONCRETE SIDEWALKS
R-30-G	CONCRETE CURB AND CONCRETE CURB & GUTTER
R-31-F	INTEGRAL CURB AND INTEGRAL CURB & GUTTER
R-35-E	CONCRETE SHOULDER GUTTER AND SPILLWAY
R-39-K	TRANSVERSE PAVEMENT JOINTS (PLAIN CONCRETE PAVEMENT)
R-42-F	TYPICAL JOINT LAYOUTS FOR CONCRETE PAVEMENT
R-80-F	GRANULAR BLANKET, UNDERDRAINS, OUTLET ENDINGS FOR UNDERDRAINS, AND SEWER BULKHEADS
R-82-D	BEDDING AND FILLING AROUND PIPE CULVERTS
R-83-C	UTILITY TRENCHES
R-88-E	STEEL END SECTION
R-92-C	STEEL GRATES FOR END SECTIONS

THE CONTRACTOR SHALL OBTAIN COPIES OF THESE MDOT STANDARD PLANS AT THE MDOT WEBSITE (WWW.MICHIGAN.GOV/MDOT) AND MUST COMPLY WITH ALL REQUIREMENTS

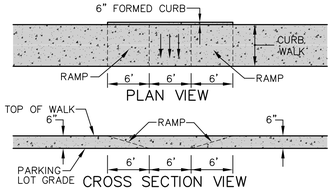
16. THE CONTRACTOR MUST PROVIDE ALL MEASURES REQUIRED FOR TRAFFIC CONTROL DURING CONSTRUCTION AS REQUIRED BY CITY OF BURTON AND MICHIGAN DEPARTMENT OF TRANSPORTATION AND IN ACCORDANCE WITH ALL APPLICABLE REQUIREMENTS OF THE 2011 EDITION OF THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES AS AMENDED, AND SECTION 812 OF THE 2020 MDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION. THE CONTRACTOR MUST PLACE PLASTIC DRUMS, TEMPORARY SIGNING, LIGHTED ARROWS, YELLOW CONSTRUCTION WARNING TAPE, AND ANY OTHER MEASURES REQUIRED TO PROTECT THE PUBLIC DURING CONSTRUCTION.

17. ALL PARKING SPACE LINES, CROSSWALKS, STOP BARS, & PAINTED ISLANDS SHALL BE MARKED WITH 4" WHITE REFLECTIVE PAINT. ALL HANDICAP PARKING SPACE LINES SHALL BE MARKED WITH 4" BLUE REFLECTIVE PAINT. HANDICAP SYMBOLS SHALL BE BLUE REFLECTIVE PAINT. ALL MATERIALS SHALL COMPLY WITH SECTION 811 OF THE 2020 MDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION.

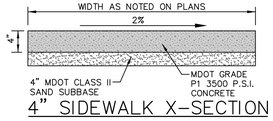
18. ALL TRAFFIC SIGNS SHALL CONFORM WITH THE REQUIREMENTS OF THE 2011 EDITION OF THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, AS AMENDED, AND SECTION 810 OF THE 2020 MDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION.

19. THE CONTRACTOR SHALL CONTROL NOISE, CARRY OUT A PROGRAM OF DUST CONTROL AND SHALL ALLOW NO ON-SITE BURNING, WITHOUT APPROVAL FROM LOCAL FIRE DEPARTMENT.

20. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT ALL EXISTING UTILITIES AND PAVEMENT. THE CONTRACTOR MUST PROPERLY REPAIR ANY DAMAGE CAUSED BY THEIR OPERATIONS AT THEIR COST AS REQUIRED BY THE OWNER AND/OR ENGINEER.



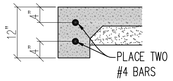
SIDEWALK BARRIER FREE RAMP TYPE-P

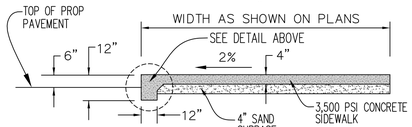


4" SIDEWALK X-SECTION

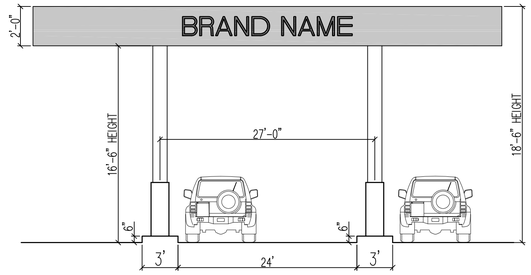
ACCESS RAMP CONSTRUCTION NOTES

1. RAMP SHALL HAVE A 12" WIDE BORDER WITH 1/4" X 1/4" GROOVES @ 3/4" O.C.
2. THE SURFACE OF THE RAMP SHALL HAVE A TRANSVERSE BROOMED SLIP-RESISTANT SURFACE TEXTURE ROUGHER THAN THE SURROUNDING SIDEWALK.
3. RAMP CONSTRUCTION SHALL COMPLY WITH ALL FEDERAL, STATE AND LOCAL CODES AND REGULATIONS.
4. THE SIDEWALK RAMP CROSS SECTION SHALL BE A MINIMUM OF 5 INCHES OF 3500 PSI GRADE P1 CONCRETE ON A MINIMUM OF 4 INCHES OF CLASS II SAND SUBBASE.



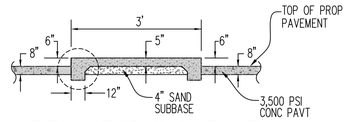


PROPOSED THICKENED EDGE SIDEWALK X-SECTION

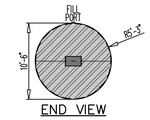


REGULAR GAS PUMP CANOPY SECTION (TYP)

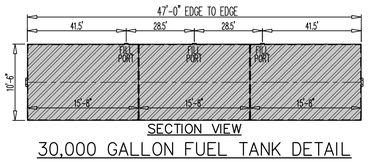
(NO SCALE)



PROPOSED GAS PUMP RAISED ISLAND X-SECTION

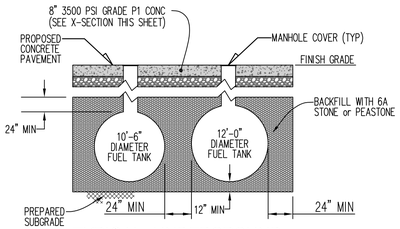


END VIEW

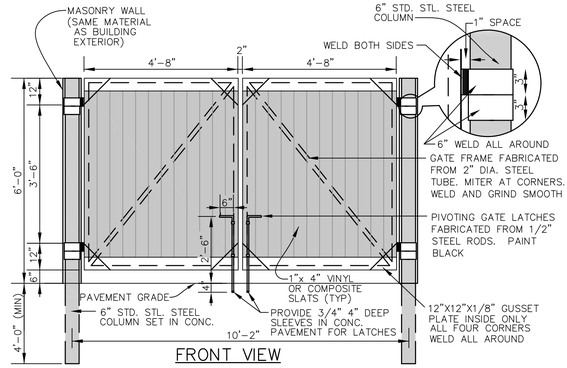


SECTION VIEW

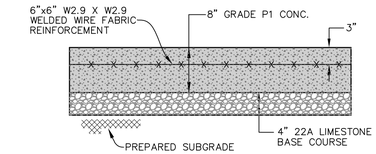
30,000 GALLON FUEL TANK DETAIL



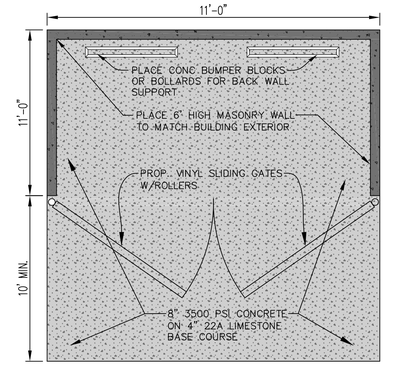
TYPICAL UNDERGROUND FUEL TANK SECTION



FRONT VIEW

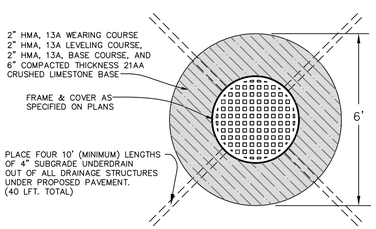


CONCRETE PAVEMENT X-SECTION WITHIN DUMPSTER AREA, OVER GAS TANKS, AND UNDER THE CANOPY

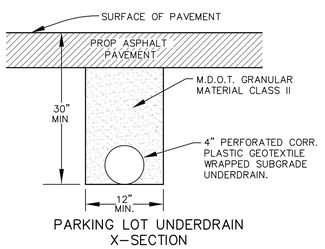


PLAN VIEW

DUMPSTER ENCLOSURE DETAIL

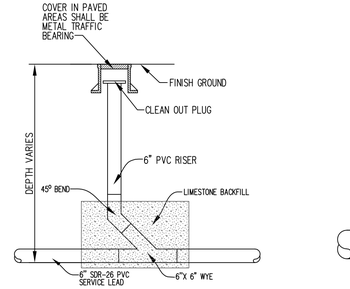


PLAN VIEW OF UNDERDRAIN AT CATCHBASIN M2

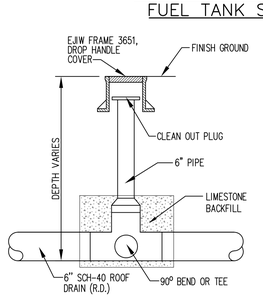


PARKING LOT UNDERDRAIN X-SECTION

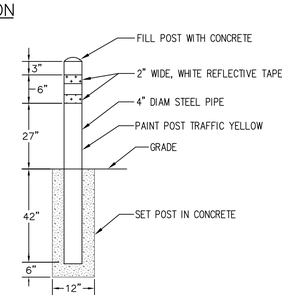
PARKING LOT UNDERDRAIN DETAILS



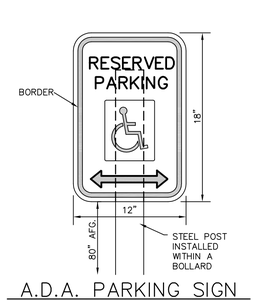
SANITARY CLEAN-OUT DETAIL



STORM CLEANOUT R.D. DETAIL

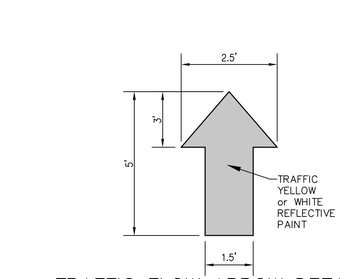


TYPICAL BOLLARD DETAIL



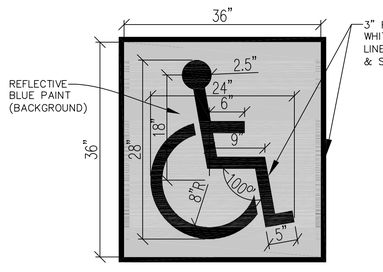
A.D.A. PARKING SIGN

TYPICAL @ ALL BARRIER FREE STALLS



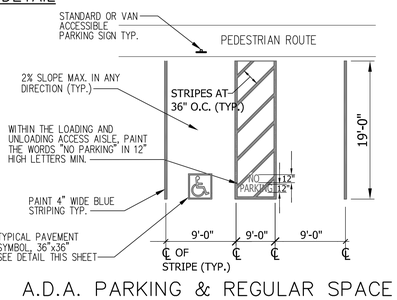
TRAFFIC FLOW ARROW DETAIL

(NO SCALE)



A.D.A. PARKING SYMBOL

TYPICAL AT ALL BARRIER FREE STALLS



A.D.A. PARKING & REGULAR SPACE PAVEMENT MARKING LAYOUT DETAIL

FLSE JOBS/24-313/BURTON/SITE DETL.DWG - C-6

SCALE: NONE

JOB NO. 24-313

PREPARED FOR:
DAVISON & BELSAY, LLC
C/O DONOVAN SHANGO
3358 CREEKVIEW DRIVE
DAVISON, MI 48423 EMAIL: DONOVAN.SHANGO@YAHOO.COM

PART OF THE NORTHEAST 1/4, SECTION 11, T7N-R7E
CITY OF BURTON, GENESEE CO, MI

Fenton Land Surveying & Engineering, Inc
14165 N. FENTON ROAD, SUITE 101A, FENTON, MI 48430
PHONE: 810.354.8115 EMAIL:INFO@FENTONLSE.COM

STANDARD CONSTRUCTION DETAILS & NOTES
PROPOSED GAS STATION & CONVENIENCE STORE
5516 DAVISON ROAD, BURTON, MI 48509

REVISIONS				
08.26.2026 GCDC WWS - CASE SP26-46	DRN. BY:	J.R.B.	03.17.2025	SHEET NO:
	DSN BY:	J.R.B.	"	C-6
	CHK'D BY:	J.P.W.	"	
	APPR BY:	J.B.M.	"	

STORM WATER TREATMENT CHAMBER

KSI SERIES 350 HDPE CHAMBER

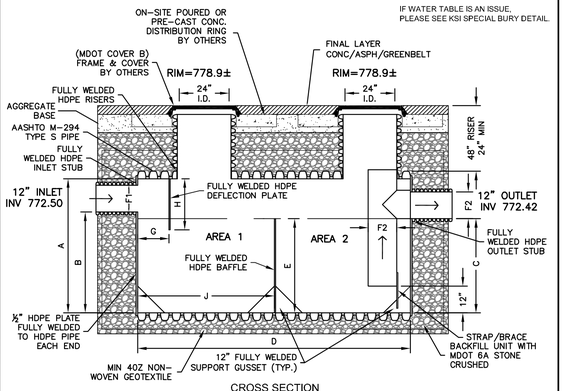
NOTE:
TANK MUST BE INSTALLED PER
KSI TANK INSTALLATION INSTRUCTION MANUAL

NOTE:
24" CLEARANCE REQUIRED
AROUND TANK PERMETER

NOTE:
INSTALL UNIT PER ASTM D2321

4 OZ NON-WOVEN GEOTEXTILE
FABRIC WRAP REQUIRED
SEE TRENCH DETAIL

IF WATER TABLE IS AN ISSUE,
PLEASE SEE KSI SPECIAL BURY DETAIL.

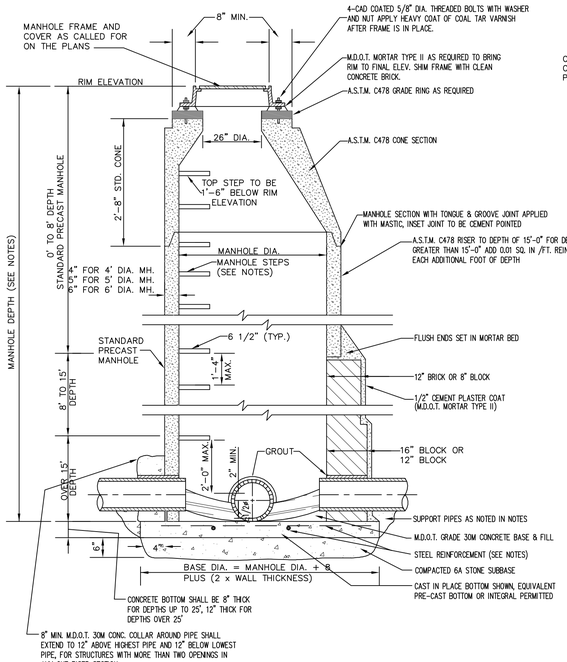


CROSS SECTION

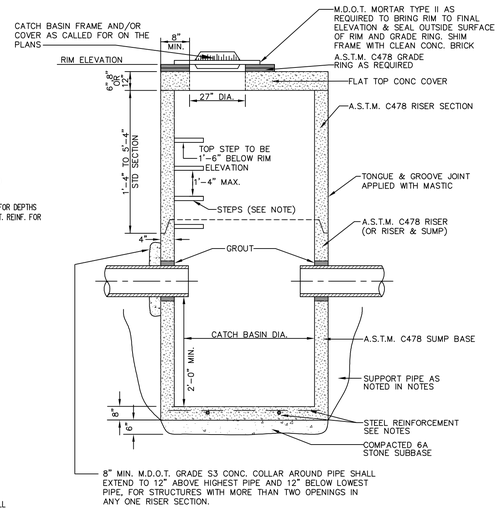
STORM WATER TREATMENT CHAMBER DIMENSIONS AND CAPACITIES

MODEL NO.	A	B	C	D	E	F1	F2	G	H	J	AREA 1	AREA 2
350-36-12	36"	21"	20"	109"	20"	12"	12"	12"	21"	54"	17.8 CF	30 CF

DESIGN BY: AG / RK	REV: 12-18-24 DATE: 10-10-08	2 OF 2	KSI KENNEDY SOLUTIONS, INC. 10051 Bergin Road Howell, MI 48843 Ph: 800-699-4046
MANUF. APPROVAL BY: .	SCALE: NTS	SHEET NO.	
DRAWING NO. SERIES 350 SWTC v2025			



STORM SEWER MANHOLE
(NOT TO SCALE)



PRECAST CATCH BASIN W/STANDARD SECTION
(NOT TO SCALE)
MDOT STANDARD PLAN NO. R-1-G

NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEASURING FOR THEM SELF THE HEIGHTS OF ALL STRUCTURES BASED UPON FINAL LOCATION IN THE FIELD THE CONTRACTOR IS CAUTIONED NOT TO ORDER THE STRUCTURE MATERIALS BASED ON PLAN INFORMATION.

2. ALL PRECAST MANHOLE AND CATCH BASIN COMPONENTS SHALL BE IN ACCORDANCE WITH A.S.T.M. C 478 CURRENT EDITION.

3. CONE SECTIONS SHALL BE ECCENTRIC CONE SECTIONS AS SHOWN. CONCENTRIC CONES AND FLAT SLAB TOPS MAY BE SUBSTITUTED ONLY UPON RECEIPT OF PRIOR WRITTEN APPROVAL FROM THE OWNER. STANDARD CONE HEIGHTS SHALL BE AS SHOWN. SHORTER CONES MAY BE SUBSTITUTED ONLY UPON PRIOR WRITTEN APPROVAL FROM THE OWNERS. SHORTER CONES SHALL BE FABRICATED IN ACCORDANCE WITH M.D.O.T. STANDARD PLANS, CURRENT EDITION. CONES SHALL BE FURNISHED WITH 4 5/8" DIA. THREADED INSERTS CAST INTEGRALLY WITH ALL FRAMES.

4. SPACING BETWEEN PIPE OPENINGS IN A RISER SHALL BE 6" MINIMUM. OPENINGS MAY BE CONSTRUCTED BY CASTING, REMOVING THE GREEN CONCRETE OR BY DRILLING THE OPENINGS IN CURED CONCRETE.

5. THE TOP OF MASONRY AND PRECAST STRUCTURES SHALL BE SUFFICIENTLY LOW TO PERMIT PROPER ADJUSTMENTS OF COVER TO GRADE WITH MORTAR.

6. M.D.O.T. GRANULAR MATERIAL CLASS II COMPACTED TO 95% DENSITY SHALL BE USED IN BACKFILLING AROUND ALL STRUCTURES THAT FALL WITHIN THE 1 ON 1 INFLUENCE LINES FROM THE EDGE OF PAVEMENT OR BACK OF CURB OR FROM STRUCTURE FOOTINGS.

7. CAST IN PLACE AND PRECAST CONCRETE BOTTOMS (FOOTINGS) SHALL BE REINFORCED WITH #4 STEEL BARS SPACED AT 1'-0" BOTH WAYS OR TWO LAYERS OF WELDED WIRE FABRIC OF EQUIVALENT CROSS SECTIONAL AREA LAID AT RIGHT ANGLES AND WIRED TOGETHER. REINFORCEMENT SHALL BE PLACED IN TOP OF FOOTING AND SHALL BE MARKED. PROVIDE 3" CLEARANCE FOR REINFORCING. FOOTINGS SHALL BE SUPPORTED BY A COMPACTED 6" GRANULAR SUBBASE.

8. PRECAST BOTTOMS SHALL BE SET LEVEL AND A MINIMUM OF 2" BELOW THE BOTTOM OF THE SEWER.

9. THE BELL SHALL BE REMOVED FOR THE FIRST LENGTH OF OUTLET PIPE PROJECTING THRU THE WALL OF THE MANHOLE.

10. POUR M.D.O.T. GRADE S3 (3000 PSI) CONCRETE UNDER SEWER PIPE FROM UNDISTURBED SOIL TO THE SPRING LINE. THE MINIMUM WIDTH OF CONCRETE SHALL BE O.D. + 12".

11. MORTAR FOR BRICK, BLOCK AND PARKING, POINTING AND BEDDING OF CASTING FRAMES SHALL BE IN ACCORDANCE WITH M.D.O.T. STANDARD SPECIFICATIONS FOR MORTAR TYPE II.

12. ALL LIFT PIN HOLES SHALL BE FILLED WITH MORTAR.

13. ALL BRICK AND BLOCK USED IN MANHOLE OR CATCH BASIN CONSTRUCTION SHALL BE SOLID.

14. MANHOLE AND CATCH BASIN DIAMETERS (EXCEPT WHERE OTHERWISE NOTED) SHALL BE AS FOLLOWS:

PIPE DIA.	REQUIRED MH & CB DIA.	MINIMUM PRECAST WALL THICKNESS
24" OR LESS	4'	4"
27" THRU 36"	5'	5"
42" & 48"	6'	6"
54" THRU 72"	8'	8"

15. STEPS SHALL BE INSTALLED IN ALL STRUCTURES MORE THAN 4' DEEP AND SHALL HAVE A MINIMUM 3" EMBEDMENT STEPS SHALL BE FABRICATED OF CAST IRON MEETING THE REQUIREMENTS OF A.A.S.H.T.O. M105 CLASS NO. 35, AND SHALL BE CAST INTEGRALLY WITH THE STRUCTURE. STEPS SHALL BE DESIGNED IN ACCORDANCE WITH CURRENT O.S.H.A. REGULATIONS AND SHALL NOT BE LESS THAN 10" CLEAR LENGTH. STEPS SHALL BE CAPABLE OF SUPPORTING 300 LBS AND COATED WITH COAL TAR PITCH VARNISH. STEPS SHALL NOT BE PLACED OVER ANY SEWER CHANNEL.

16. FRAME AND COVER CASTING SHOP DRAWINGS SHALL BE APPROVED BY THE OWNER BEFORE MANUFACTURING.

17. THE MANHOLE FRAME AND COVER SHALL MEET THE REQUIREMENTS OF THE CURRENT STANDARD SPECIFICATIONS FOR GRAY-IRON CASTINGS A.A.S.H.T.O. M105, AND SHALL HAVE A MINIMUM STRENGTH AS PROVIDED FOR CLASS NO. 30 GRAY IRON CASTINGS. THE MANHOLE FRAME SHALL BE BOLTED TO THE CONE WITH 4-5/8" DIA. BOLTS WITH 3/4" X 2" X 1/8" FLAT WASHERS AND NUTS, ALL CADMIUM COATED AND SUPPLIED BY THE FRAME SUPPLIER.

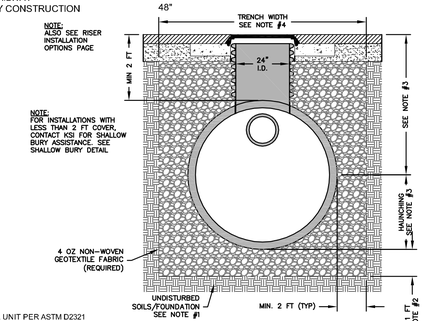
STORM WATER TREATMENT CHAMBER TRENCH DETAIL

NOTES:
1. FOUNDATION: WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH A FOUNDATION OF MDOT 6A CRUSHED STONE AS DEFINED IN ASTM D2321, LATEST EDITION; AS AN ALTERNATIVE TRENCH BOTTOM MAY BE STABILIZED USING A WOVEN GEOTEXTILE FABRIC AND OR A GEOGRID.
2. BEDDING: SUITABLE MATERIAL SHALL BE MDOT 6A CRUSHED STONE INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION. UNLESS OTHERWISE SPECIFIED BY THE ENGINEER, MINIMUM BEDDING THICKNESS SHALL BE 12" FOR 36"-120"ø SWTC.
3. HAUNCHING AND INITIAL BACKFILL: SUITABLE MATERIAL SHALL BE MDOT 6A CRUSHED STONE AND INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION, MAXIMUM TEN INCH (10") LIFTS.
4. UNLESS OTHERWISE SPECIFIED BY THE ENGINEER, MIN. TRENCH WIDTHS ARE AS FOLLOWS.

NOMINAL I.D.	NOMINAL O.D.	MINIMUM RECOMM. TRENCH WIDTH
36"	42"	90"
48"	54"	102"
60"	66"	114"
72"	80.5"	129"
96"	105.9"	154"
120"	131.3"	190"

5. MINIMUM COVER: MINIMUM RECOMMENDED COVER FOR VARIOUS LIVE LOADING CONDITIONS ARE AS SUMMARIZED IN THE FOLLOWING TABLE. UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE TAKEN FROM THE TOP OF THE SWTC TANK TO THE GROUND SURFACE.

SURFACE LIVE LOAD	MINIMUM REQUIRED COVER FOR WAYNE COUNTY (ALL SIZES)
HS-25/H25 (FLEXIBLE PAVEMENT)	MIN. 24" AS MEASURED FROM THE BOTTOM OF THE FLEXIBLE PAVEMENT
HS-25/H25 (RIGID PAVEMENT)	MIN. 24" AS MEASURED FROM THE TOP OF THE RIGID PAVEMENT
E80 RAILWAY	24"
HEAVY CONSTRUCTION	48"



NOTE:
INSTALL UNIT PER ASTM D2321

4 OZ NON-WOVEN GEOTEXTILE
FABRIC WRAP REQUIRED

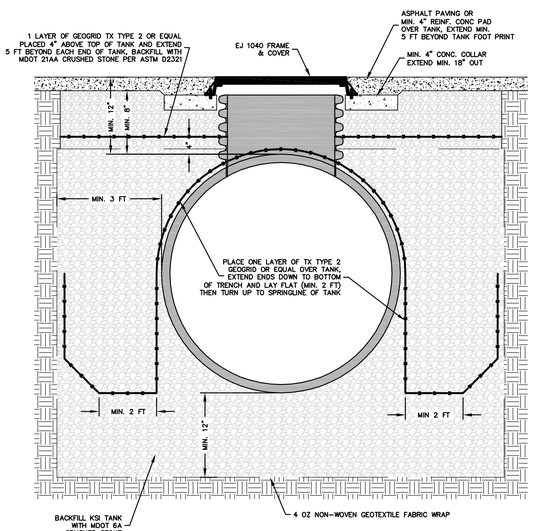
IF WATER TABLE IS AN ISSUE,
PLEASE SEE KSI SPECIAL BURY DETAIL.

HDPE SWTC TANK DETAIL
SCALE: NONE

DESIGN BY: AG / RK	REV: 11-17-23 DATE: 10-10-08	1 OF 1	KSI KENNEDY SOLUTIONS, INC. 10051 Bergin Road Howell, MI 48843 Ph: 800-699-4046
MANUF. APPROVAL BY: .	SCALE: NTS	SHEET NO.	
DRAWING NO. SWTC INSTALLATION DETAIL			

KSI SPECIAL TANK BURY DETAIL

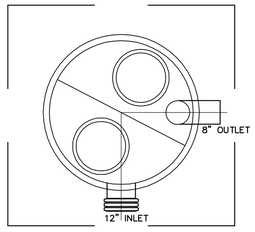
NOTE: GEOGRID & GEOTEXTILE FABRIC BY OTHERS



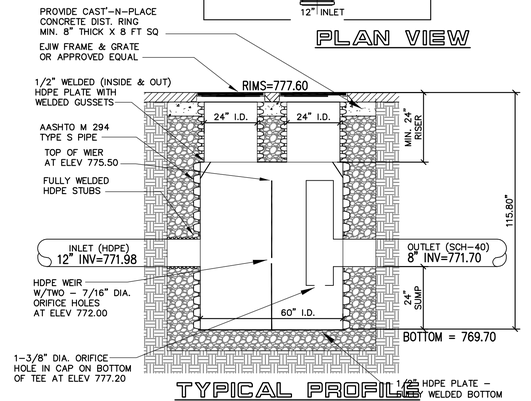
DESIGN BY: AG / RK	REV: 6-12-24 DATE: 10-2-19	1 OF 1	KSI KENNEDY SOLUTIONS, INC. 10051 Bergin Road Howell, MI 48843 Ph: 800-699-4046
MANUF. APPROVAL BY: .	SCALE: NTS	SHEET NO.	
DRAWING NO. KSI SPECIAL TANK BURY			

STORM OUTLET CONTROL STRUCTURE

KSI SERIES 60" SMOOTH LINED CORRUGATED



PLAN VIEW

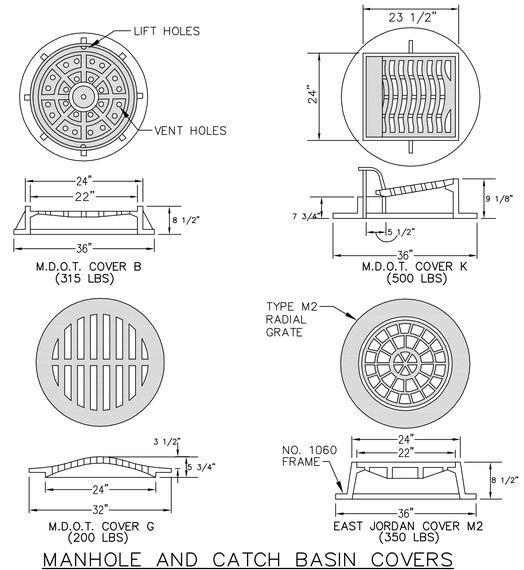


TYPICAL PROFILE

BACKFILL UNIT WITH CLASS I CRUSHED STONE PER ASTM D2321

DESIGN BY: AG / RK	REV: DATE: 12-26-24	1 OF 1	KSI KENNEDY SOLUTIONS, INC. 10051 Bergin Road Howell, MI 48843 Ph: 517-225-8338
MANUF. APPROVAL BY: .	SCALE: NTS	SHEET NO.	
DRAWING NO. 60 CONTROL STRUCTURE v1			

MANHOLE AND CATCH BASIN COVERS



FLSE J08S/24-313/BURTON/DSD.DWG - C-7

SCALE: NONE	PREPARED FOR: DAVISON & BELSAY, LLC C/O DONOVAN SHANGO 3358 CREEKVIEW DRIVE DAVISON, MI 48423 EMAIL: DONOVAN.SHANGO@YAHOO.COM	PART OF THE NORTHEAST 1/4, SECTION 11, T7N-R7E CITY OF BURTON, GENESEE CO, MI	Fenton Land Surveying & Engineering, Inc 14165 N. FENTON ROAD, SUITE 101A, FENTON, MI 48430 PHONE: 810.354.8115 EMAIL:INFO@FENTONLSE.COM	DRAINAGE STRUCTURE & STORM SEWER DETAILS PROPOSED GAS STATION & CONVENIENCE STORE 5516 DAVISON ROAD, BURTON, MI 48509	SHEET NO: C-7
JOB NO. 24-313					

REVISIONS	DRN. BY:	J.R.B.	03.17.2025
12.08.2025	DSN BY:	J.R.B.	"
07.28.2026	CHK'D BY:	J.P.W.	"
	APPR BY:	J.B.M.	"

LONG TERM DRAINAGE MAINTENANCE PLAN

NORTH

GRAPHIC SCALE
0 10 20
(IN FEET)
1 inch = 20 ft.

EX SITE AREA TYPES & CALCS:

1. BUILDING AREAS = 0/32,833 = 0.00%
2. PAVEMENT AREAS = 11,111/32,833 = 33.84%
3. GRAVEL AREAS = 6,238/32,833 = 19.00%
4. LAWN/LAWN AREAS = 15,484/32,833 = 47.16%
5. TOTAL SITE AREA IS 32,833 SFT or 0.754 ACRES

PROP SITE AREA TYPES & CALCS:

1. BUILDING AREAS = 5,280/32,833 = 16.08%
2. PAVEMENT AREAS = 25,128/32,833 = 76.53%
3. LAWN/LAWN AREAS = 2,425/32,833 = 7.39%
4. TOTAL SITE AREA IS 32,833 SFT or 0.754 ACRES

SITE IMPERVIOUS/PERVIOUS CALCS:

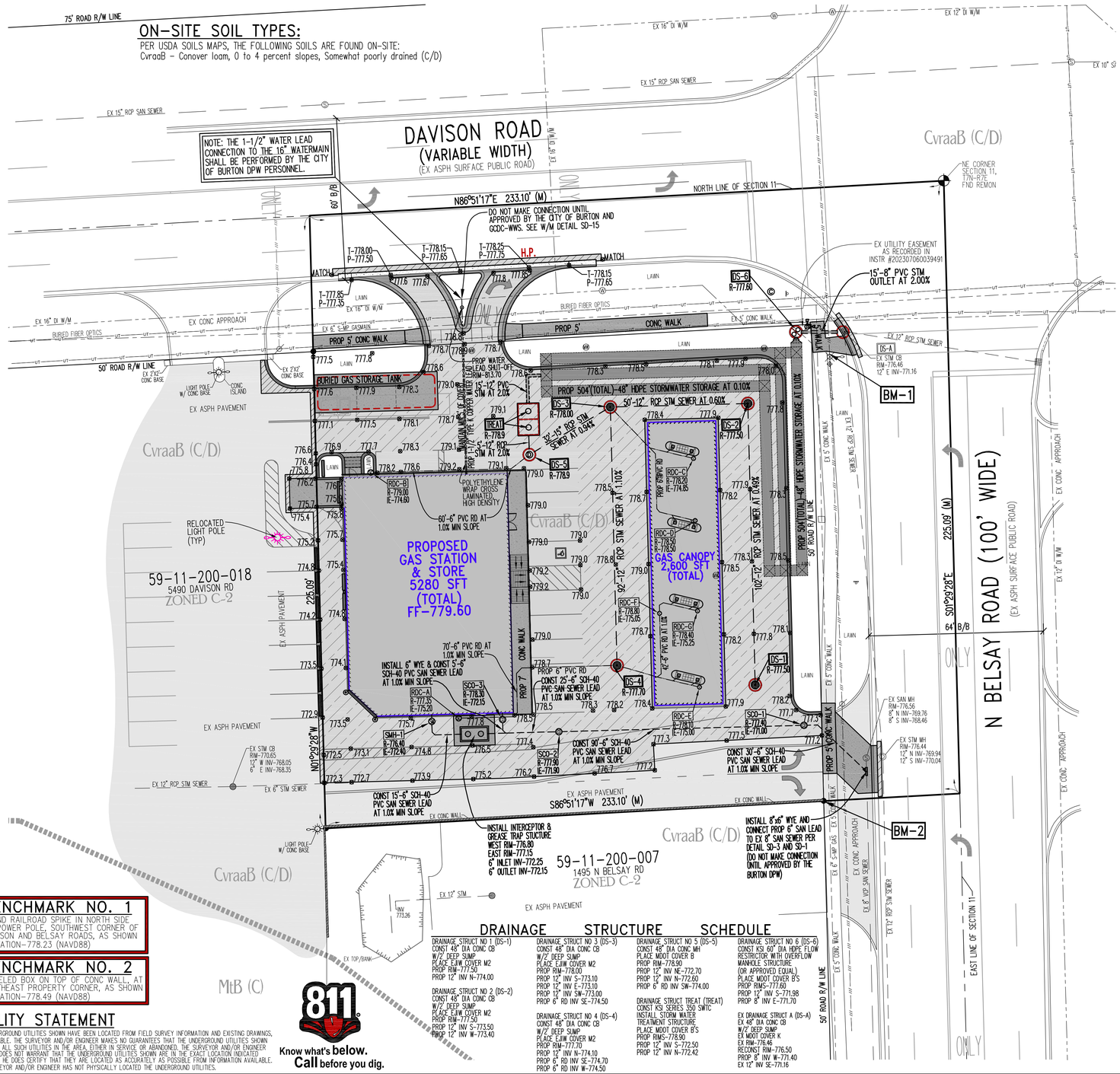
1. EXISTING SITE IMPERVIOUS COVERAGE = 17,349/32,833 = 0.5284 or 52.84%
2. PROPOSED SITE IMPERVIOUS COVERAGE = 30,408/32,833 = 0.9261 or 92.61%
3. AN INCREASE OF 92.61-52.84 = 39.77% IMPERVIOUS SURFACE or 13,059 SFT

DRAINAGE DISTRICT LOCATION:

THIS SITE IS IN THE DRAINAGE DISTRICT OF THE RUMPH DRAIN, AN ENCLOSED COUNTY DRAIN (#0120). THE CLOSEST BODY OF WATER IS THE KEARSLEY CREEK, 1100'± NORTHEASTERLY OF THE SITE.

ON-SITE SOIL TYPES:

PER USDA SOILS MAPS, THE FOLLOWING SOILS ARE FOUND ON-SITE:
CvraaB - Conover loam, 0 to 4 percent slopes, Somewhat poorly drained (C/D)



BENCHMARK NO. 1

FOUND RAILROAD SPIKE IN NORTH SIDE OF POWER POLE, SOUTHWEST CORNER OF DAVISON AND BELSAY ROADS, AS SHOWN ELEVATION-778.23 (NAVD88)

BENCHMARK NO. 2

CHISELED BOX ON TOP OF CONC WALL, AT SOUTHEAST PROPERTY CORNER, AS SHOWN ELEVATION-778.49 (NAVD88)

UTILITY STATEMENT

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. IF AVAILABLE. THE SURVEYOR AND/OR ENGINEER MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR AND/OR ENGINEER FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR AND/OR ENGINEER HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

811 Know what's below. Call before you dig.

DRAINAGE STRUCTURE SCHEDULE

DRAINAGE STRUCT NO 1 (DS-1)
CONST 48" DIA CONC CB
W/2' DEEP SUMP
PLACE EJIW COVER M2
PROP RIM-777.50
PROP 12" INV N-774.00

DRAINAGE STRUCT NO 2 (DS-2)
CONST 48" DIA CONC CB
W/2' DEEP SUMP
PLACE EJIW COVER M2
PROP RIM-777.50
PROP 12" INV S-773.50
PROP 12" INV W-773.40

DRAINAGE STRUCT NO 3 (DS-3)
CONST 48" DIA CONC CB
W/2' DEEP SUMP
PLACE EJIW COVER M2
PROP RIM-778.00
PROP 12" INV S-773.10
PROP 12" INV E-773.10
PROP 12" INV SW-773.00
PROP 6" RD INV SE-774.50

DRAINAGE STRUCT NO 4 (DS-4)
CONST 48" DIA CONC CB
W/2' DEEP SUMP
PLACE EJIW COVER M2
PROP RIM-777.70
PROP 12" INV N-774.10
PROP 6" RD INV SE-774.70
PROP 6" RD INV W-774.50

DRAINAGE STRUCT NO 5 (DS-5)
CONST 48" DIA CONC MH
PLACE MDOT COVER B
PROP RIM-778.90
PROP 12" INV NE-772.70
PROP 12" INV N-772.60
PROP 6" RD INV SW-774.00

DRAINAGE STRUCT TREAT (TREAT)
CONST KSI SERIES 350 SWTC
INSTALL STORM WATER TREATMENT STRUCTURE
PLACE MDOT COVER B'S
PROP RIM=778.90
PROP 12" INV S-772.50
PROP 12" INV N-772.42

DRAINAGE STRUCT NO 6 (DS-6)
CONST KSI 60" DIA HDPE FLOW RESTRICTOR WITH OVERFLOW MANHOLE STRUCTURE (OR APPROVED EQUAL)
PLACE MDOT COVER B'S
PROP RIM5-777.60
PROP 8" INV S-771.98
PROP 8" INV E-771.70

EX DRAINAGE STRUCT A (DS-A)
EX 48" DIA CONC CB
W/2' DEEP SUMP
EX MDOT COVER K
EX RIM-776.46
RECONST RIM-776.50
PROP 8" INV W-771.40
EX 12" INV SE-771.16

STORMWATER OPERATION, MANAGEMENT & MAINTENANCE PLAN FOR DRAINAGE SYSTEMS:

ON BEHALF OF NAJJAR, PIERRE ELIAS, CITY OF BURTON, GENESEE COUNTY, MI, 5516 DAVISON ROAD, BURTON, MI 48509

THIS OPERATION & MAINTENANCE PLAN IS TO BE COMPLETED FOR REHABILITATION OR RE-DEVELOPMENT OF ALL COMMERCIAL, INDUSTRIAL, SUBDIVISION AND CONDOMINIUM DEVELOPMENTS THAT DISTURB AT LEAST HALF OR MORE ACRES, INCLUDING PROJECTS LESS THAN AN ACRE THAT ARE PART OF A LARGER COMMON PLAN OF DEVELOPMENT OR SALE AND REQUIRE THE OPERATION AND MAINTENANCE OF STORMWATER DRAINAGE SYSTEMS AND/OR STRUCTURAL AND VEGETATIVE BEST MANAGEMENT PRACTICES AND/OR STRUCTURAL STORMWATER CONTROLS.

I. RESPONSIBILITY FOR MAINTENANCE:

A. DURING CONSTRUCTION: THE HIRED CONTRACTOR (TO BE DETERMINED) HAS THE RESPONSIBILITY TO PERFORM MAINTENANCE.
B. FOLLOWING CONSTRUCTION: (THE PROPERTY OWNER) IS RESPONSIBLE TO PERFORM THE MAINTENANCE.
1. ROUTINE MAINTENANCE OF THE STORMWATER FACILITIES MUST BE COMPLETED ON A SCHEDULED BASIS, BY THE OWNER. ALL CATCHBASINS AND MANHOLES/REAR YARD BASINS, DETENTION BASINS, FLOW RESTRICTORS, OR OTHER STORMWATER STRUCTURES MUST BE MAINTAINED AND INSPECTED ON A SCHEDULED BASIS.
2. ANY STRUCTURAL AND/OR BEST MANAGEMENT PRACTICES (BMPS) MUST BE MAINTAINED AND IMPLEMENTED PROPERLY TO MEET THE PERFORMANCE STANDARDS.

II. FUNDING:

PROPOSED CONVENIENCE STORE & GAS STATION (THE PROPERTY OWNER) IS REQUIRED TO PAY FOR ALL CONTINUED MAINTENANCE ACTIVITIES.

III. MAINTENANCE TASKS AND SCHEDULE:

A. DURING CONSTRUCTION:
1. PROPERLY PLUG AND ABANDON EXISTING STORM SEWER TO PREVENT ANY SEDIMENT FROM ENTERING THE EXISTING SYSTEM.
2. ESTABLISH AND MAINTAIN BMPS TO PREVENT SEDIMENT FROM LEAVING THE SITE.
B. POST-CONSTRUCTION:
SEE CHART THIS SHEET
NOTE: UPDATE AND REVISE AS NECESSARY. INCLUDE ALL STRUCTURAL STORMWATER CONTROLS AND THE APPROPRIATE MAINTENANCE AND SCHEDULE FOR EACH.

IV. SITE ACCESS:

A. IF THERE IS A DRAINAGE ISSUE/PROBLEM ON A SITE THAT HAS TO DO WITH THE STORM DRAINAGE SYSTEM, BEST MANAGEMENT PRACTICES, OR IS DISCHARGING TOO MUCH STORMWATER OR WATER THAT DOES NOT APPEAR TO MEET WATER QUALITY STANDARDS, THE OWNER MUST LET THE RESPONSIBLE LOCAL TOWNSHIP OR MUNICIPALITY, OR DESIGNEE, ONTO THE PROPERTY FOR THE FOLLOWING:
1. INSPECT THE STRUCTURAL OR VEGETATIVE BEST MANAGEMENT PRACTICE(S), DRAINAGE ISSUE/PROBLEM, OR DISCHARGE PROBLEM.
2. PERFORM THE NECESSARY MAINTENANCE OR CORRECTIVE ACTIONS NEGLECTED BY THE BMP OWNER OR OPERATOR. THE RESPONSIBLE LOCAL MUNICIPALITY HAS THE OPTION TO OBTAIN A CONTRACTOR TO COMPLETE THE WORK AND CHARGE THE OWNER/DEVELOPER FOR COSTS INCURRED PLUS A 25% SURCHARGE FOR ADMINISTRATIVE FEES.

V. SPILLS:

A. IDENTIFY KEY SPILL RESPONSE PERSONNEL AND TRAIN EMPLOYEES ON WHO THEY ARE.
B. STORE AND MAINTAIN APPROPRIATE SPILL CLEANUP MATERIALS IN A CLEARLY MARKED LOCATION NEAR STORAGE AREAS; AND TRAIN EMPLOYEES TO ENSURE FAMILIARITY WITH THE SITE'S SPILL CONTROL PLAN AND/OR PROPER SPILL CLEANUP PROCEDURES.
C. LOCATE SPILL CLEANUP MATERIALS, SUCH AS ABSORBENTS, WHERE THEY WILL BE READILY ACCESSIBLE (E.G. NEAR STORAGE AND MAINTENANCE AREAS).
D. IF A SPILL OCCURS, NOTIFY THE KEY SPILL RESPONSE PERSONNEL IMMEDIATELY. IF THE MATERIAL IS UNKNOWN OR HAZARDOUS, THE LOCAL FIRE DEPARTMENT MAY ALSO NEED TO BE CONTACTED.
E. IF THE SPILL GETS INTO THE STORM DRAINAGE SYSTEM, CONTACT CITY F BURTON, DPW AND/OR GENESEE COUNTY DRAIN COMMISSIONER'S OR OTHER APPROPRIATE AGENCY DEPENDING ON AMOUNT OF MATERIAL SPILLED.
F. IF SAFE TO DO SO, ATTEMPT TO CONTAIN THE MATERIAL AND BLOCK THE NEARBY STORM DRAINS SO THAT THE AREA IMPACTED IS MINIMIZED. IF THE MATERIAL IS UNKNOWN OR HAZARDOUS WAIT FOR PROPERLY TRAINED PERSONNEL TO CONTAIN THE MATERIALS.
G. SPILLS OR LEAKS FROM VEHICLES OR FUEL PUMPS IN PARKING LOTS SUCH AS OILS, ANTIFREEZE, OR FUELS SHOULD BE ADDRESSED IMMEDIATELY WHEN NOTICED BY STAFF WORKING AT THE SITE. THE SPILL MUST BE CLEANED UP USING ADSORBENT MATERIALS SUCH AS OIL DRY OR EVEN KITTY LITTER AND THEN SWEPT UP AND PROPERLY DISPOSED OF. DO NOT HOSE DOWN AND WASH INTO THE STORM DRAIN SYSTEM, THESE SYSTEMS DRAIN DIRECTLY TO RIVERS IN OUR AREA AND EVENTUALLY THE GREAT LAKES.

Additional scheduled maintenance activities for Stormwater Maintenance and Use/ Reuse Practices

First Year of Operation			
Activity	**Frequency**	**Time Period**	**Level of Effort**
Check operation of mechanical parts like pumps	At least twice after the system becomes operational	During a storm event	2-4 hours
Check condition of first flush and high flow diverters	At least twice after storm events > 0.5 inches	Within the first 6 months	1-2 hours
Check for clogging	At least twice after storm events > 0.5 inches	Within the first 6 months	1-2 hours
Check for erosion downstream of the high flow diverter	At least twice after storm events > 0.5 inches	Within the first 6 months	1 hour
Check for leaks	At least twice after storm events > 0.5 inches	Within the first 6 months	1 hour
Check performance of water treatment system and adjust treatment parameters	After tank has filled up	Within first month	2 hours
After First Year of Operation			
Activity	**Frequency**	**Time Period**	**Level of Effort per Visit**
Inspect and clean pre screening devices and first flush diverters	Quarterly	Seasonally	2 hours
Check and clean any filters to prevent clogging	3 times per year and/or after each event that exceeds the design capacity of the collection system		1-2 hours
Remove leaves and debris from the gutters and downspouts	Semi-annually	Spring and Fall	2-4 hours
Clean out basin to remove sediment and debris	Semi-annually	Spring and Fall	4 hours
Check and repair damage to collection surface and collection basins	Annually	Spring or Fall	2-4 hours
Check and repair erosion along the drainage swale/ditches pathways	Annually	After large storm	1-2 hours
Check and repair any leaks	Annually	Spring or Fall	2-4 hours
Clear overhanging vegetation and trees over roof	Annually	Winter	
Check structural integrity of all pipes, and storm manholes and repair any damages as needed	Every 6 months	As convenient	Depends on repairs needed

AFTER CONSTRUCTION - LONG TERM MAINTANANCE PLAN
INSPECTION AND MAINTENANCE PLAN FOR STORMWATER MANAGEMENT SYSTEMS

	INSPECTION SCHEDULE	CORRECTIVE ACTIONS
VEGETATED AREAS	Annually early spring and after heavy rains	Inspect all slopes and embankments and replant areas with bare soil or sparse growth.
		Armor erosion areas with riprap or divert the runoff to a stable area.
		Inspect and repair down-slope of all spreaders and turn-outs for erosion.
		Mow vegetation as specified for the area.
DITCHES, SWALES AND OPEN STORMWATER CHANNELS	Annually in spring and late fall and after heavy rains of 1" or more	Remove obstructions, sediments & debris from ditches, swales and other open channels.
		Repair any erosion of the ditch lining, 3-6 inches or more of sediment within swale or ditch
		Mow vegetated ditches no shorter than six inches and no more than twice a year.
		Remove woody vegetation growing through riprap.
		Repair any slumping side slopes, re-grade, and re-seed with mulch blankets
		Repair riprap where underlying filter fabric or gravel is showing or if stones have dislodged.
CULVERTS	Annually in spring and late fall and after heavy rains of 1" or more	Remove accumulated sediments and debris at the inlet, outlet, or within the conduit.
		Remove any obstruction to flow.
		Repair any erosion damage at the culvert's inlet and outlet, 3-6 inch depths or more
		Remove sediments and debris from the bottom of the basin and inlet grates, 3-6 inches or more
CATCH BASINS	Spring and late fall and after heavy rains	Remove floating debris and hydrocarbons (using oil absorptive pads) from any structure.
		Clear and remove accumulated sediment or debris, 3-6 depths or more
ROADWAYS AND PARKING AREAS	Annually in spring and late fall and after heavy rains of 1" or more	Sweep pavement to remove sediment and sand.
		Clean-out raised parking lot islands of debris and leaves
		Grade gravel roads and gravel shoulders.
		Ensure that stormwater runoff is not impeded by false ditches of sediment in the shoulder.
		Clean out the sediment within water bars or open-top culverts.
STORMWATER TREATMENT BURRERS	Annually in spring and late fall and after heavy rains of 1" or more	Inspect buffers for evidence of erosion, concentrated flow, or encroachment by development
		Manage the buffer's vegetation with the requirements in any deed restrictions.
		Repair any sign of erosion within a buffer.
		Inspect and repair down-slope of all spreaders and turn-outs for erosion.
		Install level spreaders or ditch turn-outs as needed for even distribution of flow.
		Clean out any accumulation of sediment within the riprap stone filters, 3-6 inches or more
		Mow non-wooded buffers no shorter than six inches and no more than twice a year.
WETPONDS AND DETENTION BASINS	Annually in spring and late fall and after heavy rains of 1" or more	Inspect the embankments for settlement, slope erosion, piping, and slumping, 3 inches or more
		Mow the embankment to control woody vegetation.
		Inspect the outlet structure for broken seals, obstructed orifices, and plugged trash racks.
		Remove and dispose of sediments and debris within the control structure, 3-6 inches or more
		Repair any damage to trash racks or debris guards.
		Replace any dislodged stone in riprap spillways, clean, and possibly add or replace with more
		Remove accumulated sediments within the impoundment and forebay, 3-6 inches or more
STANDPIPE OUTLET STRUCUTRES	Every Season , four times a year	Clean stone jacket along outside perimeter of structure with accumulated sediment or debris
		Cleanout restrictor device and pipe, remove debris and sediment blocking operations
		Clear and remove accumulated sediment or debris, 3-6 depths or more within structure
FILTRATION AND INFILTRATION BASINS AND/OR DRAINAGE SWALES/DITCHES	Annually in spring and late fall and after heavy rains of 1" or more	Clean the basin of debris, sediment, and hydrocarbons.
		Provide for the removal and disposal of accumulated sediments within the basin, 3-6 inches or more
		Renew the basin media if it fails to drain within 72 hours after a one inch rainfall event.
		Till, seed, and mulch the basin if vegetation is sparse.
		Repair riprap where underlying filter fabric or gravel is showing, or where stones have dislodged.
TREES AND PLANTS	Bi-weekly Basis	Water trees and shrubs planted on-site, water every 3 days for first month, and then weekly during the remainder of the first growing season (April - October), depending on rainfall.

SCALE: 1"=20'
JOB NO. 24-313

PREPARED FOR:
DAVISON & BELSAY, LLC
C/O DONOVAN SHANGO
3358 CREEKVIEW DRIVE
DAVISON, MI 48423 EMAIL: DONOVAN.SHANGO@YAHOO.COM

PART OF THE NORTHEAST 1/4, SECTION 11, T7N-R7E
CITY OF BURTON, GENESEE CO, MI

F&S

Fenton Land Surveying & Engineering, Inc
14165 N. FENTON ROAD, SUITE 101A, FENTON, MI 48430
PHONE: 810.354.8115 EMAIL:INFO@FENTONLSE.COM

LONG TERM DRAINAGE MAINTENANCE PLAN:
PROPOSED GAS STATION & CONVENIENCE STORE
5516 DAVISON ROAD, BURTON, MI 48509

REVISIONS	DRN. BY:	J.R.B.	03.17.2025	SHEET NO:
12.08.2025	DSN BY:	J.R.B.	"	C-8
07.28.2026	CHK'D BY:	J.P.W.	"	
	APPR BY:	J.P.W.	"	

FILE: JOBS/24-313/BURTON/LTDM PLANDWG - C-8

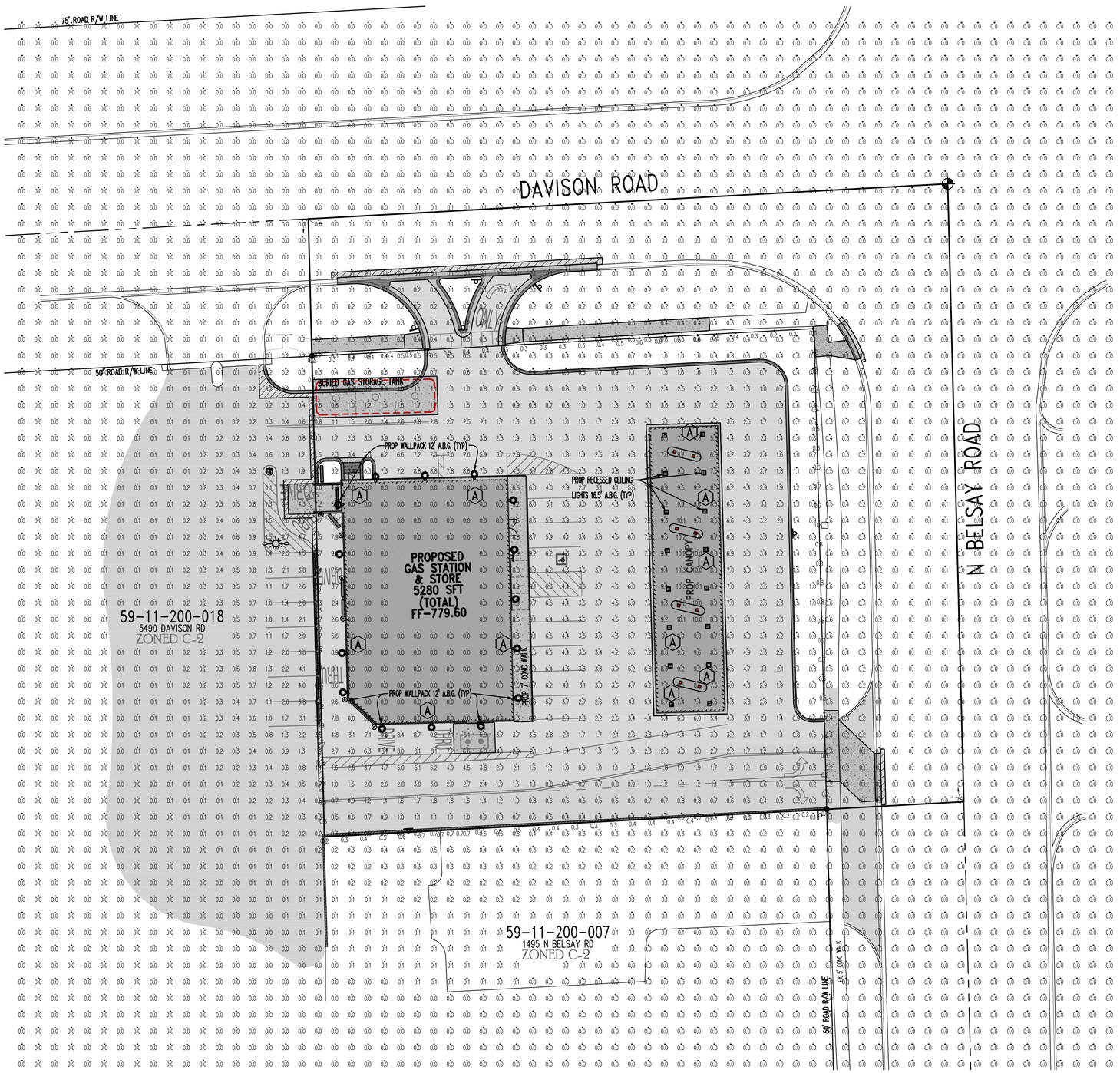
NORTH

GRAPHIC SCALE
0 10 20
(IN FEET)
1 inch = 20 ft.

PROPERTY DESCRIPTION

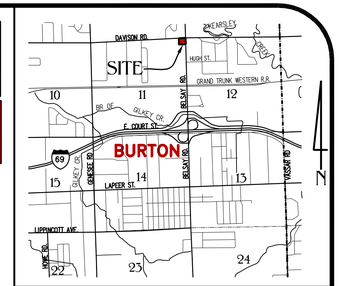
PARCEL NUMBER 59-11-200-006, 5516 DAVISON ROAD
LAND SITUATED IN THE CITY OF BURTON, COUNTY OF GENESEE, STATE OF MICHIGAN:
THE EAST 233 FEET OF THE NORTH 225 FEET TO THE NORTHEAST 1/4 OF SECTION 11, TOWN 7 NORTH, RANGE 7 EAST. SUBJECT TO ALL EASEMENTS AND RIGHTS OF WAY OF RECORD.

SITE LIGHTING/PHOTOMETRIC PLAN



BENCHMARK NO. 1
FOUND RAILROAD SPIKE IN NORTH SIDE OF POWER POLE, SOUTHWEST CORNER OF DAVISON AND BELSAY ROADS, AS SHOWN ELEVATION=778.23 (NAVD88)

BENCHMARK NO. 2
CHISELED BOX ON TOP OF CONC WALL, AT SOUTHEAST PROPERTY CORNER, AS SHOWN ELEVATION=778.49 (NAVD88)



LOCATION MAP

L E G E N D

- PROP RECESSED CANOPY LIGHT (TYPE A)
- PROP 20' HIGH LIGHT POLE (TYPE B)
- PROP 12' HIGH WALL PACK LIGHT (TYPE C)
- 20 PROP Fc (FOOTCANDLE) GRID POINT
- (A) or (B) PROP LIGHT FIXTURE TYPE

LUMINAIRE SCHEDULE

Symbol	Qty	Label	Arrangement	Description	LLF	Arr Lum Lumens	Arr Watts
▣	16	A	SINGLE	EVOLVE CEILING CANOPY - 29 WATT	1.000	3700	29
⊙	16	B	SINGLE	LSI GSR SCONE - 33 WATT	1.000	4199	33

CALCULATION SUMMARY

Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
OVERALL SITE POINTS AT GRADE 6'x6'	Illuminance	Fc	0.68	10.3	0.0	N.A.	N.A.
PROPERTY LINE POINTS AT GRADE 7' INCREMENTS	Illuminance	Fc	1.18	7.4	0.1	11.60	74.00

SITE LIGHTING NOTES:

1. ALL OUTDOOR LIGHTING IN ALL USE DISTRICTS OTHER THAN RESIDENTIAL DISTRICTS SHALL BE SHIELDED SO THE SURFACE OF THE SOURCE OF THE LIGHT SHALL NOT BE VISIBLE FROM ALL ADJACENT RESIDENTIAL DISTRICTS, ADJACENT RESIDENCES AND PUBLIC RIGHTS-OF-WAY.
2. LIGHT FIXTURES WERE DESIGNED AND SHIELDED SO THAT LIGHT IS DIRECTED ONTO THE PARKING AREA AND DIRECTED AWAY FROM ADJACENT PROPERTY AND TRAFFIC.
3. THE DESIGN AND STYLE OF FIXTURES (COLOR, SHAPE, STYLE, AND MATERIALS) SHALL MATCH OR COMPLEMENT THE STYLE AND MATERIALS OF THE BUILDINGS SERVED.
4. ALL LIGHTING EXCEPT SECURITY LIGHTING SHALL BE ON A TIME-CLOCK OR PHOTO-SENSOR SYSTEM, AS APPROVED BY CITY OF BURTON
5. PARKING LOTS SHALL BE ILLUMINATED WITH A LIGHT-EMITTING DIODE (LED) OR OTHER APPROVED LIGHTING SYSTEM. THE LIGHTING SYSTEM SHALL PROVIDE NOT LESS THAN ONE FOOTCANDLE OVERALL AVERAGE ILLUMINATION WITH A MINIMUM OF 0.5 FOOTCANDLES ON THE PARKING SURFACE.
6. LIGHTING STANDARDS IN PARKING LOTS IN AND ADJACENT TO RESIDENTIAL ZONES SHALL NOT EXCEED TWENTY FEET IN HEIGHT AS MEASURED FROM THE ADJACENT GRADE TO THE TOP OF THE LIGHT FIXTURE. THE TOTAL LIGHT CUTOFF ANGLE MAY BE NO GREATER THAN 85 DEGREES. ILLUMINATION SHALL NOT BE OF A FLASHING, MOVING OR INTERMITTENT TYPE. ALL ILLUMINATION SHALL BE CONSTANT IN INTENSITY AND COLOR AT ALL TIMES WHEN IN USE.
7. PARKING LOT LIGHTS MUST BE FULL CUT OFF TYPE FIXTURES AND LAMPS MUST BE SHIELDED TO PREVENT LIGHT TRESPASS OR GLARE. A WHITE LIGHT SOURCE SHOULD BE USED FOR THE WALL MOUNTED LIGHTS, SUCH AS INCANDESCENT, METAL HALIDE, OR OTHER LAMPS WITH A COLOR RENDERING INDEX OF AT LEAST 70. MAXIMUM LIGHT LEVELS MUST BE LESS THAN OR EQUAL TO 1.0 FOOTCANDLE BEYOND A PROPERTY LINE, PER CITY ZONING ADJACENT TO ANY COMMERCIAL PROPERTIES.
8. ONLY LIGHTING NECESSARY FOR SITE SECURITY MAY BE LEFT ON BETWEEN MIDNIGHT AND 6:00 AM.
9. SEE THIS SHEET FOR SITE BUILDING WALLPACK LIGHTS WHICH SHALL BE INSTALLED AT 12 FEET ABOVE FINISH GRADE (A.F.G.), AS NOTED. THE LIGHT POLES SHALL BE INSTALLED ON 20' HIGH POLES (SEE DETAIL ON SHEET C-5). THE CONTRACTOR SHALL CONTACT MISS DIG 72 HOURS PRIOR TO CONSTRUCTION TO VERIFY IF ANY UNDER GROUND UTILITIES WILL BE IN VICINITY OF THE WORK AREA.

EVOLVE LED CANOPY LIGHT FIXTURE
RECESSED LIGHT UNDER CANOPY
(29 WATT LED LIGHT)
TYPE A - 16.5' FROM FINISH GRADE

GSR LSI LIGHTING INDUSTRIES
SCONE WALL MOUNT
(33 WATT LED LIGHT)
TYPE B - 12' FROM FINISH GRADE

UTILITY STATEMENT

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS, IF AVAILABLE. THE SURVEYOR AND/OR ENGINEER MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR AND/OR ENGINEER FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR AND/OR ENGINEER HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

811 Know what's below. Call before you dig.

FLSE JOBS/24-313/BURTON/SITE LIGHT PLAN.DWG - C-9

SCALE: 1"=20'

JOB NO. 24-313

PREPARED FOR:
DAVISON & BELSAY, LLC
C/O DONOVAN SHANGO
3358 CREEKVIEW DRIVE
DAVISON, MI 48423 EMAIL: DONOVAN.SHANGO@YAHOO.COM

PART OF THE NORTHEAST 1/4,
SECTION 11, T7N-R7E
CITY OF BURTON, GENESEE CO, MI

Fenton Land Surveying & Engineering, Inc
14165 N. FENTON ROAD, SUITE 101A, FENTON, MI 48430
PHONE: 810.354.8115 EMAIL:INFO@FENTONLSE.COM

SITE LIGHTING/PHOTOMETRIC PLAN FOR:
PROPOSED GAS STATION
& CONVENIENCE STORE
5516 DAVISON ROAD, BURTON, MI 48509

REVISIONS	DRN. BY:	J.R.B.	03.17.2025
12.08.2025	DSN BY:	J.R.B.	"
07.28.2026	CHK'D BY:	J.P.W.	"
	APPR BY:	J.B.M.	"

SHEET NO: C-9

SITE LANDSCAPING PLAN & NOTES

NORTH

GRAPHIC SCALE
0 10 20
(IN FEET)
1 inch = 20 ft.

DECIDUOUS AND CONIFEROUS TREE LIST

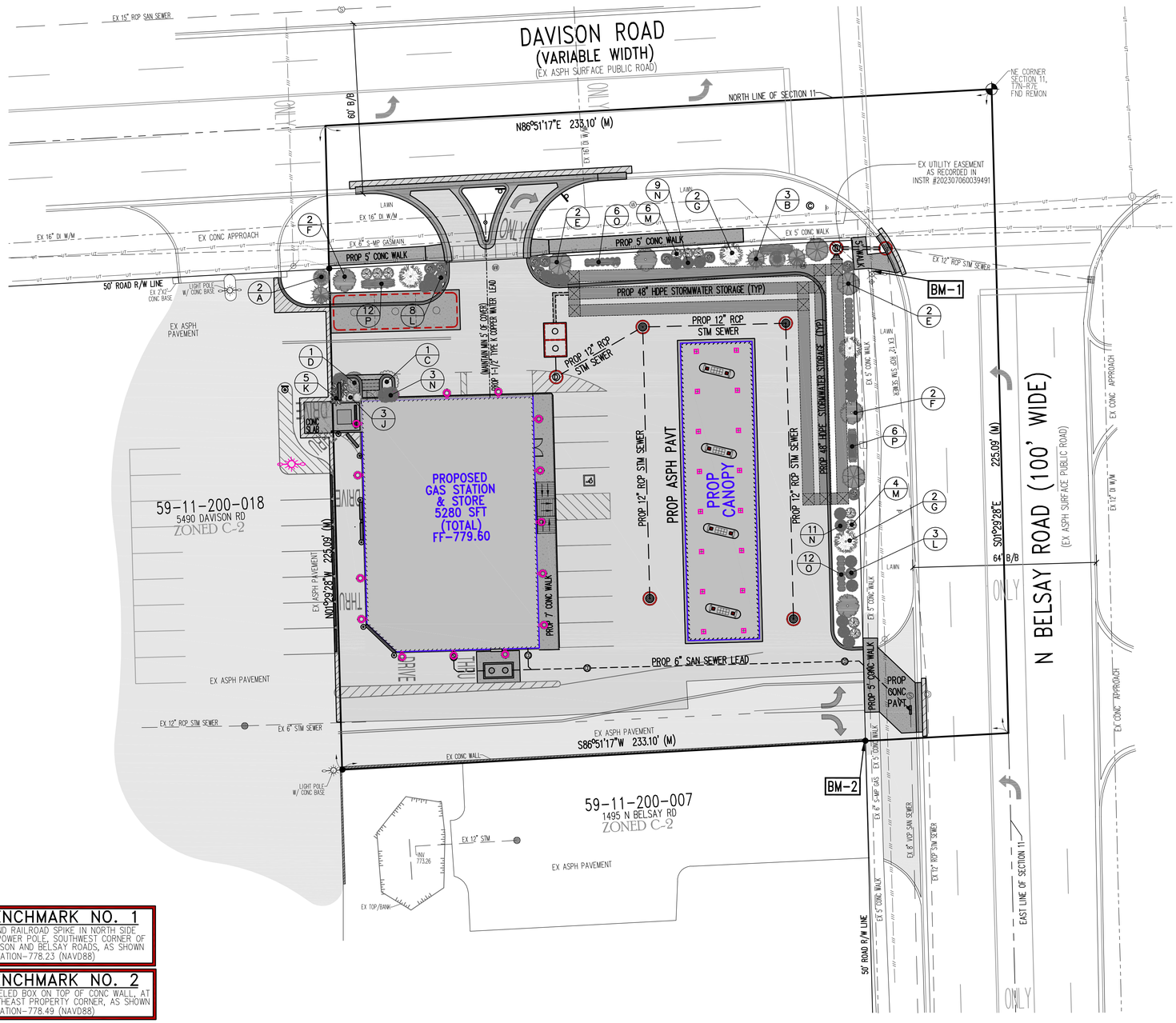
QTY	KEY	COMMON NAME	BOTANICAL NAME	SIZE
2	A	AUSTRIAN PINE	PINUS NIGRA	6' HGT
3	B	COLORADO BLUE SPRUCE	PICEA PUNGENS	6' HGT
1	C	RED DOGWOOD	CORNUS FLORIDA VAR. RUBRA	1.5" CALIPER
1	D	WHITE DOGWOOD	CORNUS FLORIDA	1.5" CALIPER
4	E	AMERICAN SWEETGUM	LIQUIDAMBAR STYRACIFLUA	2.5" CALIPER
4	F	AMERICAN SYCAMORE	PLATANUS OCCIDENTALIS	2.5" CALIPER
4	G	AMERICAN RED MAPLE	ACER RUBRUM	2.5" CALIPER

PERENNIAL & BUSH/SHRUB LIST

QTY	KEY	COMMON NAME	BOTANICAL NAME	SIZE
3	J	ARBORVITAE	THUJA OCCIDENTALIS	4' HGT
5	K	DAYLILLY	HEMEROCALLIS HAPPY RETURNS	BULBS
11	L	CREEPING RED SEDUM	SEDUM SPURIUM	2" POT
10	M	DWARF BURNING BUSH	EUONYMUS ALATUS 'COMPACTUS'	24" HGT
23	N	WICHITA BLUE JUNIPER	JUNIPERUS SCOPULORUM	24" HGT
18	O	WINTERGREEN BOXWOOD	BUXUS SINICA VAR	24" HGT
18	P	RHOODENDRON SHRUB	RHODODENDRON CATAWBIENSE	24" HGT

LANDSCAPE NOTES:

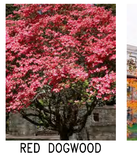
1. ALL CORNER LOT PLANT BEDS TO HAVE 4" OF WOOD MULCH BEDDING PLACED ON GEOTEXTILE WEED BLOCK FABRIC
2. ALL NEW LAWN TREES SHALL HAVE A 5' DIAMETER CIRCLE OF 4" WOOD MULCH BEDDING PLACED ON GEOTEXTILE WEED BLOCK FABRIC BOUNDED BY COMMERCIAL GRADE PLASTIC EDGING.
3. ALL LAWN AREAS SHALL BE ESTABLISHED WITH 4" TOPSOIL SURFACE, FERTILIZER, SEED AND MULCH.
4. NO ON-SITE IRRIGATION IS PROPOSED FOR THIS PROJECT. THE TREES AND SHRUBS/BUSHES SHALL BE WATERED EVERY OTHER DAY UNTIL MATURE.
5. ALL UTILITY STRUCTURES AND TRANSFORMERS MUST BE SCREENED WITH LANDSCAPING.
6. ALL SHRUBS AND BUSHES SHALL BE TRIMMED AND HEIGHTS MAINTAINED TO NO MORE THAN 36 INCHES.
7. ALL WATER-SERVICE STOP BOXES, VALVE BOXES, METER PITS & SANITARY MANHOLES SHALL BE COORDINATED TO PROVIDE ACCESS AT ALL TIMES DURING THE PROJECT AND SHALL BE ADJUSTED TO FINISHED GRADE AS PART OF THE PROJECT.



CONIFEROUS & DECIDUOUS TREE TYPES:


WEEPING WILLOW


WHITE DOGWOOD


RED DOGWOOD


BLACK GUM


AMERICAN SWEETGUM


AMERICAN SYCAMORE


AUSTRIAN PINE


COLORADO BLUE SPRUCE

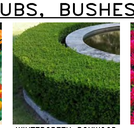
L E G E N D

PROP LAWN & LANDSCAPE AREAS
PROP BUSHES OR SHRUBS
PROP BUSH HEDGE ROW
PROP CONIFEROUS TREES
PROP LARGE DECIDUOUS TREES
PROP ORNAMENTAL TREES
4 — AMOUNT OF TREES/SHRUBS
C — TYPE OF TREE/SHRUB

SHRUBS, BUSHES, AND PERANNIALS TYPES:


AMERICAN ARBORVITAE


DAYLILLY


WINTERGREEN BOXWOOD


CREEPING RED SEDUM


DWARF BURNING BUSH


WICHITA BLUE JUNIPER


RHODODENDRON SHRUB

TOTAL LANDSCAPE PLANT COUNT:

1. TOTAL NO. OF DECIDUOUS or EVERGREEN TREES = 17 TREES PROVIDED
2. TOTAL NO. OF ORNAMENTAL TREES = 2 ORNAMENTAL TREE PROVIDED
3. TOTAL NO. OF SHRUBS/BUSHES = 88 SHRUBS/BUSHES PROVIDED

LANDSCAPE REQUIREMENT NOTES:

LANDSCAPING: WHEREVER THE WALL IS REQUIRED, ALL LAND BETWEEN THE WALL AND THE BOUNDARIES OF THE P-1 DISTRICT SHALL BE KEPT FREE FROM REFUSE OR DEBRIS AND SHALL BE LANDSCAPED. THE LANDSCAPED AREA ADJACENT TO THE WALL SHALL BE PLANTED WITH DECIDUOUS SHRUBS, EVERGREENS, OR ORNAMENTAL TREES. (NOT APPLICABLE TO THIS SITE)

(1) FRUIT TREES SHALL NOT BE USED. WHERE THE ARRANGEMENT OF PLANTING MATERIALS WILL RESULT IN EXPOSURE OF THE WALLS, THOSE WALLS SHALL BE COVERED WITH IVY, SPIREA BORDER, OR SIMILAR PLANT MATERIAL. THE REMAINDER OF THE LANDSCAPED AREA WHICH IS NOT PLANTED WITH THE AFOREMENTIONED STOCK SHALL BE IN WELL-KEPT LAWN. ALL LANDSCAPING SHALL BE MAINTAINED IN A HEALTHY GROWING CONDITION, NEAT AND ORDERLY IN APPEARANCE.

(2) ALL PLANTING PLANS SHALL BE FIRST SUBMITTED TO THE ZONING ADMINISTRATOR FOR APPROVAL AS TO SUITABILITY OF PLANTING MATERIALS AND ARRANGEMENT THEREOF IN ACCORDANCE WITH THE PROVISIONS OF THE PRECEDING SUBSECTION AND REQUIREMENTS OF SECTION 157.112(C)(4).

(3) WHERE REQUIRED LANDSCAPING IS NOT SUFFICIENTLY AND PROPERLY MAINTAINED, THE ZONING ADMINISTRATOR MAY, AFTER 5 DAYS' NOTICE HAS BEEN GIVEN TO THE PROPERTY OWNER AS SHOWN ON THE LATEST ASSESSMENT ROLL, ORDER WHATEVER STEPS ARE NECESSARY TO SUITABLY MAINTAIN THE LANDSCAPED AREA AND CHARGE ALL OF THE COSTS PLUS A FEE AS SET BY THE CITY COUNCIL, AND AMENDED BY RESOLUTION FROM TIME TO TIME TO THE PROPERTY OWNER.

THE LAND BETWEEN THE SETBACK LINE AND THE LOT LINE IN A PARKING LOT IS, FOR THE PURPOSES OF THIS ORDINANCE, CALLED A "BUFFER STRIP." THERE SHALL BE BUMPER STOPS OR WHEEL CHOCKS PROVIDED SO AS TO PREVENT ANY VEHICLE FROM PROJECTING OVER THE BUFFER STRIP. THE GROUND OF THE BUFFER STRIP SHALL ONLY BE USED FOR THE PURPOSE OF PLANT MATERIALS. ALL PARKING AREAS, EXCEPT FOR SINGLE FIMILY AND 2-FAMILY DWELLINGS, SHALL BE SCREENED ON ALL SIDES ABUTTING A RESIDENTIAL DISTRICT OR A STREET. THIS SCREENING SHALL CONSIST OF AN ORNAMENTAL FENCE OR PLANTING HEDGE NOT LESS THAN 3 FEET OR MORE THAN 4 FEET IN HEIGHT, OF A TYPE WHICH WILL OBSCURE VISION AT ALL SEASONS FROM ADJOINING PROPERTY. IN THE EVENT THAT A HEDGE IS USED, THE MINIMUM HEIGHT SHALL BE ACHIEVED WITHIN 3 YEARS OF INITIAL PLANTING.

LANDSCAPE IN GREENBELTS & PARKING LOTS:

LANDSCAPING GREENBELTS:
THE GREENBELT SHALL CONTAIN ONE CANOPY TREE EVERY 30 LINEAR FEET AND SIX SHRUBS PER 30 LINEAR FEET, OR FRACTION THEREOF, OF STREET FRONTAGE INCLUDING ANY OPENINGS FOR DRIVEWAYS, PATHWAYS, OR EASEMENTS. THE PLANNING COMMISSION MAY APPROVE THE SUBSTITUTION OF EVERGREEN TREES FOR UP TO 50 PERCENT OF THE REQUIRED CANOPY TREES WHEN APPROPRIATE IN CONSIDERATION OF THE LAND USE AND EXISTING CHARACTER OF ADJACENT USES.

REQUIRED PLANTING TOTALS ALONG NORTH LINE GREENBELT BUFFER (183 FEET):
DECIDUOUS OR EVERGREEN TREES = 183/30 = 6 TREES REQUIRED & SHRUBS/BUSHES = 183/30 = 6 x 6 = 36 SHRUBS/BUSHES REQUIRED.
(6 TREES PROVIDED, AND 36 SHRUBS/BUSHES PROVIDED)

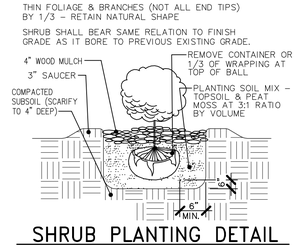
REQUIRED PLANTING TOTALS ALONG EAST LINE GREENBELT BUFFER (175 FEET):
DECIDUOUS OR EVERGREEN TREES = 175/30 = 6 TREES REQUIRED & SHRUBS/BUSHES = 175/30 = 6 x 6 = 36 SHRUBS/BUSHES REQUIRED.
(6 TREES PROVIDED, AND 36 SHRUBS/BUSHES PROVIDED)

PARKING LOT LANDSCAPING:
AT LEAST ONE TREE SHALL BE PROVIDED PER TEN PARKING SPACES PROVIDED. PROPOSED 19 SPACES PROVIDED = 2 TREES REQUIRED
(2 ORNAMENTAL TREES PROVIDED)

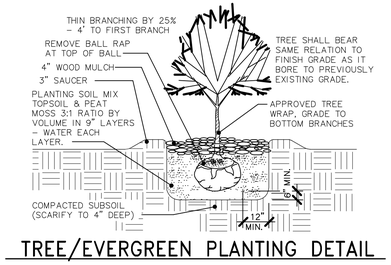
ALL OF THE REQUIRED PARKING LOT TREES SHALL BE PLACED WITHIN THE PARKING LOT ENVELOPE AS DESCRIBED BY THE AREA INCLUDING THE PARKING LOT SURFACE AND EXTENDING OUTWARD TEN FEET FROM THE EDGE OF THE PARKING LOT.

A MINIMUM OF ONE-THIRD OF THE TREES SHALL BE PLACED WITHIN THE PARKING LOT ENVELOPE.

PARKING LOT ISLANDS SHALL BE CURBED AND BE AT LEAST 100 SQUARE FEET IN AREA. ISLANDS WITHIN PARKING LOTS HAVING LESS THAN 100 SPACES MAY BE A MINIMUM OF EIGHT FEET IN WIDTH. THE DEPTH OF THE ISLAND SHALL BE ONE FOOT SHORTER THAN AN ADJACENT PARKING SPACE.



SHRUB PLANTING DETAIL



TREE/EVERGREEN PLANTING DETAIL

UTILITY STATEMENT

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS, IF AVAILABLE. THE SURVEYOR AND/OR ENGINEER MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR AND/OR ENGINEER FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR AND/OR ENGINEER HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

Know what's below. Call before you dig.

BENCHMARK NO. 1
FOUND RAILROAD SPIKE IN NORTH SIDE OF POWER POLE, SOUTHWEST CORNER OF DAVISON AND BELSAY ROADS, AS SHOWN ELEVATION-778.23 (NAVD88)

BENCHMARK NO. 2
CHISELED BOX ON TOP OF CONC WALL, AT SOUTHEAST PROPERTY CORNER, AS SHOWN ELEVATION-778.49 (NAVD88)

SCALE: 1"=20'
JOB NO. 24-313

PREPARED FOR:
DAVISON & BELSAY, LLC
C/O DONOVAN SHANGO
3358 CREEKVIEW DRIVE
DAVISON, MI 48423 EMAIL: DONOVAN.SHANGO@YAHOO.COM

PART OF THE NORTHEAST 1/4, SECTION 11, T7N-R7E
CITY OF BURTON, GENESEE CO, MI

F&E

Fenton Land Surveying & Engineering, Inc
14165 N. FENTON ROAD, SUITE 101A, FENTON, MI 48430
PHONE: 810.354.8115 EMAIL:INFO@FENTONLSE.COM

SITE LANDSCAPING PLAN & NOTES FOR:
PROPOSED GAS STATION & CONVENIENCE STORE
5516 DAVISON ROAD, BURTON, MI 48509

REVISIONS	DRN. BY:	J.R.B.	03.17.2025
12.08.2025	DSN BY:	J.R.B.	"
07.28.2026	CHK'D BY:	J.P.W.	"
	APPR BY:	J.B.M.	"

SHEET NO: C-10

FILE: JOBS/24-313/BURTON/SITE LANDSCAPING.DWG - C-10

GENERAL CONSTRUCTION NOTES

1. STANDARD SPECIFICATIONS & DETAILS
ALL CONSTRUCTION AND MATERIALS SHALL CONFORM TO THE LATEST GENESEE COUNTY STANDARD SPECIFICATIONS AND STANDARD DETAILS FOR SANITARY SEWER, PRESSURE PIPE, AND PUMP STATION CONSTRUCTION. ANY DEVIATIONS FROM THE GCDC-WWS APPROVED PLANS WILL NOT BE PERMITTED. <u>IF IT BECOMES NECESSARY TO REVISE THE PLAN, THEY SHALL BE RESUBMITTED TO GCDC-WWS FOR APPROVAL.</u>

2. PRE-CONSTRUCTION MEETING
A PRE-CONSTRUCTION MEETING SHALL BE HELD AT THE GCDC-WWS OFFICE PRIOR TO BEGINNING THE WORK. NO PRE-CONSTRUCTION MEETING SHALL BE HELD PRIOR TO OBTAINING THE STATE CONSTRUCTION PERMITS. THE MEETING'S TIME, PLACE, AND ATTENDEES SHALL BE ARRANGED BY THE ENGINEER FOR THE PROJECT. GCDC-WWS, GCDC-SWM, THE MUNICIPALITY, THE AGENCY HAVING AUTHORITY OVER THE ROADWAYS, PROJECT OWNER, CONTRACTOR, AND ANY AFFECTED UTILITIES SHALL BE INVITED, AS A MINIMUM, TO THE PRE-CONSTRUCTION MEETING.

3. MISS DIG 811 UTILITY ALERT
THREE (3) WORKING DAYS PRIOR TO BEGINNING THE WORK, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CONTACT MISS DIG 811 UTILITY PROTECTION SERVICE (1-800-482-7171 OR 811) TO VERIFY THE LOCATION OF ALL EXISTING UTILITIES. THE CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR THE PROTECTION OF ALL EXISTING UTILITIES DURING CONSTRUCTION. ALL UTILITIES DAMAGED DURING CONSTRUCTION SHALL BE PROPERLY REPAIRED IN ACCORDANCE WITH THE UTILITY OWNER'S REQUIREMENTS.

4. FIELD LOCATION OF UTILITIES
PRIOR TO BEGINNING THE WORK, THE CONTRACTOR SHALL BE REQUIRED TO EXPOSE ALL EXISTING UTILITIES THAT CROSS THE PROPOSED CONSTRUCTION, SO THE ENGINEER MAY DETERMINE IF A VERTICAL CONFLICT EXISTS BETWEEN AN EXISTING UTILITY AND THE PROPOSED WORK. ALL LABOR REQUIRED TO UNCOVER THE EXISTING UTILITY SHALL BE CONSIDERED INCLUDED IN THE LINEAL FEET OF PRESSURE PIPE OR SANITARY SEWER PIPE INSTALLED. THE CONTRACTOR SHALL VERIFY THE DEPTH AND HORIZONTAL LOCATIONS OF ALL UTILITIES IN SUFFICIENT TIME SUCH THAT ANY CONFLICTS CAN BE RESOLVED BEFORE WORK IS STARTED IN THAT PORTION OF THE PROJECT. THE CONTRACTOR SHALL ARRANGE FOR THE VARIOUS UTILITY OWNERS TO LOCATE, REMOVE AND REPLACE, OR RELOCATE THEIR FACILITIES. ALL COSTS FOR THIS SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PROJECT.

5. SUBSURFACE SOIL CONDITIONS
PRIOR TO BIDDING, THE CONTRACTOR AND SUBCONTRACTORS SHALL MAKE A PERSONAL INVESTIGATION OF THE SITE AND EXISTING SURFACE AND SUBSURFACE CONDITIONS. THE CONTRACTOR SHALL ACQUAINT ITSELF WITH CONDITIONS OF THE WORK AREA. THE CONTRACTOR IS ADVISED TO DETERMINE THE SUBSURFACE SOIL AND GROUND WATER CONDITIONS. DEWATERING, IF DETERMINED NECESSARY BY THE CONTRACTOR AND IF NOT SPECIFICALLY REQUIRED BY THE CONTRACT DOCUMENTS, WILL BE INCIDENTAL TO THE COST OF INSTALLATION.

6. PERMITS AND FEES
THE CONTRACTOR/DEVELOPER SHALL OBTAIN ALL PERMITS, INCLUDING THE PAYMENT OF ANY FEES OR BONDS, REQUIRED BY ANY FEDERAL, STATE, COUNTY, LOCAL, OR PRIVATE ORGANIZATIONS PRIOR TO COMMENCING WORK.

7. GCDC-WWS INSPECTION FEES
THE DEVELOPER SHALL PAY FOR ALL SANITARY SEWER AND PRESSURE PIPE INSPECTION FEES AND WATER USAGE FEES PRIOR TO THE PRE-CONSTRUCTION MEETING.

8. SOIL EROSION CONTROL, PART 91 OF P.A. 451 OF 1994
THE CONTRACTOR/DEVELOPER SHALL COMPLY WITH ALL PROVISIONS OF PART 91, ACT 451 OF P.A. 1994 FOR SOIL EROSION AND SEDIMENTATION CONTROL AND WILL BE RESPONSIBLE FOR ALL MAINTENANCE UNTIL THE FINAL ACCEPTANCE OF THE PERMANENT CONTROL MEASURES BY GCDC-WWS. THE CONTRACTOR/DEVELOPER IS REQUIRED BY GCDC-WWS TO PREPARE AND SUBMIT A SOIL EROSION AND SEDIMENTATION CONTROL PLAN IN ORDER TO OBTAIN THE SOIL EROSION AND SEDIMENTATION CONTROL PERMIT AND TO PAY ANY APPLICATION FEES AND BOND FEES NECESSARY TO OBTAIN THE PERMIT.

9. STATE CONSTRUCTIONS PERMITS
THE CONSTRUCTION OF PUBLIC SANITARY SEWERS OR PRESSURE PIPES SHALL NOT BEGIN UNTIL THE REQUIRED STATE CONSTRUCTION PERMITS HAVE BEEN OBTAINED. NOTE: SOIL EROSION AND CONSTRUCTION PLAN APPROVAL ARE SEPARATE APPROVALS AT GCDC-WWS.

10. ROADWAY PERMITS
A PERMIT FROM THE AGENCY HAVING AUTHORITY OVER THE ROADWAYS IS REQUIRED FOR ALL CONSTRUCTION WITHIN ANY ROAD RIGHT-OF-WAY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO SECURE ALL NECESSARY PERMITS, POST ALL NECESSARY BONDS, PAY ALL FEES, AND OBTAIN ANY REQUIRED INSURANCES IN CONNECTION THERE WITH.

11. WORK OBSERVATION
ALL WORK SHALL BE PERFORMED UNDER THE OBSERVATION OF A CONSTRUCTION OBSERVER FROM GCDC-WWS OR LOCAL MUNICIPALITY HAVING JURISDICTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE OBSERVING AGENCIES THREE (3) WORKING DAYS OR 72 HOURS PRIOR TO STARTING CONSTRUCTION TO ARRANGE FOR ON-SITE OBSERVATION AND TESTING. CUT SHEETS FOR ALL PIPE INSTALLATION AND REDITCHING SHALL BE PROVIDED TO THE GCDC-WWS CONSTRUCTION OPERATION'S SUPERVISOR A MINIMUM OF 24 HOURS PRIOR TO STARTING THE WORK WITH RESPECT TO THAT UTILITY. GCDC-WWS OR THE LOCAL MUNICIPALITY HAVING JURISDICTION SHALL BE NOTIFIED FOR A FINAL INSPECTION.

12. CONTRACTOR'S MINIMUM WAGE & USE OF IN-COUNTY LABOR
THE CONTRACTOR SHALL EMPLOY COMPETENT AND SKILLED WORKERS THROUGHOUT THE COURSE OF THE PROJECT. THE CONTRACTOR SHALL STRIVE TO USE GENESEE COUNTY RESIDENTS WHEN FEASIBLE. THE CONTRACTOR SHALL BE REQUIRED TO PAY THE PREVAILING WAGE RATES AS ESTABLISHED BY THE BUILDING AND CONSTRUCTION TRADES DEPARTMENT OF THE AMERICAN FEDERATION OF LABOR WHICH APPLIES TO THE COUNTY OF GENESEE. THESE RATES CAN BE OBTAINED BY CONTACTING THE MICHIGAN DEPARTMENT OF CONSUMER AND INDUSTRIAL SERVICES.

13. MIOSHA SAFETY REQUIREMENTS
ALL WORK, WORK PRACTICE, AND MATERIALS SHALL COMPLY WITH ALL APPLICABLE STATE AND FEDERAL SAFETY GUIDELINES, OCCUPATION, HEALTH AND ENVIRONMENTAL REGULATIONS, AND ALSO NFPA AND ANSI CODES AS APPLICABLE. ALL WORK INSIDE A CONFINED SPACE, SUCH AS MANHOLES OR OTHER UNDERGROUND STRUCTURES, SHALL BE COORDINATED WITH THE UTILITY OWNER, AND ALL WORKER SAFETY REQUIREMENTS STRICTLY ENFORCED. THE CONTRACTOR SHALL HAVE ITS SAFETY PLAN ON FILE WITH GCDC-WWS AND ONE COPY ON SITE AT ALL TIMES.

14. ROADWAY REQUIREMENTS FOR UTILITY CONSTRUCTION
THE CONTRACTOR SHALL COMPLY WITH ALL OF THE REQUIREMENTS OF THE GCRC OR LOCAL MUNICIPALITY REGARDING THE CONSTRUCTION OF PRESSURE PIPE AND SEWER MAINS, MAINTAINING TRAFFIC, BARRICADING, BORING, BACKFILLING AND RESTORATION WITHIN THE ROAD RIGHT-OF-WAY.

15. OPEN CUTTING OF COUNTY/LOCAL ROADS
WHEN OPEN CUTTING OF GRAVEL OR HARD SURFACED ROADS ARE INCORPORATED INTO THE PROJECT, THE CONTRACTOR SHALL OBTAIN THE APPROVAL AND COMPLY WITH ALL OF THE REQUIREMENTS OF THE AGENCY HAVING AUTHORITY OVER THE ROADWAYS, AND BY THE SPECIFICATIONS OF GCDC-WWS.

16. GRAVEL ROAD CONTAMINATION BY THE WORK
IF IT IS DETERMINED BY THE AGENCY HAVING AUTHORITY OVER THE ROADWAYS THAT GRAVEL ROADS HAVE BECOME CONTAMINATED DURING THE WORK, THE ROAD MUST BE REPAIRED PER THE AGENCY HAVING AUTHORITY OVER THE ROADWAYS. WHERE THE EXISTING ROAD GRAVEL IS REMOVED BECAUSE OF THE WORK, ALL WORK AND MATERIALS SHALL MEET THE REQUIREMENTS AND SPECIFICATIONS OF THE AGENCY HAVING AUTHORITY OVER THE ROADWAYS.

17. RESTORATION OF GRAVEL SHOULDERS
IF IT IS DETERMINED BY THE AGENCY HAVING AUTHORITY OVER THE ROADWAYS THAT GRAVEL SHOULDERS HAVE BEEN CONTAMINATED BY THE WORK, THE CONTRACTOR SHALL RE-GRAVEL PER THE AGENCY HAVING AUTHORITY OVER THE ROADWAYS. ALL WORK AND MATERIALS SHALL MEET THE REQUIREMENTS AND SPECIFICATIONS OF THE AGENCY HAVING AUTHORITY OVER THE ROADWAYS.

18. COMPACTED GRANULAR BACKFILL FOR ROADWAYS, DRIVES, ETC.
ALL TRENCH EXCAVATION WITHIN A ONE-ON-ONE INFLUENCE OF A ROADWAY, DRIVEWAY CROSSINGS, PARKING LOTS, OR AS OTHERWISE NOTED ON THE PLANS, SHALL BE BACKFILLED WITH COMPACTED SAND MDOT CLASS II (A5) PER THE SCHEDULE OF BACKFILLING, FOUND IN THE SPECIFICATIONS. IN ADDITION, SEE THE SPECIFICATIONS FOR THE REQUIREMENTS FOR THE COMPACTION PLAN. THIS STANDARD ALSO INCLUDES SERVICE LEADS UNLESS BORED.

19. SURFACE RESTORATION
ALL DISTURBED AREAS SHALL BE COMPLETELY RESTORED IN STRICT COMPLIANCE WITH THE SOIL EROSION AND SEDIMENTATION SPECIFICATIONS AND TO THE SATISFACTION OF GCDC-WWS, GCDC-SWM, GCRC, MDOT, THE LOCAL MUNICIPALITY, AND THE PROPERTY OWNER. ALL COSTS FOR THE CLEANUP, RESTORATION WORK, AND OTHER INTERMEDIATE OPERATIONS INCLUDING BUT NOT LIMITED TO, CONSTRUCTION SIGNAGE, STREET SWEEPING, AND MAINTAINING EXISTING UTILITIES, SHALL BE CONSIDERED INCLUSIVE AND AT NO ADDITIONAL COST TO GCDC-WWS. AREAS DISTURBED DURING THE WORK SHALL RECEIVE A 4" APPLICATION OF SCREENED TOPSOIL, FERTILIZED AND SEEDED. ALL EXCESS MATERIALS, DEBRIS, AND SIMILAR ITEMS SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR AND DISPOSED OF IN ACCORDANCE WITH THE LAW. ALL GROUND SURFACES SHALL BE RESTORED TO ORIGINAL CONDITION OR BETTER PRIOR TO FINAL APPROVAL.

20. TRAFFIC CONTROL
THE CONTRACTOR SHALL EXECUTE THE WORK IN A MANNER SUCH THAT TRAFFIC IS MAINTAINED AND ACCESS IS PROVIDED TO ALL RESIDENCES, BUSINESSES, AND COMMERCIAL ESTABLISHMENTS. TRAFFIC SHALL BE MAINTAINED IN ACCORDANCE WITH THE TRAFFIC CONTROL PLANS AND THE LATEST EDITION OF THE <u>MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, PART 6</u>, AND THE REQUIREMENTS OF THE AGENCY HAVING AUTHORITY OVER THE ROADWAYS, OR AS DIRECTED BY THE ENGINEER.

21. SIGNING AND BARRICADING
SIGNING AND BARRICADING SHALL BE PROVIDED BY THE CONTRACTOR IN ACCORDANCE WITH THE DETAILS ON THE PLANS, THE LATEST EDITION OF THE <u>MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, PART 6</u>, AND THE REQUIREMENTS OF THE AGENCY HAVING AUTHORITY OVER THE ROADWAYS. SIGNS AND BARRICADES LEFT IN PLACE AFTER DARK SHALL BE LIGHTED.

22. PROTECTION OF HAZARDOUS AREAS
EXCAVATION AND HAZARDOUS AREAS SHALL BE PROTECTED BY BARRICADES, SNOW FENCE, OR OTHER APPROPRIATE MEANS. BARRICADES LEFT IN PLACE AFTER DARK SHALL BE LIGHTED.

23. STORM WATER DRAINAGE DURING THE WORK
THE CONTRACTOR/DEVELOPER SHALL OBTAIN THE SERVICES OF A CERTIFIED STORM WATER OPERATOR AND COMPLY WITH THE PROVISIONS OF THE NPDES AND SESC PERMITS. THE CONTRACTOR SHALL MAINTAIN DITCH DRAINAGE DURING CONSTRUCTION AND SHALL NOT OBSTRUCT SUMP PUMP LEADS DISCHARGING INTO THE DITCH. THE CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES TO PROTECT ALL STORM SEWER FACILITIES, SUCH AS CATCH BASINS AND CULVERTS, DURING THE WORK. CULVERTS AND CATCH BASINS CONTAMINATED DURING THE WORK SHALL BE CLEANED.

24. UTILITY INFORMATION
UTILITY INFORMATION IS DELINEATED IN ACCORDANCE WITH THE LOCATIONS PROVIDED BY UTILITY OWNERS. THE ENGINEER IS NOT RESPONSIBLE FOR THE ACCURACY OF THE INFORMATION OR THE LOCATION AT WHICH THESE SERVICES EXIST. DIFFERING FIELD CONDITIONS SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER AND GCDC-WWS.

25. EXISTING UTILITIES
THE CONTRACTOR SHALL MAINTAIN ALL EXISTING SANITARY SEWER, PRESSURE PIPE, OR STORM SEWER CONNECTIONS IN SERVICE THROUGHOUT THE WORK. THE CONTRACTOR SHALL PROVIDE OR ARRANGE FOR THE TEMPORARY SUPPORT OF GAS MAIN, TELEPHONE, FIBER OPTIC, CABLE, PRESSURE PIPE, SANITARY SEWER, STORM SEWER, AND UTILITY POLES WHERE NEEDED. ALL STORM SEWERS DAMAGED OR REMOVED, OR RELOCATED BY THE CONTRACTOR, SHALL BE REPLACED WITH THE SAME SIZE AND QUALITY PIPE BY THE CONTRACTOR AT CONTRACTOR'S SOLE EXPENSE. ALL UTILITIES UNDERMINED BY THE EXCAVATION SHALL HAVE COMPACTED SAND BACKFILL PLACED UNDER THEM, UNLESS MDOT 6AA CRUSHED LIMESTONE (A1) OR MDOT 22A GRAVEL (A2) IS SHOWN ON THE CONSTRUCTION PLANS. ALL WORK, INCLUDING THE REBORING OF SANITARY SEWER SERVICE LEADS AND WATERMAIN LEADS TO ACCOMMODATE CONSTRUCTION TO CLEAR EXISTING SERVICES, SHALL BE INCLUSIVE TO THE PROJECT.

26. SHOP DRAWINGS
PRIOR TO THE START OF THE WORK, THE CONTRACTOR SHALL FURNISH TO GCDC-WWS SHOP DRAWINGS AND/OR CATALOG CUTS FOR ALL MATERIALS AND EQUIPMENT ITEMS PER THE STANDARD SPECIFICATIONS.

27. MATERIAL CERTIFICATIONS
PRIOR TO THE START OF THE WORK, THE CONTRACTOR SHALL FURNISH TO GCDC-WWS MATERIALS CERTIFICATES FOR ALL MATERIALS USED DURING THE WORK.

28. NON-STOPPAGE CLAUSE
THE CONTRACTOR SHALL BE REQUIRED TO COMPLETE ALL WORK IN AN EXPEDITIOUS MANNER AND SHALL NOT STOP THE WORK FOR EXTENDED PERIODS ONCE THE WORK HAS BEGUN WITHOUT WRITTEN APPROVAL OF GCDC-WWS.

29. DISPOSAL OF EXCESS EXCAVATED MATERIAL
ALL EXCESS EXCAVATED MATERIAL SHALL BE DISPOSED OF BY THE CONTRACTOR, WITH ALL PERMITS, PERMISSIONS, AND LOCATIONS PROVIDED BY THE CONTRACTOR. ADJACENT PROPERTY OWNERS SHALL BE GIVEN PREFERENCE FOR DISPOSAL SITES. WRITTEN PERMISSION FOR DISPOSAL ON ADJACENT PROPERTY OWNERS SHALL BE PROVIDED TO GCDC-WWS.

30. CONSTRUCTION STAKING
THE CONTRACTOR SHALL, AT ITS OWN EXPENSE, PROVIDE A PROFESSIONAL LAND SURVEYOR, LICENSED IN THE STATE OF MICHIGAN, TO PROVIDE ALIGNMENT AND GRADE STAKES, AND CUT SHEETS. THE SURVEYOR SHALL PROVIDE GRADE STAKES AND CUT SHEETS AT ALL STRUCTURES AND AT A MAXIMUM OF 50' INTERVALS BETWEEN STRUCTURES.

31. FINAL ELEVATIONS OF SURFACE UTILITIES
ALL FINAL ELEVATIONS OF MANHOLE CASTINGS, HYDRANTS, VALVES, AND VALVE BOXES SHALL BE APPROVED BY THE GCDC-WWS REPRESENTATIVE IN THE FIELD. ANY ADJUSTMENTS THAT ARE MADE SHALL BE AT THE CONTRACTOR'S SOLE EXPENSE.

32. PROJECT RECORD DOCUMENTS
UPON COMPLETION OF THE WORK AND PRIOR TO FINAL APPROVAL FROM GCDC-WWS, THE OWNER/DEVELOPER SHALL FURNISH GCDC-WWS WITH ONE COMPLETE SET OF PROJECT RECORD DOCUMENTS. THESE PROJECT RECORD DOCUMENTS ARE COMPRISED OF DRAWINGS ON MYLAR AND AN ELECTRONIC DATA SET.

THE MYLAR PROJECT RECORD DOCUMENTS SHALL BE SUBMITTED TO GCDC-WWS ON 4 MIL MYLAR FOR THE REVIEW AND APPROVAL OF GCDC-WWS. THE MYLAR PROJECT RECORD DOCUMENTS SHALL INCLUDE BUT NOT BE LIMITED TO: INVERT OF PIPES, LOCATION OF MANHOLES, PIPE LENGTHS, SLOPES OF PIPE, LOCATION OF SERVICE LEADS, LOCATION OF MAINLINE VALVES, LOCATION OF BENDS, TEES CROSSES, AND LOCATION OF CURB BOXES. THIS INFORMATION SHALL BE GATHERED BY THE OWNER/DEVELOPER AT ITS SOLE EXPENSE. THESE PROJECT RECORD DOCUMENTS SHALL ALSO INCLUDE ANY ADDITIONAL INFORMATION COLLECTED BY THE GCDC-WWS OR MUNICIPAL CONSTRUCTION OBSERVER.

IN ADDITION TO THE AS-BUILT MYLARS, THE OWNER/DEVELOPER SHALL PROVIDE TO GCDC-WWS AN ELECTRONIC DATA SET IN A MICROSOFT EXCEL SPREADSHEET DETAILING THE FOLLOWING ITEMS IN THEIR AS-BUILT LOCATIONS DEPICTED IN MICHIGAN STATE PLANE SOUTH COORDINATES (NAD83) AND ELEVATIONS (USGS/NGVD): ALL MANHOLES (WATER AND SANITARY), ALL HYDRANTS, ALL VALVES, AND ALL SERVICE RISERS (WATER AND SANITARY) AT THEIR TERMINUS, ALL METER PITS, AND ALL PUMP STATIONS.

33. 2-YEAR MAINTENANCE AND GUARANTEE BOND
UPON COMPLETION OF THE WORK AND PRIOR TO FINAL APPROVAL, THE CONTRACTOR SHALL FURNISH THE GCDC-WWS WITH A 2-YEAR MAINTENANCE AND GUARANTEE BOND.

34. SOIL EROSION AND SEDIMENTATION CONTROL RELEASE
PRIOR TO FINAL ACCEPTANCE BY GCDC-WWS, THE CONTRACTOR SHALL REQUEST A FINAL INSPECTION OF ALL SOIL EROSION AND SEDIMENTATION CONTROL MEASURES AND RECEIVE WRITTEN APPROVAL FROM GCDC-WWS. THE SOIL EROSION AND SEDIMENTATION CONTROL BOND WILL BE RELEASED UPON GCDC-WWS FINAL APPROVAL.

35. ORDER OF PRECEDENCE
IN RESOLVING INCONSISTENCIES BETWEEN TWO OR MORE SECTIONS OF THE CONTRACT DOCUMENTS, PRECEDENCE SHALL BE GIVEN IN THE FOLLOWING ORDER FROM (A) THROUGH (G):

- A. AGREEMENT AND ANY CONTRACT MODIFICATIONS (WITH GCDC-WWS)
- B. BID
- C. SUPPLEMENTARY CONDITIONS
- D. INSTRUCTION TO BIDDERS
- E. GENERAL CONDITIONS OF THE CONTRACT
- F. SPECIFICATIONS
- G. DRAWINGS

SANITARY CONSTRUCTION NOTES

1. ALL MATERIAL AND WORK SHALL COMPLY WITH THE LATEST GCDC-WWS SPECIFICATIONS AND STANDARD DETAILS.

2. NO CONNECTION TO AN EXISTING SANITARY SEWER SHALL BE MADE WITHOUT THE PRIOR APPROVAL OF GCDC-WWS. GCDC-WWS SHALL HAVE FINAL INSPECTION AUTHORITY AND APPROVAL FOR UNDERGROUND SANITARY SEWER FACILITIES.

3. THE MATERIAL FOR THE SANITARY SEWER SHALL BE SPECIFIED ON THE CONSTRUCTION DRAWINGS. THE FOLLOWING MATERIALS ARE ACCEPTABLE TO GCDC-WWS:
   - A. 8" TO 15". PVC WITH A MINIMUM SDR OF 26 CONFORMING TO ASTM D-3034-00 GASKETED SEWER PIPE.
   - B. LARGER THAN 15". REINFORCED CONCRETE PIPE CONFORMING TO ASTM C-76-03. JOINTS SHALL BE MODIFIED TONGUE & GROOVE TYPE WITH SOLID RUBBER GASKETS CONFORMING TO ASTM C-443-02. MINIMUM SIZE SHALL BE CLASS III, WALL B AS RECOMMENDED BY THE ENGINEER.

4. ALL SANITARY SEWER SERVICE RISERS SHALL BE 6" INTERNAL DIAMETER SDR-26 PVC OR LOWER CONFORMING TO ASTM D-3034-00. JOINTS SHALL BE RUBBER GASKET JOINTS OR SOLVENT WELD BELL JOINTS. RISERS SHALL BE LEFT AT 8-10' DEEP AT THE RIGHT-OF-WAY OR EASEMENT LINE, OR AS DEEP TO SERVICE BASEMENTS. SERVICE RISERS WITHIN EASEMENTS SHALL BE EXTENDED A MINIMUM OF ONE PIPE LENGTH FROM THE MAINLINE SEWER OR TO THE EDGE OF THE EASEMENT, WHICH EVER IS LONGER. WEEP TILE, PERIMETER DRAINS, DOWN SPOUTS, OR ANY OTHER SOURCE OF WATER, SHALL NOT BE CONNECTED TO THE SANITARY SEWER.

5. PRECAST CONCRETE MANHOLES SHALL CONFORM TO ASTM C-478-03 WITH RUBBER JOINTS CONFORMING TO ASTM C-443-02. ALL FINAL ELEVATIONS OF MANHOLE CASTINGS SHALL BE DETERMINED BY GCDC-WWS. MANHOLE FRAMES AND COVERS SHALL BE BOLT-DOWN, WATERTIGHT EAST JORDAN 1040 ZPT, NEENAH FOUNDRY COMPANY R-1916F, OR GCDC-WWS APPROVED ALTERNATE. STEPS SHALL BE M.A. INDUSTRIES PS-1-PF, AMERICAN STEP CO. ML-10, OR A GCDC-WWS APPROVED ALTERNATE.

6. ALL SANITARY SEWERS SHALL BE INSTALLED PURSUANT TO THE SANITARY SEWER STANDARD DETAILS. <u>DEEPER SEWERS, EXCESSIVE TRENCH WIDTH, AND WHERE NOTED, THE CONTRACTOR SHALL ADHERE TO THE REQUIREMENTS SPECIFIED.</u>

7. WHERE MANHOLE ADJUSTMENT IS REQUIRED, THE MAXIMUM AMOUNT OF ADJUSTMENT BETWEEN THE CASTING AND THE CONE SHALL BE 9". A MAXIMUM OF TWO ADJUSTMENT RINGS ARE ALLOWED. ONLY 3", 4", OR 6" CONCRETE ADJUSTMENT RINGS SHALL BE USED. THE MANHOLE SHALL BE WRAPPED PER SD-5 OF THE SANITARY SEWER DETAILS.

8. ALL SANITARY SEWERS 8" THROUGH 21" DIAMETER, INCLUDING SERVICE LEADS CONSTRUCTED AS PART OF WORK, SHALL UNDERGO A LOW PRESSURE AIR TEST AND AN INFILTRATION TEST, IN CONFORMANCE WITH ASTM C-924-02 OR C-969-02, PRIOR TO FINAL ACCEPTANCE. SANITARY SEWER SYSTEMS LARGER THAN 21" SHALL UNDERGO AN INFILTRATION TEST. THE MAXIMUM ALLOWABLE INFILTRATION FOR PVC SYSTEMS SHALL BE 0 GALLONS PER INCH DIAMETER, PER MILE, PER 24 HOURS, AND CONCRETE SYSTEMS SHALL BE 100 GALLONS PER INCH DIAMETER, PER MILE.

9. ALL PUBLIC SANITARY SEWERS 8" OR LARGER SHALL BE INTERNALLY TELEVISED (PAN/TILT) BY THE CONTRACTOR. THE TELEVISED REPORT, INCLUDING THE DVD, SHALL BE GIVEN TO GCDC-WWS PRIOR TO A REQUEST FOR FINAL INSPECTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING (JET/VAC) THE LINE AND ASSURING ALL DIRT AND DEBRIS HAS BEEN REMOVED PRIOR TO TELEVISING. PRIOR TO TELEVISING THE LINE, WATER SHALL BE PLACED IN THE MAIN FROM THE UPSTREAM MANHOLE UNTIL IT COMES OUT OF THE DOWNSTREAM MANHOLE. THE TELEVISED REPORT SHALL LIST THE DISTANCE A HOUSE LEAD IS LOCATED FROM A MANHOLE, ALL SHEAR BREAKS IN THE MAIN OR SERVICE LEADS, ALL LONGITUDINAL CRACKS, BROKEN PIPE, DIPS, OR HIGH POINTS IN THE LINE, ETC. THE CONTRACTOR SHALL REPAIR DAMAGED PIPE BY EXCAVATING THE PIPE AND REPLACING THE LENGTH OF PIPE IN AN APPROVED METHOD. LEAKING JOINTS SHALL BE REPAIRED BY THE CONTRACTOR BY GROUTING. A LEAKING JOINT IS DEFINED AS HAVING SUFFICIENT INFILTRATION TO WET THE INTERIOR OF THE JOINT. GCDC-WWS SHALL BE NOTIFIED WHEN THE LINE IS TO BE TELEVISED AND SHALL BE PRESENT TO INSPECT REPAIRS.

10. SANITARY MANHOLES SHALL BE PLACED CLOSEST TO PROPERTY CORNERS WHEN FEASIBLE.

11. PRIOR TO PERFORMING ANY TESTING, THE CONTRACTOR SHALL BE REQUIRED TO DO THE FOLLOWING:
    - A. CONDUCT PRELIMINARY TESTS ON THE SYSTEM.
    - B. PROVIDE THE RESULTS FROM THE PRELIMINARY TESTS ON THE SYSTEM.
    - C. PROVIDE RESULTS OF DENSITY CHECKS ON COMPACTED SAND BACKFILL FROM A CERTIFIED TESTING AGENCY.
    - D. FURNISH A COMPLETED TWO-YEAR MAINTENANCE & GUARANTEE BOND.
    - E. COMPLETE FINAL ADJUSTMENTS ON ANY SANITARY SEWER STRUCTURES.

12. PRIOR TO FINAL APPROVAL, THE FOLLOWING ITEMS MUST BE COMPLETED BY THE CONTRACTOR:
    - A. THE FINAL TESTING SHALL CONSIST OF VISUAL INSPECTION OF MANHOLES, TELEVISING OF SANITARY MAIN, LOW PRESSURE AIR TEST, AND/OR INFILTRATION TEST DEPENDENT ON THE SIZE OF THE SANITARY MAIN (SEE #8 ABOVE), AND PASSING AN APPROPRIATE SIZED MANDREL 30 DAYS AFTER THE MAIN HAS BEEN INSTALLED.
    - B. PROVIDE MATERIAL CERTIFICATES.
    - C. PROVIDE RECORDED COPIES OF ALL EASEMENTS FOR THE MASTER DEED REFLECTING FINAL PROJECT RECORD DOCUMENT LOCATIONS.

PRESSURE PIPE CONSTRUCTION NOTES

1. ALL MATERIAL AND WORK SHALL COMPLY WITH THE LATEST GCDC-WWS SPECIFICATIONS AND STANDARD DETAILS.

2. ALL PUBLIC PRESSURE PIPE SHALL BE DUCTILE IRON. THE PIPE SHALL BE BELL AND SPIGOT OR RESTRAINED JOINT FITTINGS FITTED WITH A RUBBER GASKET. FITTINGS MAY BE GRAY IRON OR DUCTILE IRON MEETING CLASS 350 PSI RATING. FOR 3" OR SMALLER SANITARY SEWER FORCEMAIN, SDR-21 PVC MAY BE UTILIZED.

3. ALL PIPES, VALVES, AND FITTINGS SHALL BE POLYWRAPPED, EXCEPT IN MANHOLES. CIRCUMFERENTIAL WRAPS OF MANUFACTURER RECOMMENDED TAPE SHALL BE PLACED AT NO GREATER THAN 4' INTERVALS ALONG THE BARREL OF THE PIPE, WITH THE EXCESS FOLDED OVER THE TOP TO TAKE OUT EXCESS SLACK, HELPING TO MINIMIZE THE SPACE BETWEEN THE POLYETHYLENE AND THE PIPE. COMPLETE THE INSTALLATION BY OVERLAPPING THE POLYETHYLENE TUBE WRAP AT EACH END AND SEAL ENDS PER THE MOST CURRENT VERSION OF AWWA C105/A21.5 STANDARD. WRAPPING PVC PIPE IS NOT REQUIRED.

4. WHERE SANITARY SERVICE LEADS OR OTHER UTILITIES ARE ENCOUNTERED, THE CONTRACTOR SHALL MAKE ADJUSTMENTS TO PROVIDE CONTINUOUS SERVICE TO PROPERTIES ALONG THE ROUTE OF CONSTRUCTION. ALL WORK, INCLUDING THE REBORING OF SANITARY SEWER SERVICE RISERS TO ACCOMMODATE CONSTRUCTION, OR ADJUSTING PRESSURE PIPE INSTALLATION TO CLEAR EXISTING SERVICES, SHALL BE INCLUSIVE TO CONSTRUCTION.

5. ALL PRESSURE PIPES SHALL HAVE A MINIMUM COVER OVER THE TOP OF THE PIPE OF 5' FROM FINISHED GRADE, 5' CLEARANCE UNDER DRAINS, 5' CLEARANCE BELOW EXISTING DITCHES, AND/OR A MINIMUM 5' BELOW THE EXISTING ROAD. THE STANDARD LAYING CONDITIONS FOR PRESSURE PIPE SHALL BE A 30" TRENCH WIDTH, OR PIPE DIAMETER PLUS 12". THE PIPE SHALL BE LAID ON MDOT CLASS II SAND (A5) A MINIMUM OF 4" WITH RECESSES TO ACCOMMODATE PIPE BELLS OR AS SHOWN ON THE PLANS.

6. ALL TRENCH EXCAVATION, UNDER OR WITHIN THE ONE-ON-ONE INFLUENCE OF THE EXISTING OR PROPOSED PAVING, SHALL BE BACK FILLED WITH COMPACTED MDOT CLASS II SAND (A5).

7. THE CONTRACTOR SHALL RESTRAIN ALL THRUST IN THE SYSTEM BY THE USE OF GCDC-WWS APPROVED RESTRAINED JOINTS AND THRUST BLOCKS. DURING THE INSTALLATION OF WATERMAIN, ALL HYDRANTS, TEES, VERTICAL OR HORIZONTAL BENDS AND FUTURE VALVE CONNECTIONS SHALL BE RESTRAINED. THE RESTRAINT SYSTEM AND LOCATION IN THE FIELD SHALL BE DESIGNATED ON THE PLANS.

8. THE CONTRACTOR SHALL ENCASE THE PRESSURE PIPE IN CONCRETE WHERE THE VERTICAL SEPARATION BETWEEN THE SANITARY SEWER OR STORM SEWER AND THE WATERMAIN IS LESS THAN 18" INCHES.

9. GATE VALVES SHALL BE RESILIENT SEATED CONFORMING TO THE MOST CURRENT VERSION OF AWWA C509 OR C515 STANDARDS. VALVES SHALL HAVE A VERTICAL, NON-RISING STEM, AND OPEN CLOCKWISE, OR AS SPECIFIED BY LOCAL MUNICIPALITY HAVING JURISDICTION.

10. FIRE HYDRANTS SHALL CONFORM TO THE MOST CURRENT VERSION OF AWWA C502 STANDARD. ALL HYDRANTS SHALL BE TRAFFIC MODELS WITH BREAKAWAY FLANGES, AND SHALL HAVE THE DRAIN HOLES FACTORY PLUGGED. ALL THE FIRE HYDRANT ASSEMBLIES FROM THE TEE THROUGH THE HYDRANT, SHALL BE RESTRAINED BY A GCDC-WWS APPROVED METHOD. FIRE HYDRANTS SHALL BE PLACED AT PROPERTY CORNERS AND WITHIN THE RIGHT-OF-WAY WHEN POSSIBLE AND SHALL BE PAINTED YELLOW WITH THE CAP COLOR CODED IN ACCORDANCE WITH THE STANDARD DETAILS. FINAL ELEVATIONS AND ADJUSTMENTS TO GRADE, USING EXTENSION PIECES IF REQUIRED, SHALL BE ACCOMPLISHED BY THE CONTRACTOR AT THE CONTRACTOR'S SOLE EXPENSE. FIRE HYDRANTS SHALL HAVE A 5 1/4" VALVE OPENING. FIRE HYDRANTS SHALL BE EAST JORDAN 5BR 250, AMERICAN FLOW CONTROL WATEROUS PACER WB67-250, OR A GCDC-WWS APPROVED ALTERNATE.

11. PRESSURE TAPS TO EXISTING WATERMAIN, AND CONNECTIONS TO EXISTING VALVES, SHALL BE MADE ONLY UNDER GCDC-WWS OR THE LOCAL MUNICIPALITY HAVING JURISDICTION. ALL VALVE OPENING AND CLOSING SHALL BE BY THE OPERATIONAL AUTHORITY. (ONLY A GCDC-WWS APPROVED TAPPING SLEEVE IS ALLOWED FOR ALL PRESSURE TAPS.) A CONCRETE MANHOLE SHALL BE REQUIRED AROUND ALL PRESSURE TAPS. SEE PRESSURE PIPE DETAILS.

12. THE CONTRACTOR SHALL HAVE THE OPTION OF PRESSURE TESTING THE WATERMAIN AGAINST THE EXISTING VALVE AT THE POINT OF BEGINNING OF THE PROJECT OR PLACING A CAP WITHIN 10' OF THE EXISTING VALVE AND STUB. IF TESTING AGAINST THE EXISTING VALVE AND IT LEAKS, THE CONTRACTOR SHALL MAKE REPAIRS AND REPEAT THE PRESSURE TEST AGAINST THE EXISTING VALVE, AT THE CONTRACTOR'S SOLE EXPENSE. IF A CAP HAS BEEN PLACED, THEN THE CONTRACTOR SHALL PERFORM THE SYSTEM TEST, AND IF THE TESTS ARE SATISFACTORY TO GCDC-WWS, THEN THE FINAL CONNECTION SHALL BE MADE.

13. WATERMAIN SHALL BE TESTED IN ACCORDANCE WITH MOST CURRENT VERSION OF AWWA C600 STANDARD, AND CHLORINATED IN ACCORDANCE WITH THE LATEST GENESEE COUNTY STANDARD SPECIFICATIONS. WATERMAIN SHALL BE TESTED TO 150 PSI AS MEASURED AT THE HIGH POINT IN THE WATER LINE. WATERMAIN CHLORINATION SHALL BE OBSERVED AND MONITORED BY GCDC-WWS OR THE LOCAL MUNICIPALITY HAVING JURISDICTION. CHLORINATION AND TESTING SHALL BE AT THE CONTRACTOR'S SOLE EXPENSE. A LETTER OF APPROVAL FROM THE AGENCY HAVING AUTHORITY SHALL BE ISSUED PRIOR TO THE WATER BEING USED FOR HUMAN CONSUMPTION.

14. WHEN SPECIFIED BY THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL SUPPLY ALL WATER SERVICE LEADS. THESE LEADS SHALL BE "K" COPPER AND SHALL BE A MINIMUM OF 3/4" IN DIAMETER. THEY SHALL BE INSTALLED IN ACCORDANCE WITH THE WATERMAIN STANDARD DETAIL. ALL CORPORATIONS SHALL BE BRONZE. ALL APPURTENANCES THAT COME IN CONTACT WIHT PORTABLE WATER SHALL BE LEAD FREE ACCORDING TO NSF/ANSI STANDARD 372.

15. THE CONTRACTOR SHALL INSTALL, AS A MINIMUM, 2" CORPORATIONS ON THE PRESSURE PIPE FOR PRESSURE TESTING, CHLORINE ADDITION, AND FOR BLOW-OFF PURPOSES. THE CORPORATIONS SHALL HAVE COPPER PIPE EXTENDING TO THE GROUND SURFACE. THE CONTRACTOR SHALL REMOVE THE CORPORATIONS AND COPPER LINES UPON A SATISFACTORY TEST AND INSTALL BRONZE PLUGS PRIOR TO FINAL ACCEPTANCE.

16. PRIOR TO REQUESTING ANY FINAL PRESSURE TESTING AND GATHERING THE REQUIRED BACTERIA SAMPLES (FOR WATERMAIN ONLY), THE CONTRACTOR SHALL PERFORM THE FOLLOWING ITEMS:
    - A. CONDUCT A PRELIMINARY PRESSURE TEST ON THE SYSTEM.
    - B. PROVIDE THE RESULTS FROM THE PRELIMINARY TESTS ON THE SYSTEM.
    - C. PROVIDE PROPER CAP COLOR ON THE FIRE HYDRANTS (FOR WATERMAIN ONLY).

17. PRIOR TO FINAL APPROVAL, THE FOLLOWING ITEMS SHALL BE COMPLETED BY THE CONTRACTOR:
    - A. FURNISH A COMPLETED TWO-YEAR MAINTENANCE & GUARANTEE BOND.
    - B. PROVIDE MATERIAL CERTIFICATES.
    - C. COMPLETE FINAL ADJUSTMENTS OF FIRE HYDRANTS (FOR WATERMAIN ONLY), VALVES, AND MANHOLES.
    - D. PROVIDE RESULTS OF DENSITY CHECKS ON COMPACTED SAND BACKFILL FROM A CERTIFIED TESTING AGENCY.
    - E. PROVIDE RECORDED COPIES OF ALL EASEMENTS FOR THE MASTER DEED REFLECTING FINAL PROJECT RECORD DOCUMENT LOCATIONS.

NO.	DATE	DESCRIPTION
1	2020	EIGHTH EDITION

DIVISION OF
WATER & WASTE SERVICES

STANDARD CONSTRUCTION NOTES

STANDARD DETAILS
For the Construction of Sanitary Sewers & Watermain in Genesee County

GENESEE COUNTY
WWS
DRAIN COMMISSIONER

SD-1

NOTES

1. PLACE AGGREGATE MATERIAL ON THE COMPACTED SAND BACKFILL (A5) FOR ALL DRIVES, ROAD SHOULDERS, PARKING LOTS OR OTHER HARD SURFACED AREAS PER THE APPROVED PLANS.

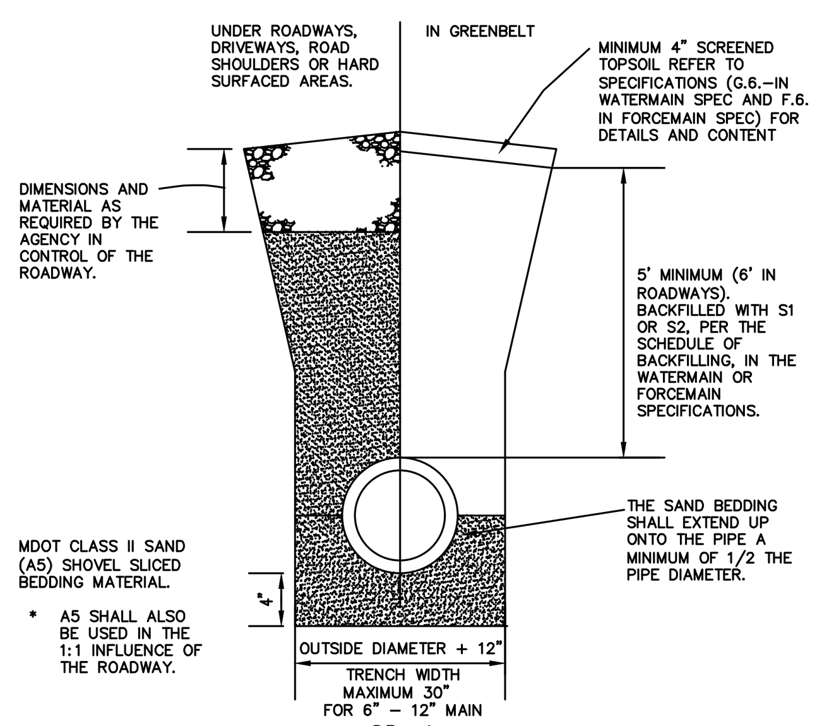
2. THE CONTRACTOR SHALL COMPACT THE SAND BACKFILL (A5) TO 95% OF THE MATERIAL UNIT WEIGHT BY MODIFIED PROCTOR ACROSS ALL ROADWAYS AND DRIVES PER THE SCHEDULE OF BACKFILLING IN THE WATERMAIN OR FORCEMAIN SPECIFICATIONS. THIS INCLUDES SERVICE LEADS UNLESS BORED. THE CONTRACTOR SHALL DO THE TESTING WITH THE RESULTS SUBMITTED TO GCDC-WWS PRIOR TO FINAL TESTING.

3. WHERE THE GROUND ELEVATION AT THE TRENCH LINE IS ABOVE THE ELEVATION OF THE CENTERLINE OF THE ROAD, THE CONTRACTOR SHALL INSTALL THE PRESSURE PIPE 6' BELOW THE ELEVATION OF THE ROAD. THE EXTRA DEPTH SHALL BE NOTED ON THE AS-BUILT DRAWINGS.

4. FOR ADDITIONAL CONSIDERATION OF PIPE ZONE EMBEDMENT CONDITIONS, SEE THE MOST CURRENT VERSION OF AWWA C600 STANDARD.

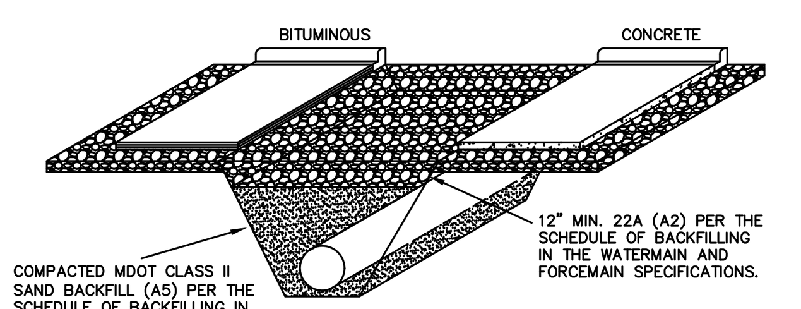
5. THE ENGINEER SHALL REVIEW AND ADJUST PIPE THICKNESS DESIGN RECOMMENDATIONS IN THE MOST CURRENT VERSION OF AWWA C151/A21.51 STANDARD FOR ADDITIONAL DEPTHS OF COVER.

6. STONE BEDDING (A1) IS REQUIRED IN ALL AREAS OF DEWATERING.



SD–1
PRESSURE PIPE BEDDING AND BACKFILL
2020 PRESSURE PIPE

SD-2



SPECIAL REQUIREMENTS FOR OPEN CUTTING HARD SURFACE AND/OR GRAVEL ROADS

1. THE CONTRACTOR SHALL ACQUIRE A SPECIAL OPEN CUT APPROVAL FROM THE AGENCY HAVING AUTHORITY OVER THE ROADWAYS.

2. THE CONTRACTOR SHALL SUPPLY CONTINGENT LIABILITY INSURANCE FOR THE AGENCY HAVING AUTHORITY OVER THE ROADWAYS.

3. THE PROTECTION OF THE WORK SHALL BE IN ACCORDANCE WITH THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, PART 6. BARRICADES, WARNING AND LIGHTING NECESSARY FOR PUBLIC SAFETY TO BE APPROVED BY THE ENGINEER AND THE AGENCY HAVING AUTHORITY OVER THE ROADWAYS PRIOR TO STARTING CONSTRUCTION.

4. THE CONTRACTOR SHALL EXCAVATE ALL MATERIAL TO PROPOSED GRADE.

5. THE WATERMAIN SHALL BE PLACED ON MDOT CLASS II SAND (A5) BEDDING.

6. ALL BACKFILL SHALL BE MDOT CLASS II SAND (A5), PLACED PER THE SCHEDULE OF BACKFILLING.

7. THE SAND BACKFILL SHALL EXTEND FROM THE OUTSIDE EDGE OF SHOULDER TO OUTSIDE EDGE OF SHOULDER, INCLUDING THE ONE ON ONE INFLUENCE OF THE ROADWAY OR THE SAND BACKFILL SHALL EXTEND FROM THE BACK OF CURB TO BACK OF CURB, INCLUDING THE ONE ON ONE INFLUENCE OF THE ROADWAY.

8. THE FINAL 12" OF ALL BACKFILL SHALL BE MDOT 22A LIMESTONE (A2) SUBBASE MODIFIED PER GCRC SPECIFICATIONS. ALL SHOULDERS SHALL BE REPAIRED PER THE AGENCY HAVING AUTHORITY OVER THE ROADWAYS.

9. THE CONTRACTOR SHALL REPLACE THE ROAD SURFACE WITH THE AGENCY HAVING AUTHORITY OVER THE ROADWAYS APPROVED MATERIAL.

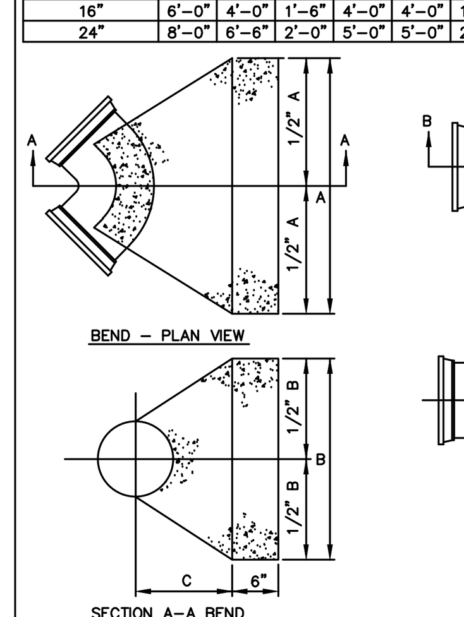
10. THE CONTRACTOR SHALL MAINTAIN TEMPORARY ACCESS TO ALL AREAS DURING CONSTRUCTION. A PUBLIC ROAD MAY BE CLOSED FOR 1/2 WIDTH CONSTRUCTION WITH THE AGENCY HAVING AUTHORITY OVER THE ROADWAYS APPROVAL, BUT THE CLOSING TIME CANNOT EXCEED 8 HOURS. THE CONTRACTOR MAY USE SHOULDERS AND TEMPORARY PATCHES TO KEEP A ROAD OPEN.

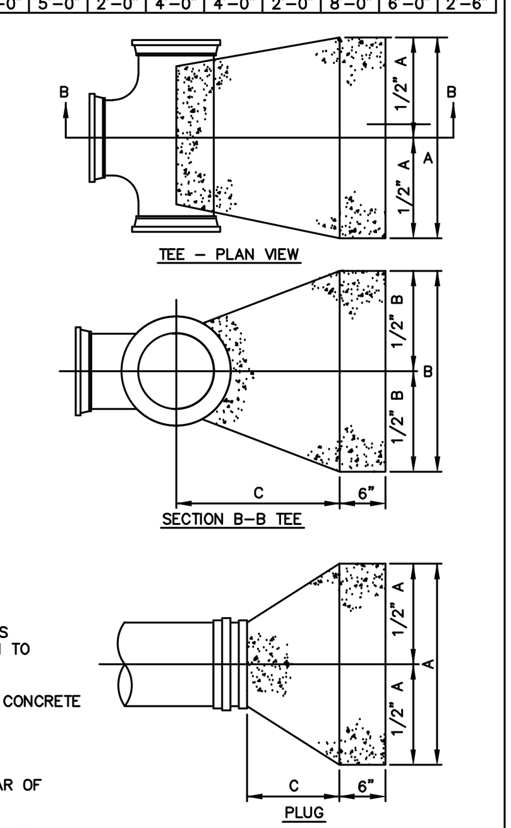
SD–2
OPEN CUTTING ROAD
2020 PRESSURE PIPE

SD-3

TABLE INDICATES MINIMUM BEARING

DIA. OF PIPE OR BRANCH OF TEE	90° BEND OR SMALLER			45° BEND			22 1/2° BEND			PLUGS, HYDRANTS AND TEES		
	A	B	C	A	B	C	A	B	C	A	B	C
6"	2'-0"	2'-0"	0'-9"	2'-0"	1'-0"	0'-9"	2'-0"	1'-0"	0'-9"	2'-0"	2'-0"	1'-0"
8"	3'-0"	2'-0"	1'-0"	2'-0"	2'-0"	1'-3"	2'-0"	1'-0"	1'-0"	3'-0"	2'-0"	1'-9"
12"	4'-0"	3'-0"	1'-6"	3'-0"	3'-0"	1'-6"	2'-0"	2'-0"	1'-6"	4'-0"	3'-0"	2'-0"
16"	6'-0"	4'-0"	1'-6"	4'-0"	4'-0"	1'-6"	3'-0"	3'-0"	1'-6"	5'-0"	4'-0"	2'-0"
24"	8'-0"	6'-6"	2'-0"	5'-0"	5'-0"	2'-0"	4'-0"	4'-0"	2'-0"	8'-0"	6'-0"	2'-6"





NOTES

1. THE CONTRACTOR SHALL USE GCDC-WWS APPROVED RESTRAINED JOINTS IN ADDITION TO THRUST BLOCKS.

2. USE MIXED (i.e. WITH WATER) 3000 PSI CONCRETE FOR ALL THRUST BLOCKS.

3. POUR AGAINST UNDISTURBED SOIL.

4. KEEP BOLTS, FITTINGS AND JOINTS CLEAR OF CONCRETE.

5. BEARING AREA IS FIGURED ON 2000-PSI SOIL CAPACITY.

6. THE DESIGN ENGINEER SHALL PROVIDE DIMENSIONS OF THRUST BLOCKS FOR PIPE LARGER THAN 24" FOR REVIEW AND APPROVAL.

SD–3
THRUST BLOCK DETAILS
2020 PRESSURE PIPE

SD-4

MINIMUM PIPE RESTRAINT SCHEDULE FOR GROUND BURIED PRESSURE PIPES[1]

BEND TYPE	22 ½°	33 3/4°	45°	56 ¼°	67 ½°	78 3/4°	90° OR/ DEAD END
	LENGTH (FT) OF RESTRAINT REQUIRED[2]						
PIPE SIZE							
6"	3	6	11	16	23	29	37
8"	4	8	15	22	31	41	50
10"	5	11	18	28	38	49	61
12"	6	13	22	33	45	59	73
14"	7	14	25	37	52	68	84
16"	8	16	28	42	59	77	95
18"	8	18	31	47	66	86	107
20"	9	20	35	53	73	95	118
24"	11	23	40	61	85	111	138
30"	13	29	50	75	105	136	170
36"	15	34	59	88	123	160	199
42"	17	39	67	101	141	184	228
48"	19	43	75	113	157	206	255

NOTES

1. THIS TABLE IS BASED ON A TEST PRESSURE OF 180 PSI (OPERATING PRESSURE PLUS WATER HAMMER). FOR OTHER TEST PROCEDURES, ALL VALUES ARE TO BE INCREASED OR DECREASED PROPORTIONALLY.

2. IF TIE RODS ARE APPROVED BY GCDC-WWS, THEY MUST BE STAINLESS STEEL GRADE 316 RODS & NUTS. PLACE (2) RODS 5/8 INCH DIAMETER MINIMUM FOR WATERMAIN 6 INCH TO 10 INCH, AND (4) RODS 5/8 INCH DIAMETER MINIMUM FOR 12 INCH AND LARGER.

3. THE CONTRACTOR SHALL USE GCDC-WWS APPROVED RESTRAINED JOINTS.

4. IN-LINE VALVES SHALL BE CONSIDERED DEAD ENDS IN BOTH DIRECTIONS.

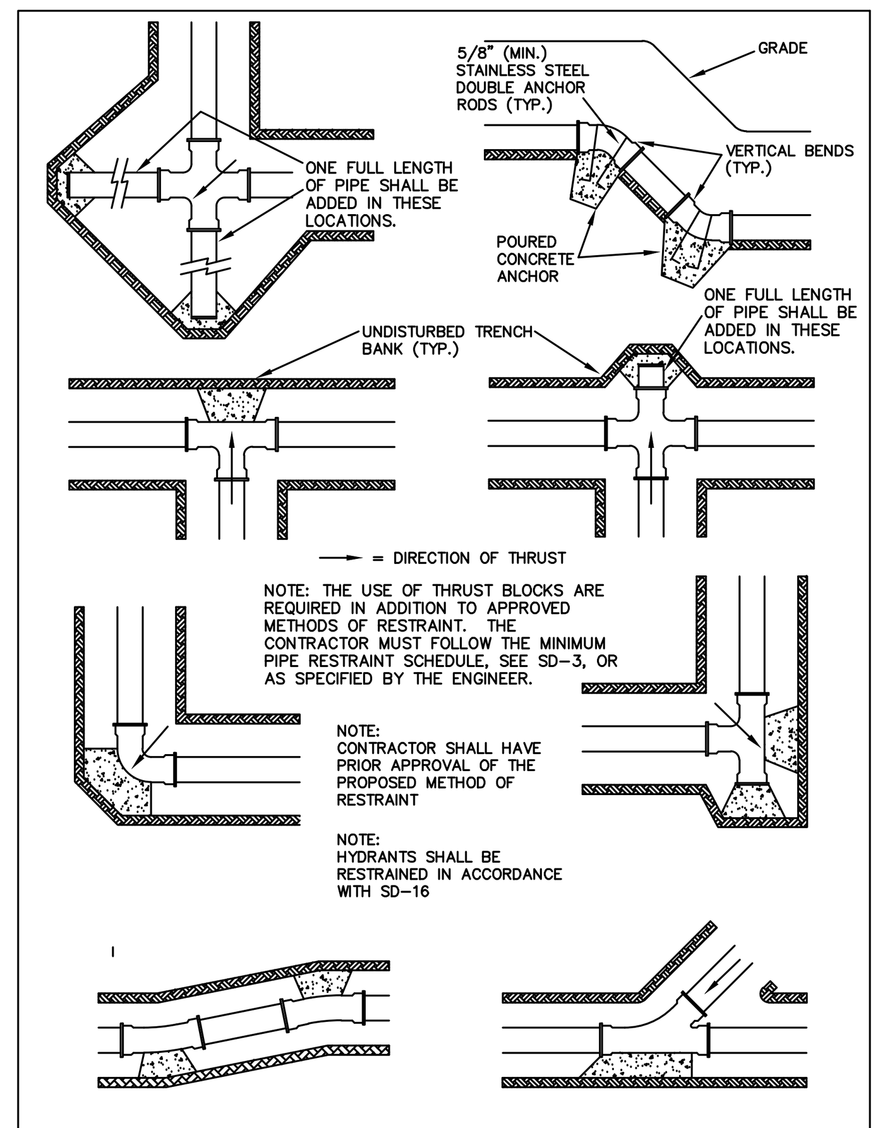
5. THIS TABLE IS A MINIMUM REQUIREMENT FOR THRUST RESTRAINT OF GROUND BURIED PRESSURE PIPES AND DOES NOT ALLEVIATE THE ENGINEER OF THE RESPONSIBILITY TO DESIGN PROPER THRUST RESTRAINT SPECIFIC TO THE PROJECT. IN THE CASE OF DUCTILE IRON PIPE, THE ENGINEER SHALL FOLLOW THE APPLICABLE STANDARD AS SET FORTH IN THE LATEST EDITION FOR THRUST RESTRAINT DESIGN FROM THE DUCTILE IRON PIPE RESEARCH ASSOCIATION (DIPRA).

6. REFER TO DIPRA FOR TEES, FITTINGS, ETC. USE DIPRA AT 150% WRAP.

7. THRUST BLOCKS SHALL BE USED IN CONJUNCTION WITH THE RESTRAINT SCHEDULE.

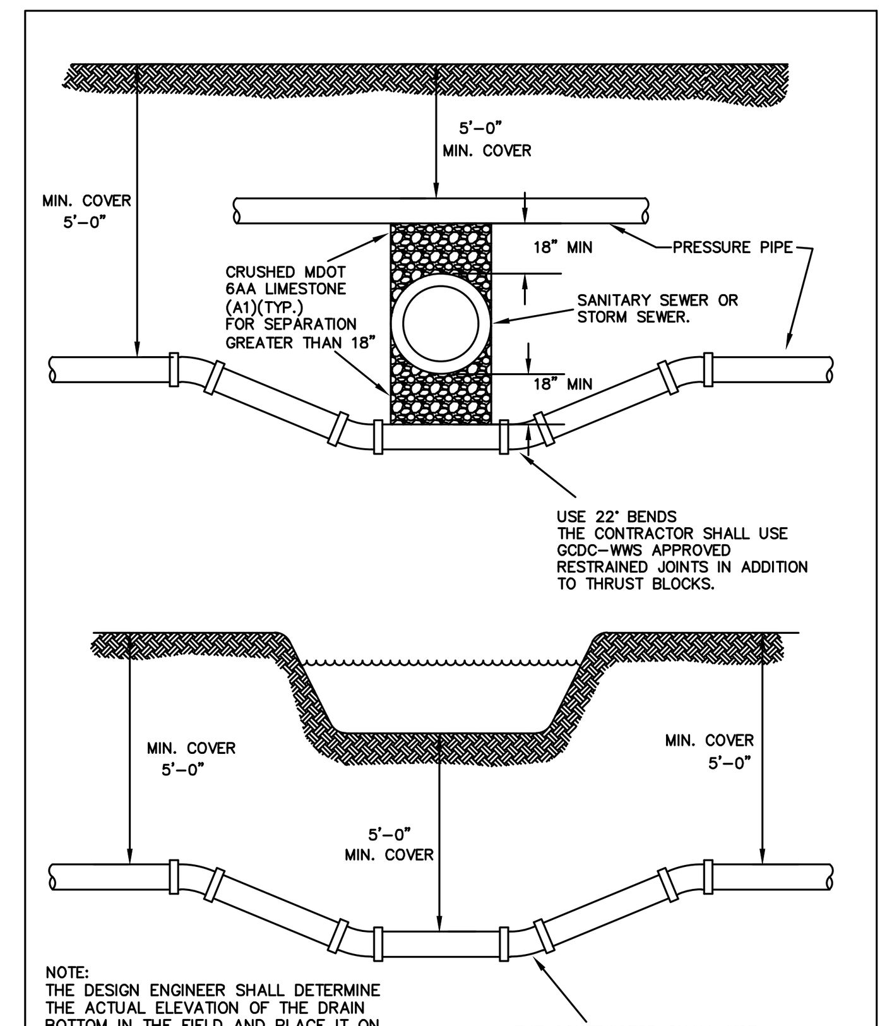
SD–4
MINIMUM PIPE RESTRAINT SCHEDULE
2020 PRESSURE PIPE

SD-5



SD–5
LOCATION OF THRUST BLOCK RESTRAINT
2020 PRESSURE PIPE

SD-6

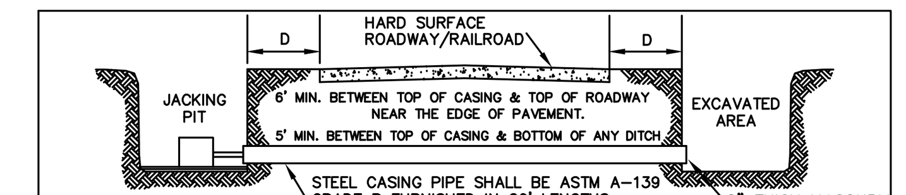


NOTE:
THE DESIGN ENGINEER SHALL DETERMINE THE ACTUAL ELEVATION OF THE DRAIN BOTTOM IN THE FIELD AND PLACE IT ON THE PLAN AND PROFILE VIEW. CONCRETE ENCASEMENTS OR CRADLES SHALL BE INSTALLED WHERE SHOWN ON THE PLANS OR AS DIRECTED BY THE ON-SITE GCDC-WWS PERSONNEL.

THE CONTRACTOR SHALL USE GCDC-WWS APPROVED RESTRAINED JOINTS IN ADDITION TO THRUST BLOCKS.

SD–6
WATERMAIN BURY AT COUNTY DRAIN, DITCH, OR STREAM
2020 PRESSURE PIPE

SD-7

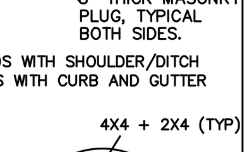


MDOT
D=30' FOR TRAFFIC OVER 45 MPH
D=20' FOR TRAFFIC UNDER 45 MPH

GCRC
D=10' FOR ROADS WITH SHOULDER/DITCH
D=5' FOR ROADS WITH CURB AND GUTTER

SIZE AND MATERIAL	MIN. CASING DIA. O.D. INCHES *	MIN. WALL THICKNESS INCHES
6" D.I. PRESSURE PIPE**	12.75	0.375
8" D.I. PRESSURE PIPE	20.00	0.375
10"-12" D.I. PRESSURE	20.00	0.375
16" D.I. PRESSURE PIPE	24.00	0.375

**ALLOWED ONLY UNDER ROADS NOT RAILROADS.



1. ALL BORE AND JACK OPERATIONS WITHIN THE ROADWAYS/RAILROADS WILL REQUIRE A PERMIT FROM THE AGENCY HAVING AUTHORITY OVER THE ROADWAYS/RAILROADS.

2. THE CONTRACTOR SHALL ABIDE BY ALL SAFETY PRECAUTIONS INCLUDING THE LATEST EDITION OF THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, PART 6 AS REQUIRED BY THE AGENCY HAVING AUTHORITY OVER THE ROADWAYS/RAILROADS.

3. THE CONTRACTOR SHALL PROTECT AND RESTORE ALL PROPERTY.

4. THE CONTRACTOR SHALL NAME THE AGENCY HAVING AUTHORITY OVER THE ROADWAYS/RAILROADS AS AN ADDITIONAL NAMED INSURED FOR CONTINGENT LIABILITY FOR THE PROPOSED CONSTRUCTION.

5. THE CONTRACTOR SHALL ABIDE BY ALL CONDITIONS STATED IN THE GCRC MEMO OF 9-1-75 LABELED SANITARY SEWER AND WATERMAIN INSTALLATION WITHIN THE LIMITS OF COUNTY HIGHWAYS OR THE REQUIREMENTS OF THE AGENCY HAVING AUTHORITY OVER THE ROADWAYS/RAILROADS.

6. THE SHEETING OF THE FRONT FACE OF THE BORE PIT WILL BE REQUIRED IF UNSTABLE SOIL CONDITIONS ARE ENCOUNTERED.

7. THE AUGER MUST ALWAYS PROCEED THE CASING PIPE HEAD.

8. THE CONTRACTOR SHALL NOTIFY THE AGENCY HAVING AUTHORITY OVER THE ROADWAYS/RAILROADS A MINIMUM OF 72 HOURS PRIOR TO BEGINNING CONSTRUCTION.

9. TREATED WOOD SKIDS AND STAINLESS STEEL METAL BANDS MIN. 5/8" WIDE MUST BE INSTALLED EVERY FOUR FEET ALONG THE ENTIRE LENGTH FOR ALL BORES TO KEEP THE CARRIER PIPE ON LINE AND GRADE. THE WOODEN SKIDS SHALL BE EXTENDED THE WHOLE LENGTH OF THE CASING. THE MAXIMUM DISTANCE FROM THE INSIDE DIAMETER OF THE CASING PIPE TO THE OUTSIDE EDGE OF THE SKID SHALL BE 1".

10. THE ENDS OF THE CASING PIPE SHALL BE BULKHEADED WITH AN 8" WATER TIGHT MASONRY BULKHEAD.

11. CASING SIZES MIGHT NEED TO BE INCREASED IN LOCATIONS USING RESTRAINED JOINTS.

12. ANY ADDITIONAL REQUIREMENTS THAT MAY COME FROM THE AGENCY HAVING AUTHORITY OVER THE ROADWAY/RAILROAD.

13. FLOWABLE CONCRETE FILL SHALL BE PUMPED BETWEEN THE PIPE AND THE CASING IPE THE ENTIRE LENGTH OF THE BORE.

* WITH DUCTILE IRON BOLTLESS RESTRAINT, CONTRACTOR MUST VERIFY CASING SIZE CAN CARRY PIPE.

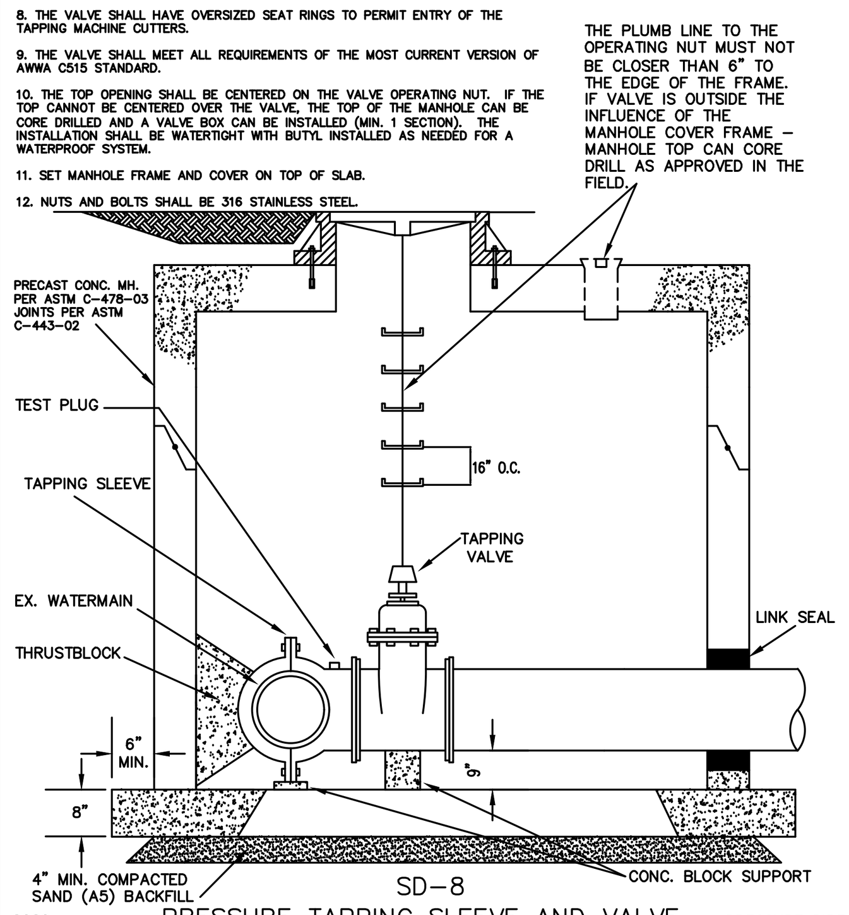
SD–7
BORE & JACK CONSTRUCTION ON ALL ROADWAYS/RAILROADS
2020 PRESSURE PIPE

SD-8

NOTES

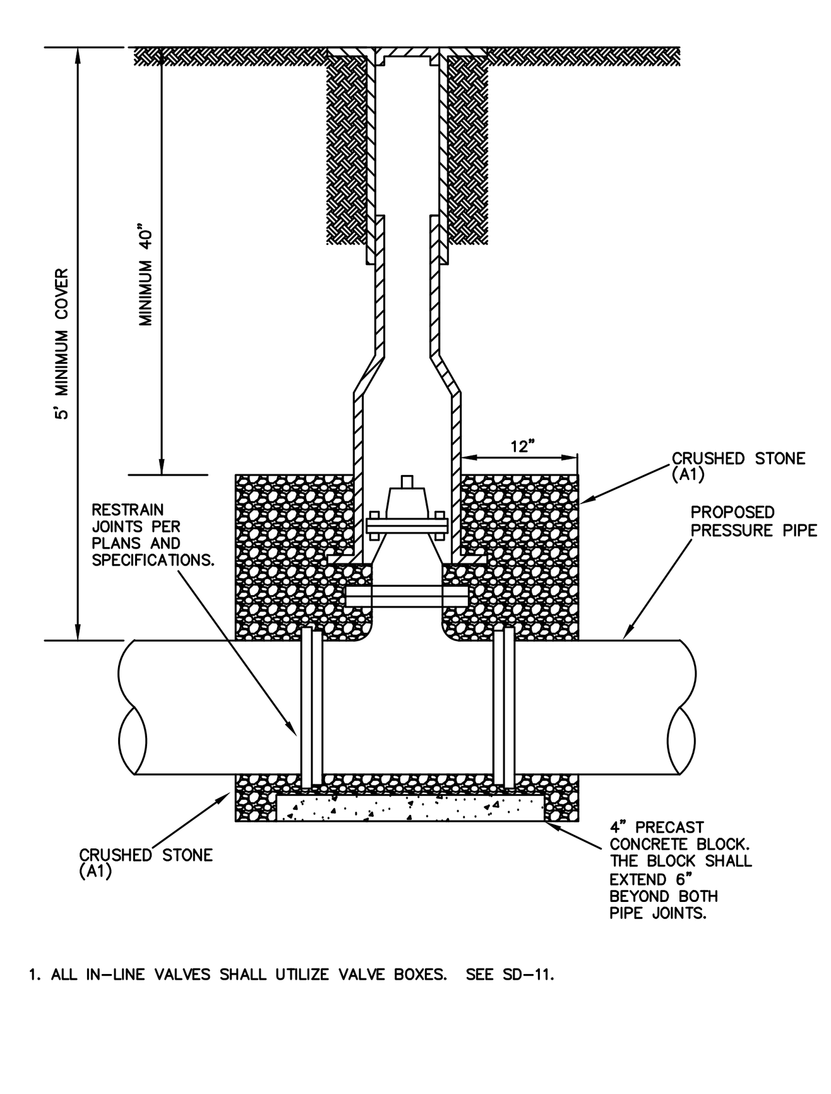
1. ALL PRESSURE TAPS MUST BE INSTALLED IN A CONCRETE VALVE MANHOLE.
2. ALL TAPPING SLEEVES SHALL BE MECHANICAL JOINT BY FLANGED OUTLET, ALL STAINLESS STEEL OR CAST IRON, BUILT IN TWO SECTIONS.
3. APPROVED MECHANICAL JOINT SLEEVE; ROMAC 452 ALL 304 STAINLESS STEEL, CLOW F5205, MUELLER H-615, AMERICAN DARLING H-1004, OR GCDC-WWS APPROVED ALTERNATE.
4. THE OUTLET FLANGE IS CLASS 125 ANS/B16.1.
5. THE TAPPING TEE SHALL HAVE A BUILT-IN TEST PLUG.
6. THE GASKET FOR THE MAINLINE SHALL BE MADE FOR THE PIPE MATERIAL IN PLACE, DUCTILE IRON CLASS 52-54.
7. THE VALVE SHALL BE FLANGED BY RESTRAINED JOINT.
8. THE VALVE SHALL HAVE OVERSIZED SEAT RINGS TO PERMIT ENTRY OF THE TAPPING MACHINE CUTTERS.
9. THE VALVE SHALL MEET ALL REQUIREMENTS OF THE MOST CURRENT VERSION OF AWWA C515 STANDARD.
10. THE TOP OPENING SHALL BE CENTERED ON THE VALVE OPERATING NUT. IF THE TOP CANNOT BE CENTERED OVER THE VALVE, THE TOP OF THE MANHOLE CAN BE CORE DRILLED AND A VALVE BOX CAN BE INSTALLED (MIN. 1 SECTION). THE INSTALLATION SHALL BE WATERTIGHT WITH BUTYL INSTALLED AS NEEDED FOR A WATERPROOF SYSTEM.
11. SET MANHOLE FRAME AND COVER ON TOP OF SLAB.
12. NUTS AND BOLTS SHALL BE 316 STAINLESS STEEL.

PRESSURE TAPPING & CUT-IN SLEEVES AND VALVES	
SLEEVE SIZE	MIN. BASIN SIZE
12" & SMALLER	5' DIA. MH.
16"	6' DIA. MH.
20"– 24"	8' DIA. MH.
LARGER	CONSULT GCDC-WWS



SD–8
PRESSURE TAPPING SLEEVE AND VALVE
2020 PRESSURE PIPE

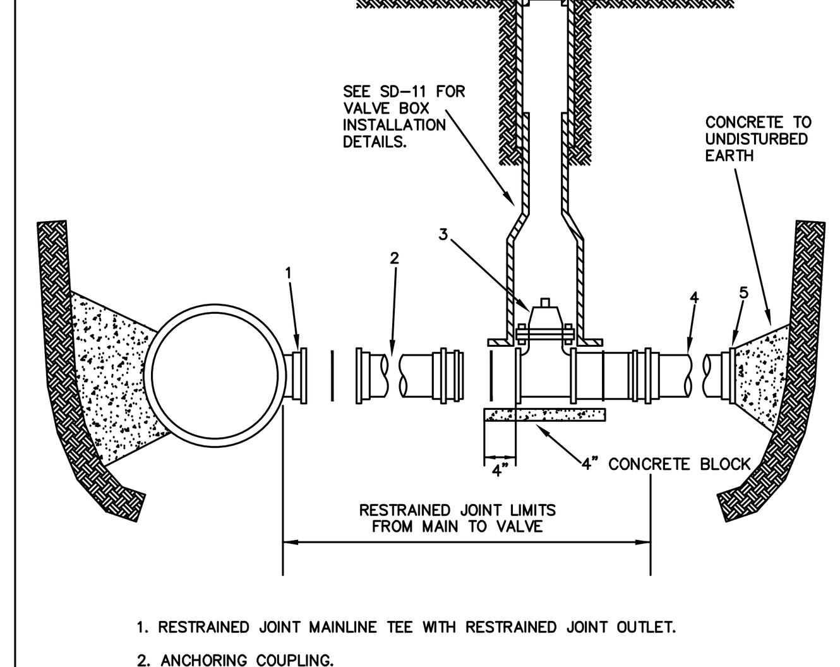
SD-9



1. ALL IN-LINE VALVES SHALL UTILIZE VALVE BOXES. SEE SD-11.

SD–9
IN-LINE GATE VALVES
2020 PRESSURE PIPE

SD-10



1. RESTRAINED JOINT MAINLINE TEE WITH RESTRAINED JOINT OUTLET.

2. ANCHORING COUPLING.

3. RESILIENT SEATED GATE VALVE.

4. EXTEND A MINIMUM OF ONE FULL PIPE LENGTH AFTER THE VALVE.

5. RESTRAIN AND PLUG. PLACE A CONCRETE BRACE TO UNDISTURBED EARTH. CONCRETE SHALL NOT COVER PLUGS, BOLTS, ETC. A MECHANICAL JOINT MAY BE APPROVED FOR PLUG.

6. ALL FITTINGS SHALL HAVE AN APPROVED METHOD OF RESTRAINT.

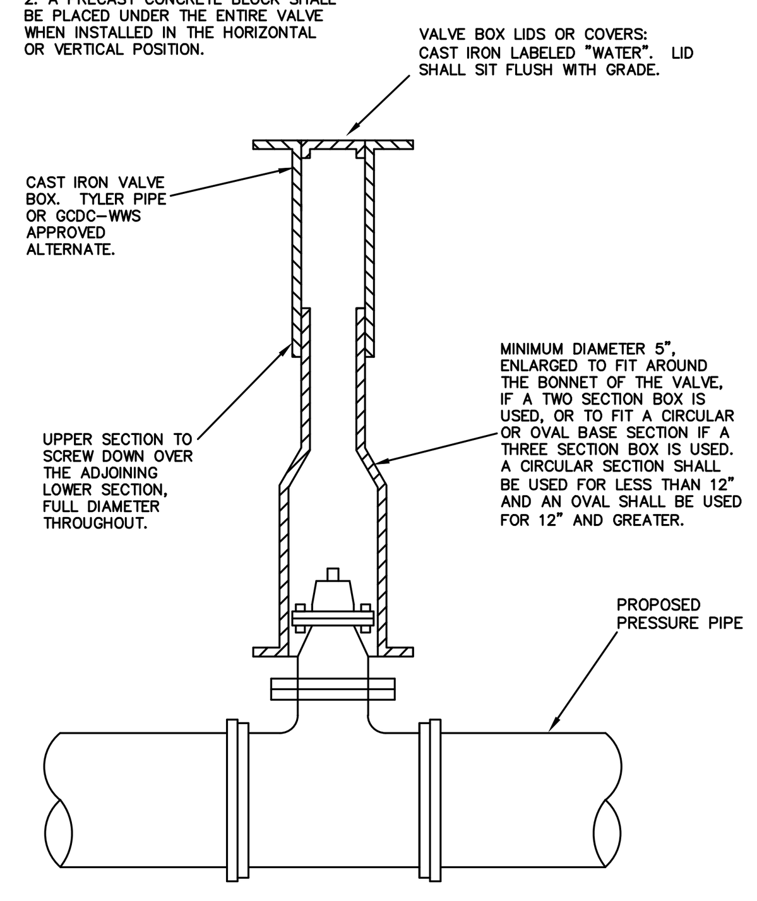
7. ALL BURIED VALVES SHALL BE POLYETHYLENE ENCASED ALONG WITH THE MAINLINE AND STUB.

SD–10
FUTURE VALVE
2020 PRESSURE PIPE

SD-11

1. ALL BURIED VALVES NOT ENCLOSED IN A VALVE VAULT SHALL BE POLYETHYLENE ENCASED. SEE SD-12.

2. A PRECAST CONCRETE BLOCK SHALL BE PLACED UNDER THE ENTIRE VALVE WHEN INSTALLED IN THE HORIZONTAL OR VERTICAL POSITION.

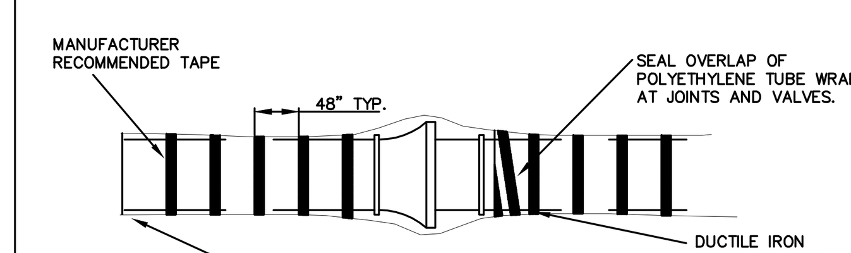


SD–11
VALVE BOX
2020 PRESSURE PIPE

SD-12

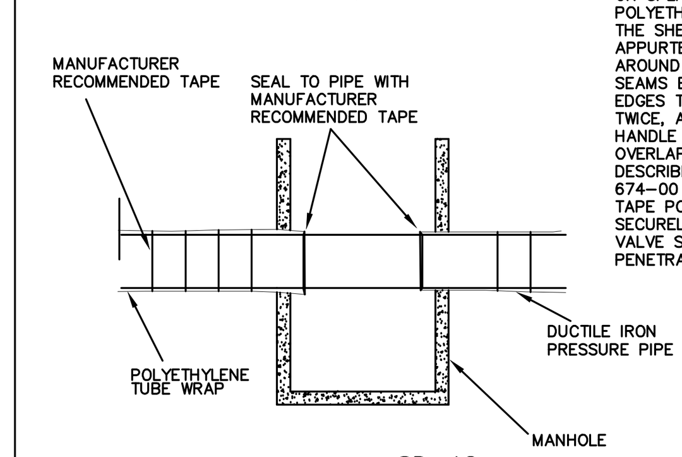
1. ALL DUCTILE IRON PIPE SHALL BE WRAPPED, EXCEPT IN MANHOLES.

2. CIRCUMFERENTIAL WRAPS OF MANUFACTURER RECOMMENDED TAPE SHALL BE PLACED AT NO GREATER THAN FOUR FOOT INTERVALS ALONG THE BARREL OF THE PIPE WITH THE EXCESS FOLDED OVER THE TOP TO TAKE OUT EXCESS SLACK HELPING TO MINIMIZE THE SPACE BETWEEN THE POLYETHYLENE AND THE PIPE. COMPLETE THE INSTALLATION BY OVERLAPPING THE POLYETHYLENE TUBE WRAP AT EACH END AND SEAL ENDS PER THE MOST CURRENT VERSION OF AWWA C105/A21.5 STANDARD.



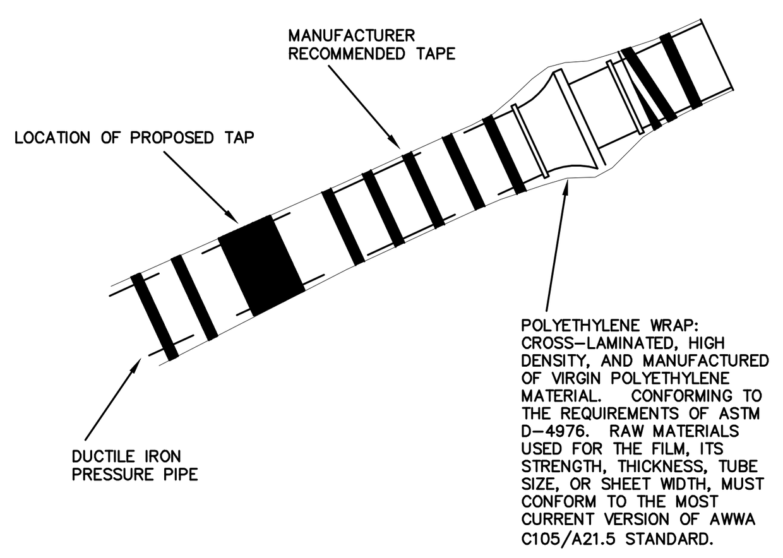
POLYETHYLENE WRAP: CROSS-LAMINATED, HIGH DENSITY, AND MANUFACTURED OF VIRGIN POLYETHYLENE MATERIAL. CONFORMING TO THE REQUIREMENTS OF ASTM D-4976. RAW MATERIALS USED FOR THE FILM, ITS STRENGTH, THICKNESS, TUBE SIZE, OR SHEET WIDTH, MUST CONFORM TO THE MOST CURRENT VERSION OF AWWA C105/A21.5 STANDARD.

FOR ODD-SHAPED APPURTENANCES: WRAP VALVES, TEES, CROSSES, AND OTHER ODD-SHAPED PIECES WHICH CANNOT BE PRACTICALLY WRAPPED IN A TUBE, WITH A FLAT SHEET OR SPLIT LENGTH OF POLYETHYLENE TUBE. PASS THE SHEET UNDER THE APPURTENANCE AND BRING AROUND THE BODY. MAKE SEAMS BY BRINGING THE EDGES TOGETHER, FOLDING TWICE, AND TAPING DOWN. HANDLE SLACK WIDTH AND OVERLAP AT JOINTS AS DESCRIBED IN ASTM A 674-00 SECTION 5.2.1. TAPE POLYETHYLENE SECURELY IN PLACE AT VALVE STEM AND OTHER PENETRATIONS.



SD–12
POLYETHYLENE TUBE WRAP FOR DUCTILE IRON PIPE
2020 PRESSURE PIPE

SD-13



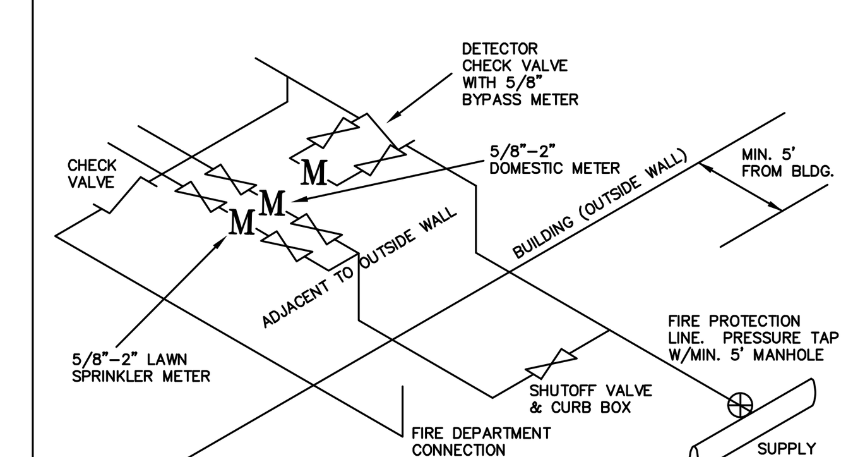
1. WRAP THREE LAYERS OF POLYETHYLENE ADHESIVE TAPE COMPLETELY AROUND THE PIPE TO COVER THE AREA WHERE THE TAPPING MACHINE AND CHAIN WILL BE MOUNTED.

2. MOUNT THE TAPPING MACHINE ON THE PIPE AREA COVERED BY THE POLYETHYLENE TAPE. THEN MAKE THE TAP AND INSTALL THE CORPORATION STOP DIRECTLY THROUGH THE TAPE AND POLYETHYLENE.

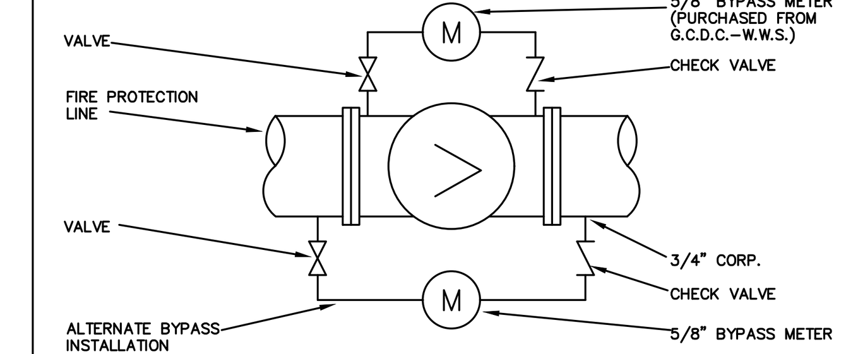
3. AFTER MAKING THE DIRECT SERVICE CONNECTION, INSPECT THE ENTIRE CIRCUMFERENTIAL AREA FOR DAMAGE AND MAKE ANY NECESSARY REPAIRS.

SD–13
SERVICE CONNECTIONS ON POLYETHYLENE WRAPPED PIPE
2020 (WATERMAIN ONLY) PRESSURE PIPE

SD-14



FIRE PROTECTION LINE
VALVE & METER INSTALLATION



DETECTOR CHECK VALVE DETAIL

NOTE
DETECTOR CHECK VALVE SHALL BE TAPPED AT FACTORY FOR BYPASS METER.

SD–14
FIRE SUPPRESSION LINE VALVE & METER INSTALLATION
2020 (WATERMAIN ONLY) PRESSURE PIPE

SD-15

NOTES

1. WATER SERVICE LEADS SHALL BE TUNNELED UNDER EXISTING PAVEMENTS.

2. THE LOCATION OF ALL SERVICE CURB BOXES SHALL BE MARKED WITH A 3/8" X 12" STEEL ROD PLACED 1' BELOW THE GROUND SURFACE ALONG WITH WITNESS POINTS SUPPLIED BY GCDC-WWS. THE 2" X 4" X 10' MARKER SHALL BE EXTENDED FROM THE INVERT OF THE SERVICE CONNECTION TO A MINIMUM OF 4' ABOVE THE PROPOSED GRADE.

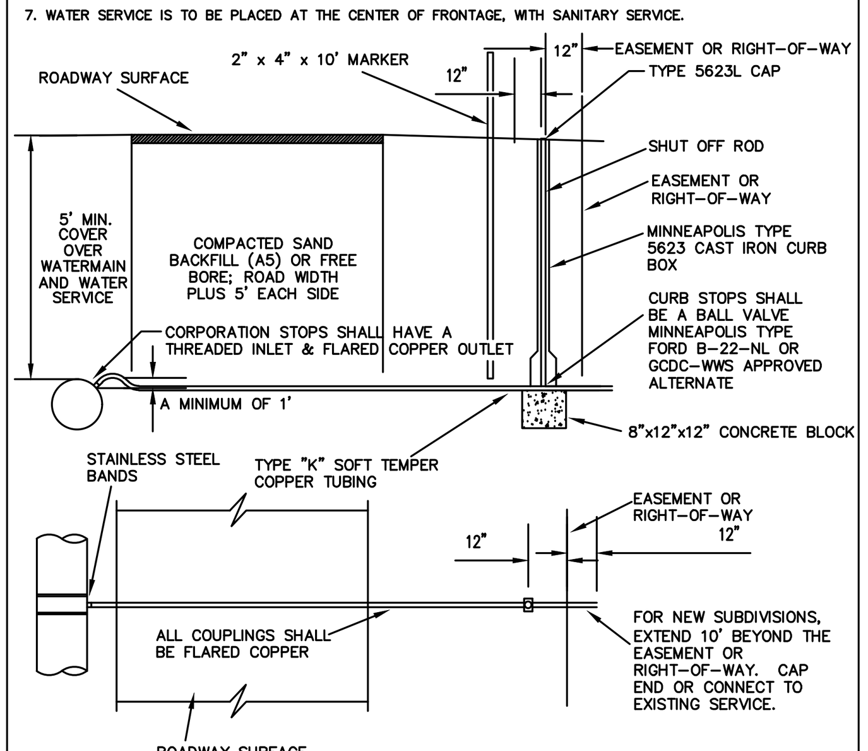
3. THE VALVE BOX SHALL BE EITHER DUCTILE IRON OR CAST IRON AND A MINIMUM OF 6' IN LENGTH. NO PLASTIC CURB BOXES SHALL BE ALLOWED.

4. CURB STOPS SHALL BE BALL VALVES FOR 3/4", 1", 1-1/2", AND 2" DIAMETERS WITH COPPER TO COPPER CONNECTIONS AND LEAD FREE ACCORDING TO NSF/ANSI STANDARD 372.

5. THE CORPORATION SHALL BE FORD FB700-NL OR GCDC-WWS APPROVED ALTERNATE. USE BRASS DOUBLE SADDLES WITH STAINLESS STEEL BANDS FOR 1-1/2" AND 2" TAPS. SADDLES SHALL BE FORD 202B OR GCDC-WWS APPROVED ALTERNATE. ALL APPURTENANCES THAT COME IN CONTACT WITH POTABLE WATER SHALL BE LEAD FREE ACCORDING TO NSF/ANSI STANDARD 372.

6. IF THE PUBLIC WATERMAIN IS ON AN EASEMENT, THE CURB STOP SHALL BE PLACED AT THE EDGE OF THE EASEMENT CLOSEST TO THE BUILDING TO BE SERVED.

7. WATER SERVICE IS TO BE PLACED AT THE CENTER OF FRONTAGE, WITH SANITARY SERVICE.



SD–15
3/4" TO 2" WATER SERVICE CONNECTIONS
2020 (WATERMAIN ONLY) PRESSURE PIPE

SD-16

NOTES

1. THE PUMPER NOZZLE SHALL FACE THE STREET AND PROVIDE A MINIMUM OF 7.5 FEET, MEASURED FROM THE NOZZLE, CLEAR OF ANY OBSTRUCTIONS.

2. SET THE HYDRANT GRADE LINE AT PROPOSED GRADE OR AS FIELD DIRECTED.

3. SET THE VALVE BOX COVER FLUSH WITH THE EXISTING/PROPOSED GRADE LEVEL.

4. ALL WORK FROM THE CENTERLINE OF THE MAIN, TO AND INCLUDING THE HYDRANT, SHALL BE PAID FOR BY THE UNIT PRICE BID ITEM FOR HYDRANTS.

5. ALL JOINTS SHALL BE RESTRAINED BY GCDC-WWS APPROVED RESTRAINED JOINTS IN ADDITION TO THRUST BLOCKS.

6. HYDRANT BARRELS ARE TO BE PAINTED YELLOW. CAPS WILL BE COLOR CODED TO MAIN SIZE: 6"-FIRE ENGINE RED, 8"-ALLAS CHALMERS ORANGE, 10" AND 12"-JOHN DEERE GREEN, 16" AND 20" -UPS BROWN, 24" AND GREATER-ROYAL BLUE. THE PAINT SHALL BE BRUSHED, NOT SPRAYED.

7. 90 DEGREE HYDRANT TEES ARE APPROVED WHERE SPACE REQUIREMENTS ARE LIMITED.

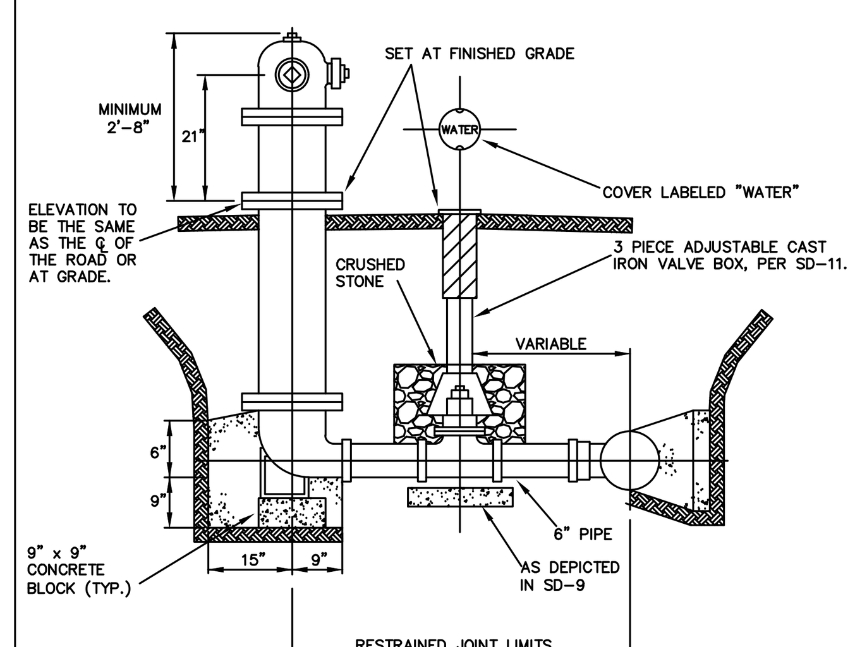
8. HYDRANT DRAIN SHALL BE PERMANENTLY SEALED AT THE FACTORY WITH A BRONZE PLUG.

9. HYDRANTS SHOULD BE PLACED AT PROPERTY CORNERS AND WITHIN THE R.O.W. WHEN POSSIBLE.

10. LOCAL MUNICIPALITIES MAY REQUIRE STORZ FITTINGS. REFER TO PROJECT PLANS AND SPECIFICATIONS FOR SIZE AND TYPE.

11. ALL JOINTS SHALL BE RESTRAINED.

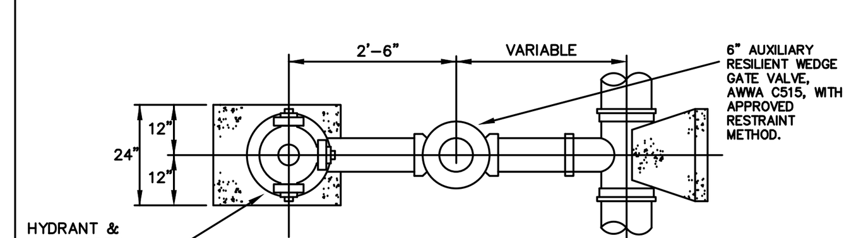
12. THE HEIGHT ADJUSTMENTS SHALL NOT EXCEED ONE FOOT.



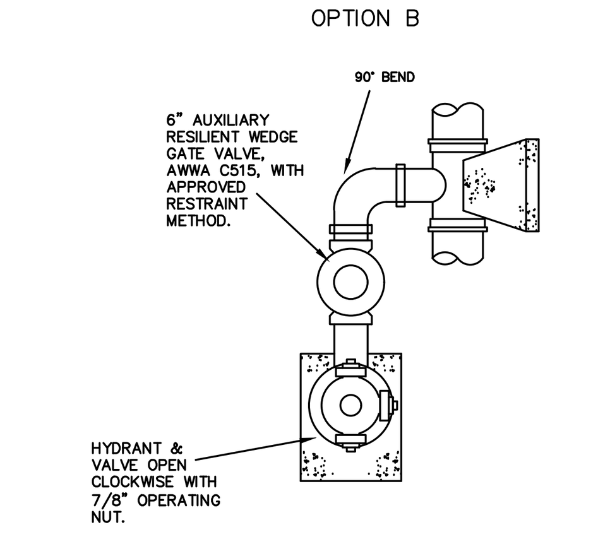
SD–16
FIRE HYDRANT DETAIL
2020 (WATERMAIN ONLY) PRESSURE PIPE

SD-17

OPTION A

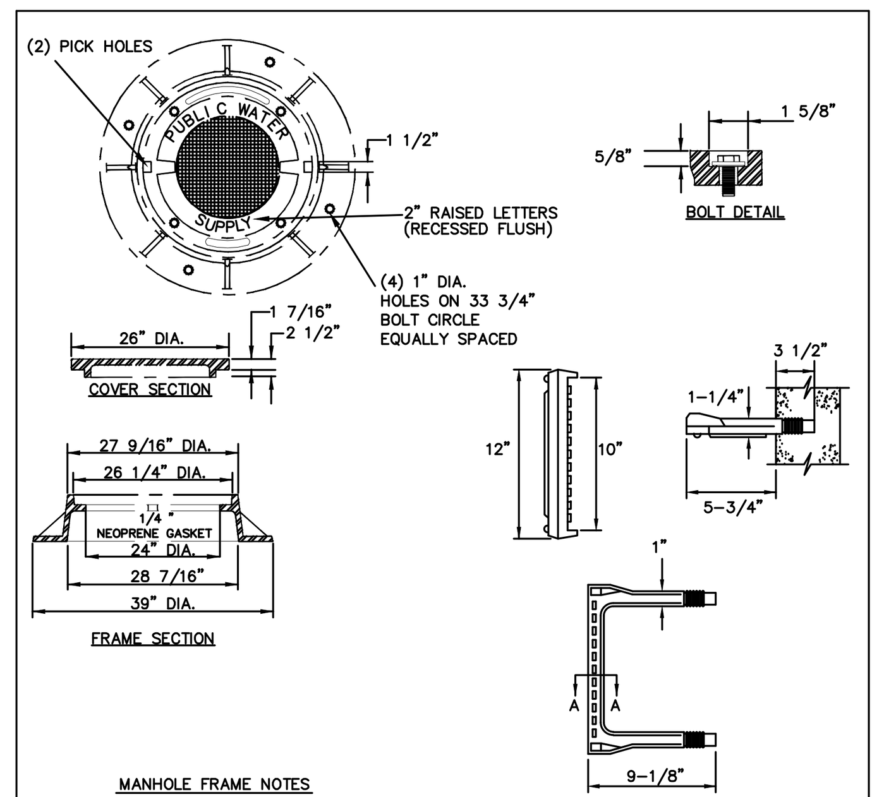


OPTION B



SD–17
HYDRANT INSTALLATION LAYOUT
2020 (WATERMAIN ONLY) PRESSURE PIPE

SD-18



MANHOLE FRAME NOTES

1. THE MANHOLE FRAME SHALL HAVE FOUR 7/8" ANCHOR BASE FLANGE HOLES WITH BOLT CIRCLE TO MATCH MANHOLE CONE.

2. ALL BEARING SURFACES SHALL BE MACHINED.

3. MANHOLE FRAMES AND COVERS SHALL BE BOLT DOWN WATER TIGHT: EAST JORDAN IRON WORKS, INC. #1040 TYPE A SOLID, NEENAH FOUNDRY CO. #R-1916-F, OR GCDC-WWS APPROVED ALTERNATE.

4. THE WORD "PUBLIC WATER SUPPLY" SHALL BE CAST IN THE CENTER OF THE COVER.

5. MANHOLE COVERS SHALL BE BOLTED TO THE FRAME WITH FOUR 1/2"-13 NC HEX HEAD STAINLESS STEEL BOLTS AND WASHERS WITH RUBBER GASKETS

MANHOLE STEP NOTES

1. MANHOLE STEPS SHALL BE CAST INTEGRALLY WITH PRECAST MANHOLE.

2. MANHOLE STEPS SHALL BE COPOLYMER POLYPROPYLENE PLASTIC WITH 1/2" STEEL REINFORCEMENT.

3. MANHOLE STEPS SHALL BE M.A. INDUSTRIES PS-1-PF, AMERICAN STEP CO. ML-10, OR GCDC-WWS APPROVED ALTERNATE.

SD–18
MANHOLE FRAME, COVER & STEP
2020 PRESSURE PIPE

C-12

NO.	DATE	DESCRIPTION
1	2020	EIGHTH EDITION

DIVISION OF WATER & WASTE SERVICES

PRESSURE PIPE CONSTRUCTION

STANDARD DETAILS

For the Construction of Sanitary Sewers & Watermain in Genesee County

GENESEE COUNTY WWS DRAIN COMMISSIONER

SD-1 BEDDING & TRENCH DETAILS

NOTES

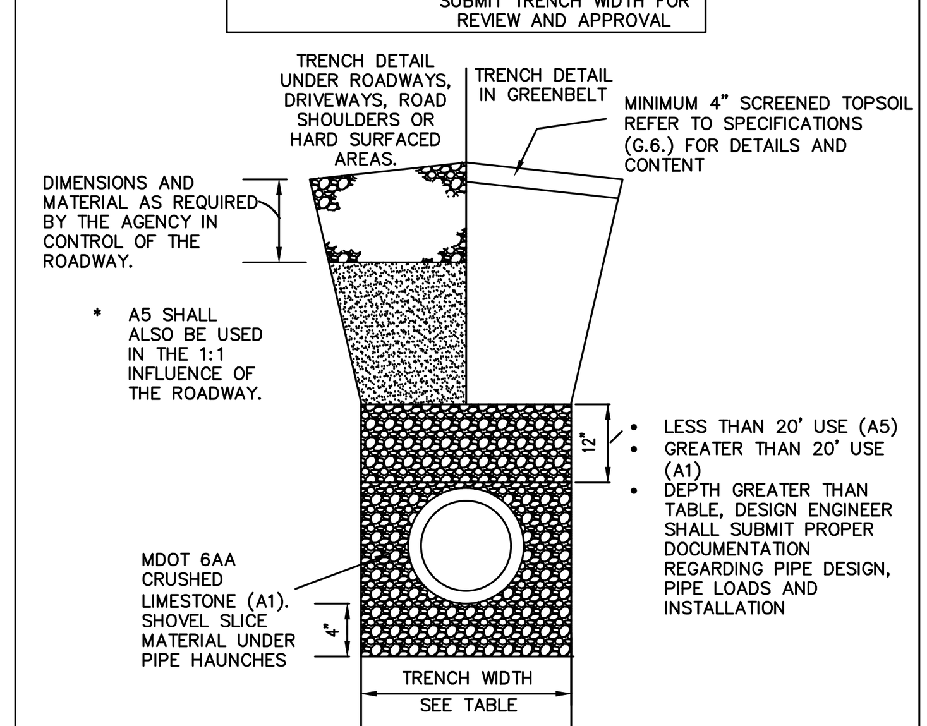
1. PLACE AGGREGATE MATERIAL ON THE COMPACTED SAND BACKFILL (A5) FOR ALL DRIVES, ROAD SHOULDERS, PARKING LOTS OR OTHER HARD SURFACED AREAS PER THE APPROVED PLANS.

2. THE CONTRACTOR SHALL COMPACT THE SAND BACKFILL (A5) TO 95% OF THE MATERIAL UNIT WEIGHT BY MODIFIED PROCTOR ACROSS ALL ROADWAYS AND DRIVES PER THE SCHEDULE OF BACKFILLING IN THE SANITARY SEWER SPECIFICATIONS. THIS INCLUDES SERVICE LEADS, UNLESS BORED. THE CONTRACTOR SHALL DO THE TESTING WITH THE RESULTS SUBMITTED TO GCDC-WWS PRIOR TO FINAL TESTING.

3. STONE BEDDING (A1) IS REQUIRED IN ALL AREAS OF DEWATERING.

SEE GCDC-WWS SPECIFICATIONS FOR TRENCHES

DIAMETER	MAX. TRENCH WIDTH
8"-12"	30"
15"-18"	36"
> 21"	DESIGN ENGINEER MUST SUBMIT TRENCH WIDTH FOR REVIEW AND APPROVAL



SD-1
BEDDING & TRENCH DETAILS

2020 SANITARY

SD-2 PROTECTION OF SANITARY SEWERS BY CONCRETE ENCASEMENT OF CRADLE

NOTES

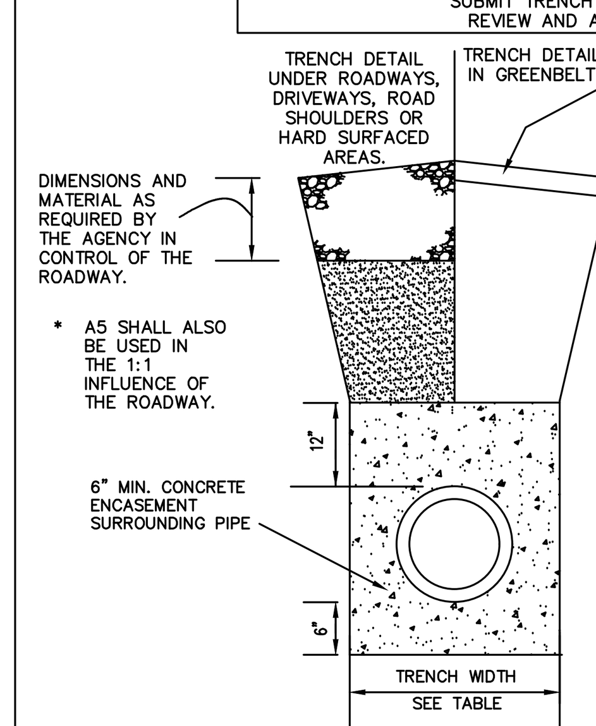
1. PLACE AGGREGATE MATERIAL ON THE COMPACTED SAND BACKFILL (A5) FOR ALL DRIVES, ROAD SHOULDERS, PARKING LOTS OR OTHER HARD SURFACED AREAS PER THE APPROVED PLANS.

2. THE CONTRACTOR SHALL COMPACT THE SAND BACKFILL (A5) TO 95% OF THE MATERIAL UNIT WEIGHT BY MODIFIED PROCTOR ACROSS ALL ROADWAYS AND DRIVES PER THE SCHEDULE OF BACKFILLING IN THE SANITARY SEWER SPECIFICATIONS. THIS INCLUDES SERVICE LEADS, UNLESS BORED. THE CONTRACTOR SHALL DO THE TESTING WITH THE RESULTS SUBMITTED TO GCDC-WWS PRIOR TO FINAL TESTING.

3. STONE BEDDING (A1) IS REQUIRED IN ALL AREAS OF DEWATERING.

SEE GCDC-WWS SPECIFICATIONS FOR TRENCHES

DIAMETER	MAX. TRENCH WIDTH
8"-12"	30"
15"-18"	36"
> 21"	DESIGN ENGINEER MUST SUBMIT TRENCH WIDTH FOR REVIEW AND APPROVAL



CONCRETE ENCASEMENT NOTES

1. CONCRETE ENCASEMENT SHALL BE USED UNDER ALL RIVERS, STREAMS, OR COUNTY DRAINS WHERE THE WIDTH FROM THE TOP OF BANK TO TOP OF BANK IS IN EXCESS OF 10 FEET AND/OR THE CROWN OF THE SEWER IS NOT COVERED BY 3 FEET.

2. CONCRETE ENCASEMENT SHALL EXTEND A DISTANCE OF 10 FEET BEYOND THE TOP OF THE BANK ON EACH SIDE OF THE WATERWAY. (MINIMUM ENCASEMENT OF 30 FEET.) THE LOCATION OF THE TOP OF BANK TO BE DETERMINED BY GCDC-WWS.

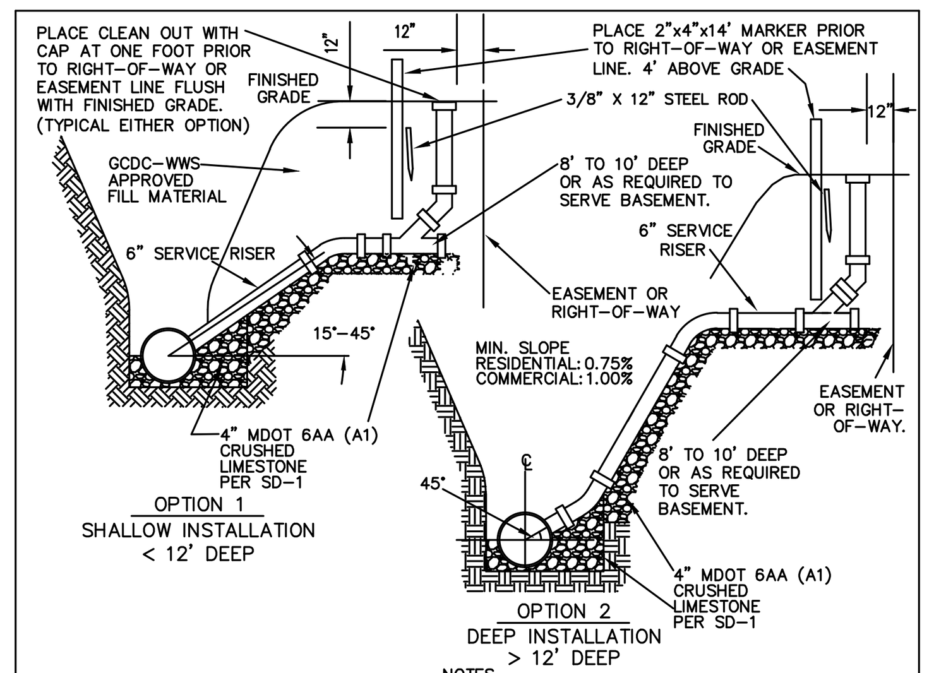
3. THE CONTRACTOR SHALL PLACE 2500 PSI CONCRETE AGAINST UNDISTURBED EARTH FOR THE ENTIRE WIDTH OF THE TRENCH.

4. THE CONTRACTOR SHALL TAKE THE NECESSARY STEPS TO PREVENT PIPE FROM FLOATING.

SD-2
PROTECTION OF SANITARY SEWERS BY CONCRETE ENCASEMENT OF CRADLE

2020 SANITARY

SD-3 RISER AND SERVICE LEAD



NOTES

1. THE ENGINEER & CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING CURRENT LOT SPLITS AND ENSURING THAT ALL LOTS ON BOTH SIDES OF THE ROAD ARE SERVICED WITH SANITARY SEWER TO THEIR RESPECTIVE RIGHT-OF-WAY LINE OR EASEMENT LINE.

2. SERVICE RISERS SHALL BE 6" PVC WITH A MINIMUM SDR OF 26, OR OTHER AS REQUIRED FOR DEPTH. ONLY WYE CONNECTIONS TO THE MAINLINE SEWER ARE ACCEPTABLE.

3. THE LOCATION OF ALL SERVICE RISERS SHALL BE MARKED WITH A 2"x4"x14' MARKER, WITH A ⅜" X 12" STEEL ROD PLACED 1' BELOW THE SURFACE, ALONG WITH WITNESS POINTS SUPPLIED TO GCDC-WWS. THE 2"x4"x14' MARKER SHALL EXTEND FROM THE INVERT OF THE LEAD TO A MINIMUM OF 4' ABOVE FINISH GRADE. THE SERVICE RISER SHALL TERMINATE WITHIN 1' OF THE EASEMENT OR RIGHT-OF-WAY LINE WITH AN AIRTIGHT PLUG. SERVICE RISERS WITHIN EASEMENTS SHALL BE EXTENDED A MINIMUM OF ONE PIPE LENGTH FROM THE MAIN LINE SEWER OR TO THE EDGE OF THE RIGHT-OF-WAY OR EASEMENT, WHICHEVER IS LONGER.

4. SERVICE RISERS MEASUREMENT IS HORIZONTAL ALONG THE CENTERLINE OF THE LEAD AS CONSTRUCTED FROM THE MAIN TO THE PLUG. PAYMENT SHALL BE MEASURED HORIZONTAL, NOT VERTICAL.

5. THERE SHALL BE NO 90° BENDS ALLOWED IN THE SERVICE RISERS.

6. CLEAN OUTS ARE REQUIRED EVERY 90 FEET OR AT BENDS.

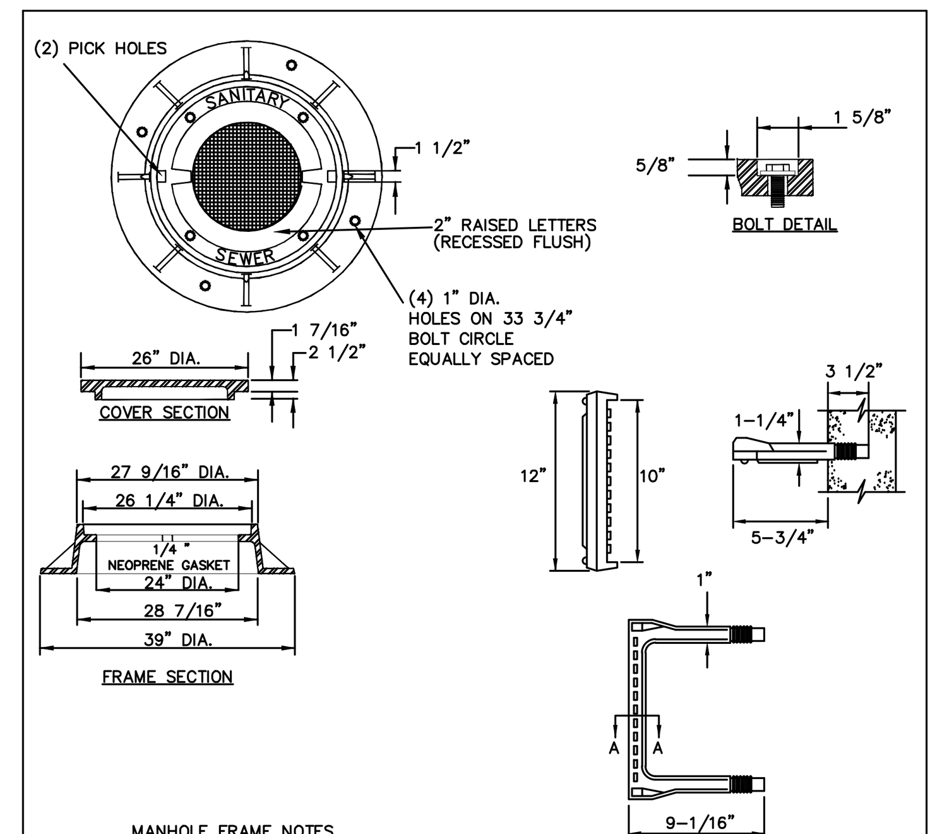
7. FOR NEW DEVELOPMENTS, PLACE A 2"x4"x14' MARKER AT THE END OF THE LEAD. THE CLEAN OUTS SHALL BE INSTALLED AT THE TIME THE SERVICE LEAD IS EXTENDED TO THE HOUSE.

8. EXISTING HOUSES SHALL BE PROVIDED WITH CLEAN-OUTS.

SD-3
RISER AND SERVICE LEAD

2020 SANITARY

SD-4 MANHOLE FRAME, COVER & STEP



MANHOLE FRAME NOTES

1. THE FRAME SHALL HAVE FOUR 7/8" ANCHOR BASE FLANGE HOLES WITH BOLT CIRCLE TO MATCH MANHOLE CONE.

2. ALL BEARING SURFACES SHALL BE MACHINED.

3. FRAMES AND COVERS SHALL BE BOLT DOWN WATER TIGHT: EAST JORDAN IRON WORKS, INC. #1040 ZPT TYPE A SOLID, NEENAH FOUNDRY CO. #R-1916-F, OR A GCDC-WWS APPROVED ALTERNATE.

4. THE WORD "SANITARY SEWER" SHALL BE CAST IN THE CENTER OF THE COVER.

5. THE COVER SHALL BE BOLTED TO THE FRAME WITH FOUR 1/2"-13 NC HEX HEAD STAINLESS STEEL BOLTS AND WASHERS WITH RUBBER GASKETS

MANHOLE STEP NOTES

1. MANHOLE STEPS SHALL BE CAST INTEGRALLY WITH PRECAST MANHOLE.

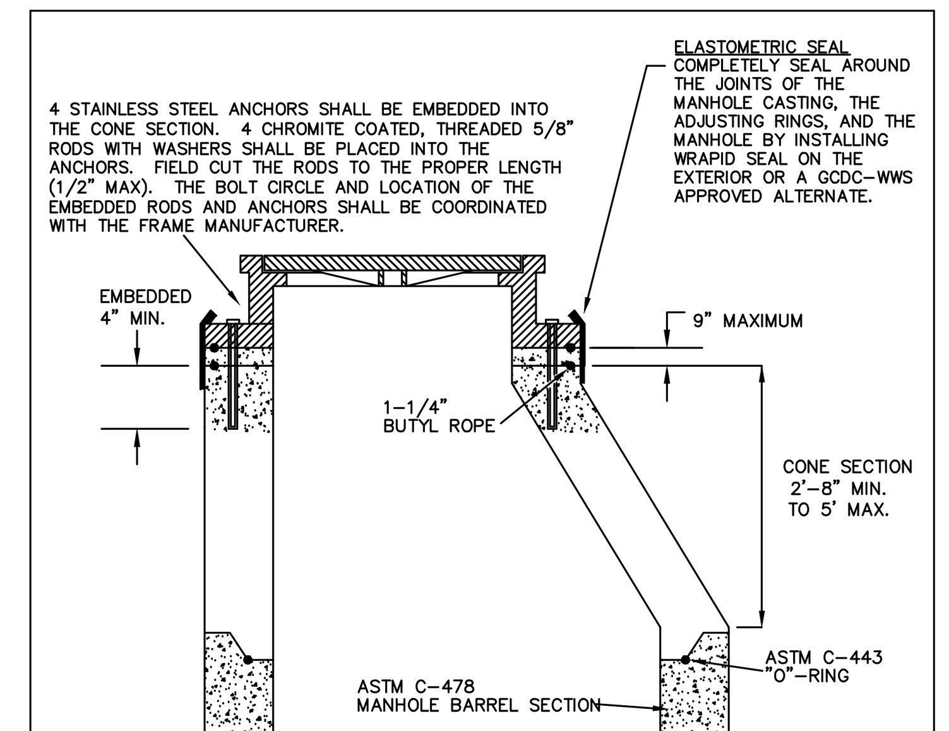
2. STEPS SHALL BE COPOLYMER POLYPROPYLENE PLASTIC WITH 1/2" STEEL REINFORCEMENT.

3. STEPS SHALL BE M.A. INDUSTRIES PS-1-PF, AMERICAN STEP CO. ML-10, OR A GCDC-WWS APPROVED ALTERNATE.

SD-4
MANHOLE FRAME, COVER & STEP

2020 SANITARY

SD-5 MANHOLE FRAME & ADJUSTMENT



NOTES

1. DURING THE FINAL INSPECTION, FINAL ADJUSTMENT SHALL BE AS DIRECTED BY GCDC-WWS. MAXIMUM ADJUSTMENT ALLOWED SHALL BE 9". THE USE OF BLOCK OR BRICK FOR ADJUSTMENT SHALL NOT BE PERMITTED.

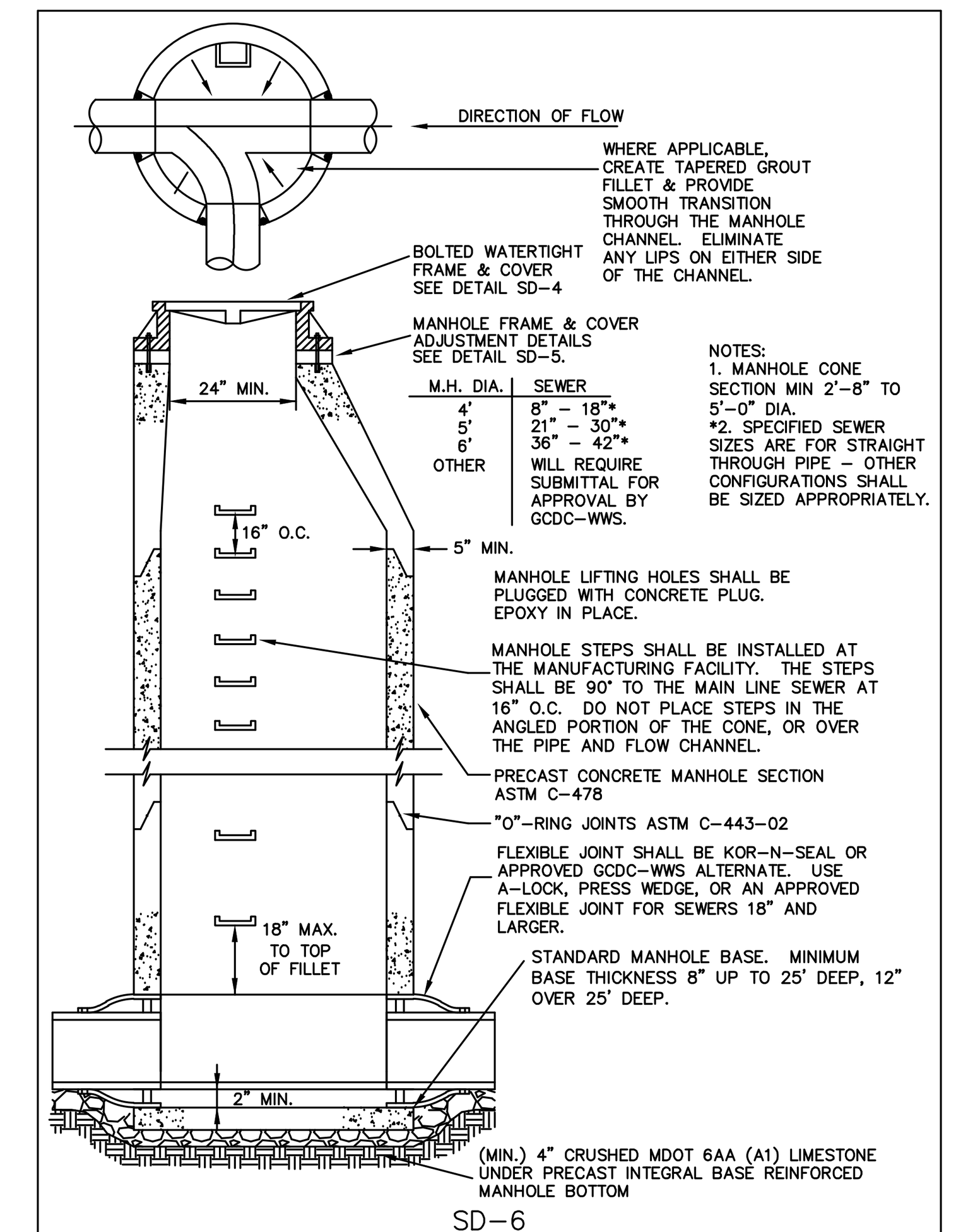
2. PERMISSIBLE GRADE RING SIZES FOR MANHOLE ADJUSTMENT SHALL BE 3", 4", OR 6", AS REQUIRED, TO FINISH GRADE. NOTE: A MAXIMUM OF TWO GRADE RINGS WILL BE ALLOWED.

3. THE CONTRACTOR SHALL USE AN APPROVED 1-1/4" PRE-FORMED BUTYL RUBBER JOINT SEALANT BETWEEN GRADE RING, MANHOLE FRAME, & MANHOLE SECTION. USE MORTAR FOR MANHOLES IN ROADWAYS.

SD-5
MANHOLE FRAME & ADJUSTMENT

2020 SANITARY

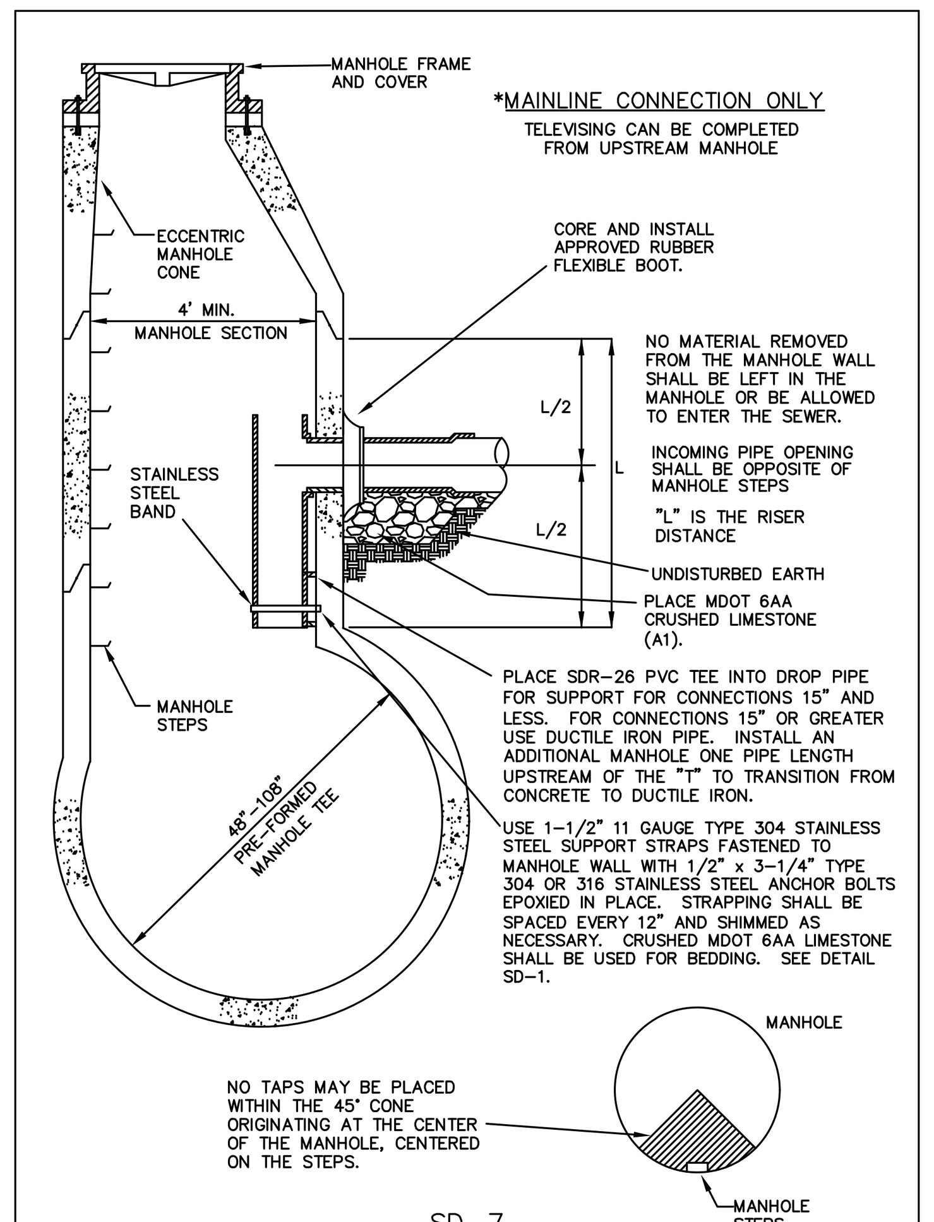
SD-6 PRECAST FLEXIBLE JOINT MANHOLE



SD-6
PRECAST FLEXIBLE JOINT MANHOLE

2020 SANITARY

SD-7 CONNECTION TO "T" MANHOLE



SD-7
CONNECTION TO "T" MANHOLE

2020 SANITARY

SD-8 CONCRETE ENCASED EXTERNAL DROP PIPE

NOTES

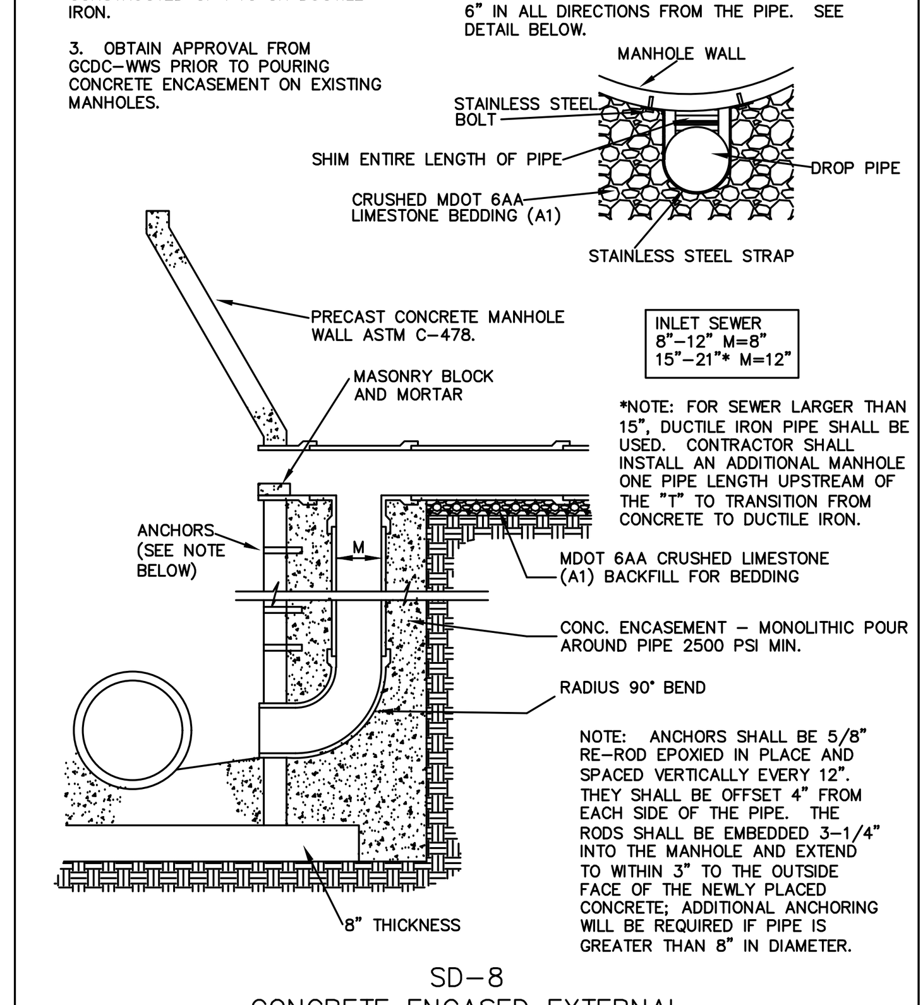
1. A DROP PIPE CONNECTION IS REQUIRED FOR ALL SEWERS WHERE INCOMING INVERT ELEVATIONS EXCEEDS 30" ABOVE OUTLET INVERT ELEVATION.

2. ALL DROP CONNECTIONS SHALL BE EXTERNAL DROP CONNECTIONS, CONSTRUCTED OF PVC OR DUCTILE IRON.

3. OBTAIN APPROVAL FROM GCDC-WWS PRIOR TO POURING CONCRETE ENCASEMENT ON EXISTING MANHOLES.

ALTERNATE METHOD

USE 1-1/2" 11 GAUGE TYPE 304 STAINLESS STEEL SUPPORT STRAPS FASTENED TO THE MANHOLE WALL WITH 1/2" x 3-1/4" TYPE 304 OR 316 STAINLESS STEEL ANCHOR BOLTS EPOXIED IN PLACE. STRAPPING SHALL BE SPACED EVERY 12" AND SHIMMED AS NECESSARY. CRUSHED MDOT 6AA LIMESTONE WILL BE USED FOR BEDDING. THE CRUSHED STONE SHALL ENCASE THE PIPE A MINIMUM OF 6" IN ALL DIRECTIONS FROM THE PIPE. SEE DETAIL BELOW.



SD-8
CONCRETE ENCASED EXTERNAL DROP PIPE

2020 SANITARY

SD-9 INFILTRATION TESTING

NOTES

1. ALL SANITARY SEWERS SHALL BE TESTED FOR INFILTRATION.

2. A NEW INFILTRATION TEST MANHOLE MUST BE CONSTRUCTED FOR EACH SEPARATE DIVISION OR SECTION OF A PROJECT. (SEE DETAIL)

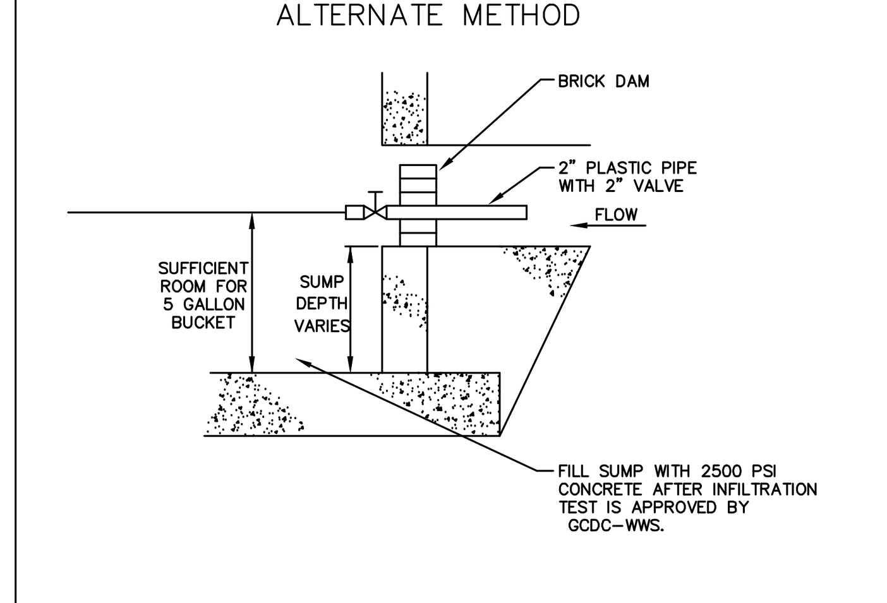
3. NO CONNECTION SHALL BE MADE TO THE EXISTING SANITARY SEWER SYSTEM UNTIL ALL TESTING OF THE SANITARY SEWER HAS BEEN PERFORMED AND APPROVED BY GCDC-WWS.

4. TESTING WEIRS ARE AVAILABLE FROM GCDC-WWS WITH PRIOR NOTICE.

5. ALL EXTENSIONS OF 8"-21" SEWER SHALL BE AIR TESTED. ALL LINES 24" AND LARGER SHALL BE TESTED WITH A "V" NOTCH WEIR.

6. THE FOLLOWING OUTLINES AN ALTERNATE METHOD FOR TESTING:

ALTERNATE METHOD

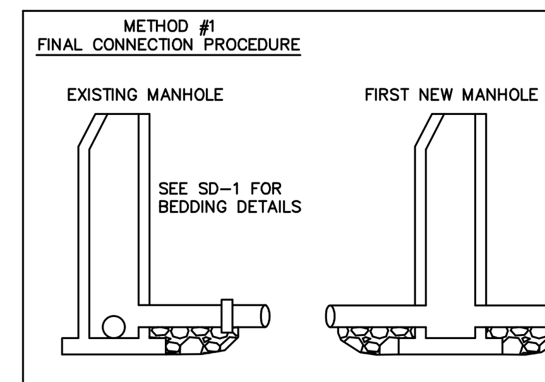


SD-9
INFILTRATION TESTING

2020 SANITARY

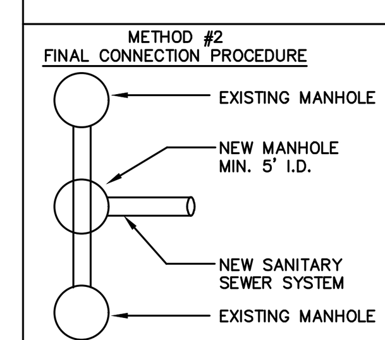
SD-10 SANITARY SEWER FINAL CONNECTION

METHOD #1
FINAL CONNECTION PROCEDURE



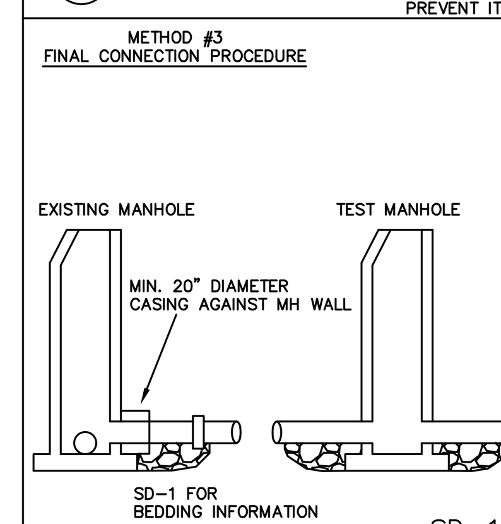
1. BEGIN WORK AT THE FIRST MANHOLE.
2. TEST, TELEVISE AND CLEAN ALL WORK UPGRADE.
3. OBTAIN APPROVAL FROM GCDC-WWS TO TIE INTO THE EXISTING SYSTEM.
4. CONSTRUCT THE SEWER LINE BETWEEN THE FIRST MANHOLE AND THE EXISTING MANHOLE.
5. TEST, TELEVISE AND CLEAN THE SEWER LINE.
6. OBTAIN FINAL APPROVAL FROM GCDC-WWS.

METHOD #2
FINAL CONNECTION PROCEDURE



1. USE AN APPROVED PRECAST SLAB.
2. SCORE EXISTING PIPE TO BE REMOVED.
3. CONSTRUCT THE FIRST MANHOLE OVER THE EXISTING SANITARY SEWER WITHOUT REMOVING THE EXISTING MAIN.
4. TEST, TELEVISE, AND CLEAN ALL WORK IN THE SANITARY SEWER SYSTEM.
5. OBTAIN APPROVAL FROM GCDC-WWS FOR EXISTING PIPE REMOVAL & FINAL CONNECTION.
6. SAW CUT & REMOVE PIPE SECTION AFTER RECEIPT OF APPROVAL, AND POUR THE FLOW CHANNEL.
7. THE CONTRACTOR IS RESPONSIBLE TO CATCH DEBRIS & PREVENT IT FROM ENTERING THE SANITARY SEWER.

METHOD #3
FINAL CONNECTION PROCEDURE

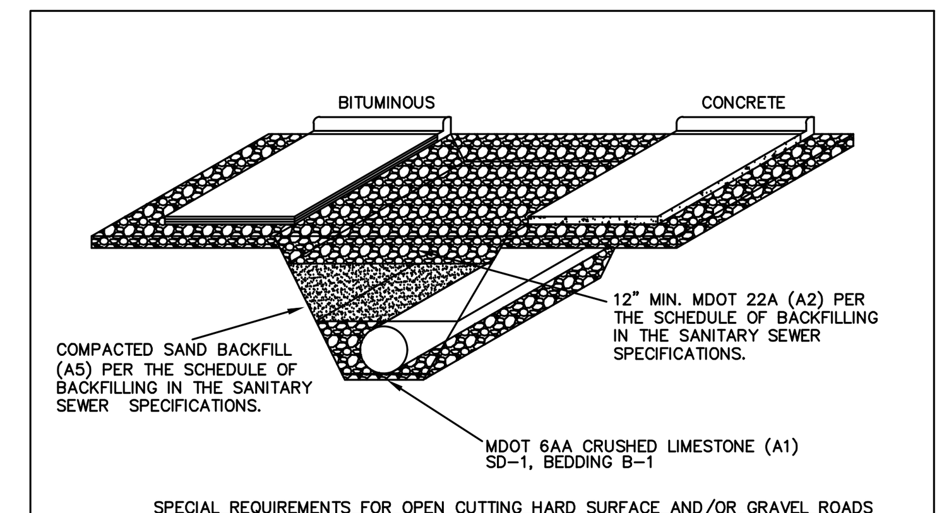


1. BEGIN WORK AT THE TEST MANHOLE.
2. ALL WORK UPGRADE MUST BE CLEAN & FREE OF DEBRIS BEFORE COMPLETING ANY INSTALLATION OF SANITARY SEWER LINE BETWEEN TEST MANHOLE & EXISTING MANHOLE.
3. OBTAIN APPROVAL FROM GCDC-WWS TO BORE DIRECTLY THROUGH MANHOLE WALL. NOTE: PROVIDE NECESSARY DOCUMENTATION TO DEMONSTRATE NECESSITY TO UTILIZE THIS PROCEDURE. FIELD/SITE VISIT MAY BE NECESSARY.
4. THE CONTRACTOR IS RESPONSIBLE TO MAINTAIN GRADE & MATCH INVERTS AS CALLED FOR ON APPROVED CONSTRUCTION PLANS. CONTRACTOR ALSO REQUIRED TO PROVIDE POSITIVE SEAL AROUND MANHOLE PENETRATION VIA FLEXIBLE RUBBER BOOT.

SD-10
SANITARY SEWER FINAL CONNECTION

2020 SANITARY

SD-11 OPEN CUTTING ROAD



SPECIAL REQUIREMENTS FOR OPEN CUTTING HARD SURFACE AND/OR GRAVEL ROADS

1. THE CONTRACTOR SHALL ACQUIRE A SPECIAL OPEN CUT APPROVAL FROM THE AGENCY HAVING AUTHORITY OVER THE ROADWAYS.

2. THE CONTRACTOR SHALL SUPPLY CONTINGENT LIABILITY INSURANCE FOR THE AGENCY HAVING AUTHORITY OVER THE ROADWAYS.

3. THE PROTECTION OF THE WORK SHALL BE IN ACCORDANCE WITH THE <u>MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, PART 6.</u> BARRICADES, WARNING AND LIGHTING NECESSARY FOR PUBLIC SAFETY TO BE APPROVED BY THE ENGINEER AND THE AGENCY HAVING AUTHORITY OVER THE ROADWAYS PRIOR TO STARTING THE WORK.

4. THE CONTRACTOR SHALL EXCAVATE ALL MATERIAL TO PROPOSED GRADE.

5. THE SANITARY SEWER PIPE SHALL BE PLACED ON MDOT 6AA CRUSHED LIMESTONE (A1) BEDDING, PER SD-1 B-1 BEDDING.

6. ALL BACKFILL SHALL BE MDOT CLASS II SAND (A5), PLACED PER THE SCHEDULE OF BACKFILLING.

7. THE SAND BACKFILL SHALL EXTEND FROM THE OUTSIDE EDGE OF SHOULDER TO OUTSIDE EDGE OF SHOULDER, INCLUDING THE ONE ON ONE INFLUENCE OF THE ROADWAY OR THE SAND BACKFILL SHALL EXTEND FROM THE BACK OF CURB TO BACK OF CURB, INCLUDING THE ONE ON ONE INFLUENCE OF THE ROADWAY.

8. THE FINAL 12" OF ALL BACKFILL SHALL BE MDOT 22A LIMESTONE (A2) SUBBASE MODIFIED PER GCRC SPECIFICATIONS. ALL SHOULDERS SHALL BE REPAIRED PER THE AGENCY HAVING AUTHORITY OVER THE ROADWAYS.

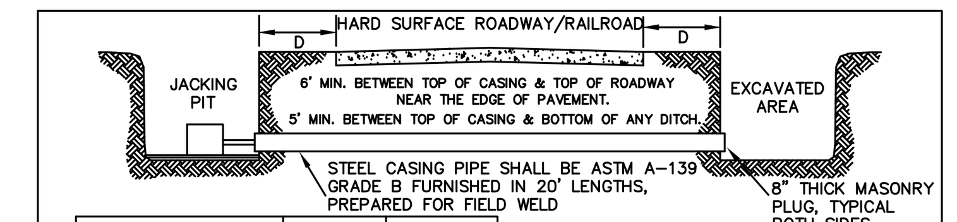
9. THE CONTRACTOR SHALL REPLACE THE ROAD SURFACE WITH THE AGENCY HAVING AUTHORITY OVER THE ROADWAYS APPROVED MATERIAL.

10. THE CONTRACTOR SHALL MAINTAIN TEMPORARY ACCESS TO ALL AREAS DURING THE WORK. A PUBLIC ROAD MAY BE CLOSED FOR 1/2 WIDTH CONSTRUCTION WITH GENESEE COUNTY ROAD COMMISSION OR AGENCY HAVING AUTHORITY OVER THE ROADWAYS APPROVAL, BUT THE CLOSING TIME CANNOT EXCEED 8 HOURS. THE CONTRACTOR MAY USE SHOULDERS AND TEMPORARY PATCHES TO KEEP A ROAD OPEN.

SD-11
OPEN CUTTING ROAD

2020 SANITARY

SD-12 BORE & JACK CONSTRUCTION ON ALL ROADWAYS/RAILROADS

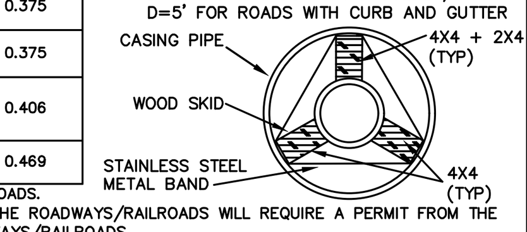


SIZE AND MATERIAL	MIN. CASING DIA. O.D. INCHES *	MIN. WALL THICKNESS INCHES
6" SANITARY SEWER** V.C.P. OR P.V.C.	12.75	0.375
8"-12" D.I. PRESSURE 8"-10" SANITARY SEWER	20.00	0.375
16" D.I. PRESSURE PIPE 12"-15" SANITARY SEWER	24.00	0.375
18"-24" D.I. PRESSURE 18" SANITARY SEWER CONCRETE	30.00	0.406
21"-24" SANITARY SEWER CONCRETE	36.00	0.469

**ALLOWED ONLY UNDER ROADS NOT RAILROADS.

MDOT
D=30' FOR TRAFFIC OVER 45 MPH
D=20' FOR TRAFFIC UNDER 45 MPH

GCRC
D=10' FOR ROADS WITH SHOULDER/DITCH
D=5' FOR ROADS WITH CURB AND GUTTER



1. ALL BORE AND JACK OPERATIONS WITHIN THE ROADWAYS/RAILROADS WILL REQUIRE A PERMIT FROM THE AGENCY HAVING AUTHORITY OVER THE ROADWAYS/RAILROADS.

2. THE CONTRACTOR SHALL ABIDE BY ALL SAFETY PRECAUTIONS INCLUDING THE <u>MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, PART 6</u> AS REQUIRED BY THE AGENCY HAVING AUTHORITY OVER THE ROADWAYS/RAILROADS..

3. THE CONTRACTOR SHALL PROTECT AND RESTORE ALL PROPERTY.

4. THE CONTRACTOR SHALL NAME THE AGENCY HAVING AUTHORITY OVER THE ROADWAYS/RAILROADS AS AN ADDITIONAL NAMED INSURED FOR CONTINGENT LIABILITY FOR THE PROPOSED WORK.

5. THE CONTRACTOR SHALL ABIDE BY ALL CONDITIONS STATED IN THE GCRC MEMO OF 9-1-75 LABELED <u>SANITARY SEWER AND WATERMAIN INSTALLATION WITHIN THE LIMITS OF COUNTY HIGHWAYS</u> OR THE REQUIREMENTS OF THE AGENCY HAVING AUTHORITY OVER THE ROADWAYS/RAILROADS.

6. THE SHEETING OF THE FRONT FACE OF THE BORE PIT WILL BE REQUIRED IF UNSTABLE SOIL CONDITIONS ARE ENCOUNTERED.

7. THE AUGER MUST ALWAYS PROCEED THE CASING PIPE HEAD.

8. THE CONTRACTOR SHALL NOTIFY THE AGENCY HAVING AUTHORITY OVER THE ROADWAYS/RAILROADS A MINIMUM OF 72 HOURS PRIOR TO BEGINNING WORK.

9. TREATED WOOD SKIDS SHALL BE INSTALLED THE ENTIRE LENGTH OF PIPE HELD IN PLACE BY STAINLESS STEEL METAL BANDS MIN. 5/8" WIDE SHALL BE INSTALLED EVERY FOUR FEET TO KEEP THE CARRIER PIPE ON LINE AND GRADE. THE MAXIMUM DISTANCE FROM THE I.D. OF THE CASING PIPE TO THE OUTSIDE EDGE OF THE SKID SHALL BE 1".

10. THE ENDS OF THE CASING PIPE SHALL BE BULKHEADED WITH AN 8" WATER TIGHT MASONRY BULKHEAD.

11. ANY ADDITIONAL REQUIREMENTS THAT MAY COME FROM THE AGENCY HAVING AUTHORITY OVER THE ROADWAY/RAILROAD.

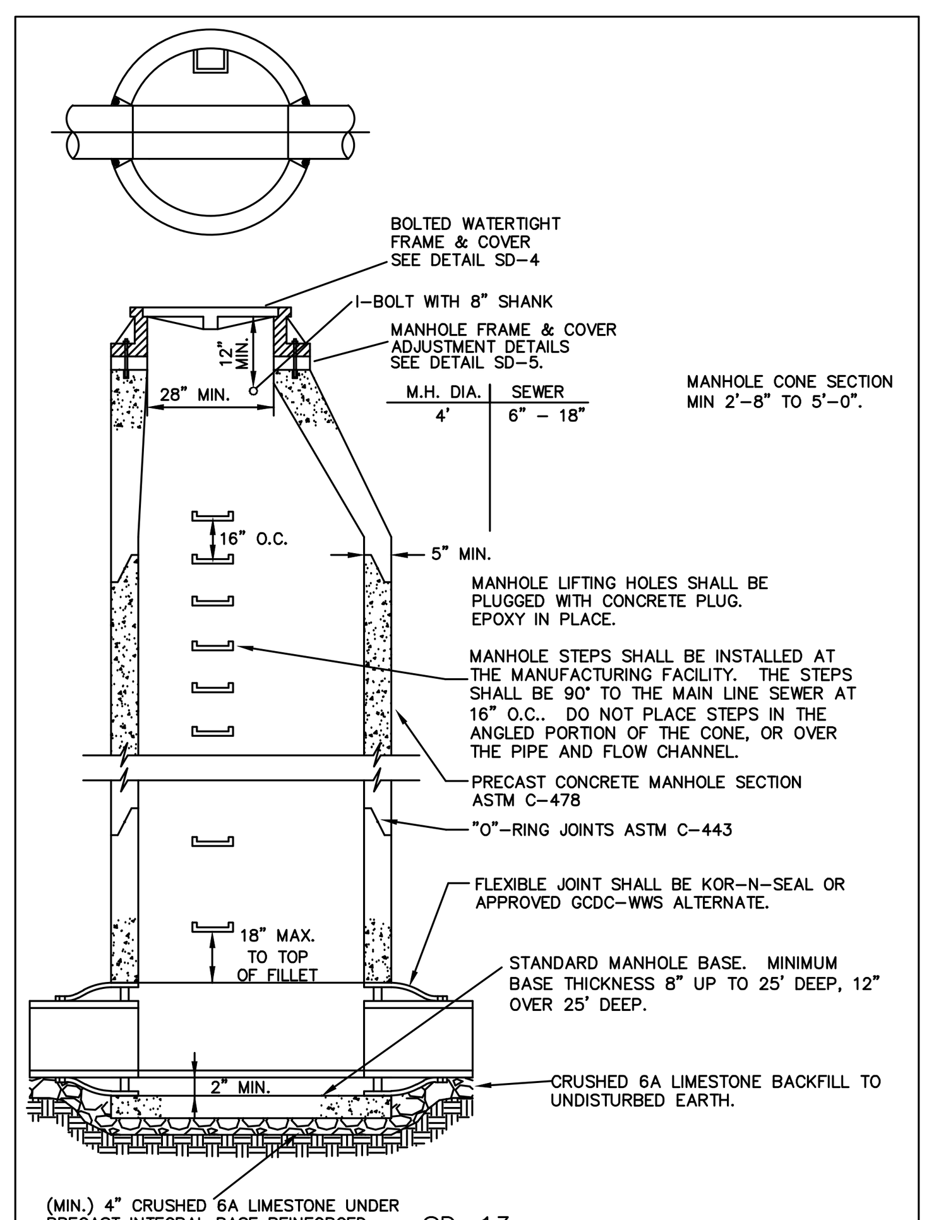
12. FLOWABLE CONCRETE FILL SHALL BE PUMPED BETWEEN THE PIPE AND THE CASING PIPE THE ENTIRE LENGTH OF THE BORE.

*WITH DUCTILE IRON BOLTLESS RESTRAINT, CONTRACTOR MUST VERIFY CASING SIZE CAN CARRY PIPE.

SD-12
BORE & JACK CONSTRUCTION ON ALL ROADWAYS/RAILROADS

2020 SANITARY

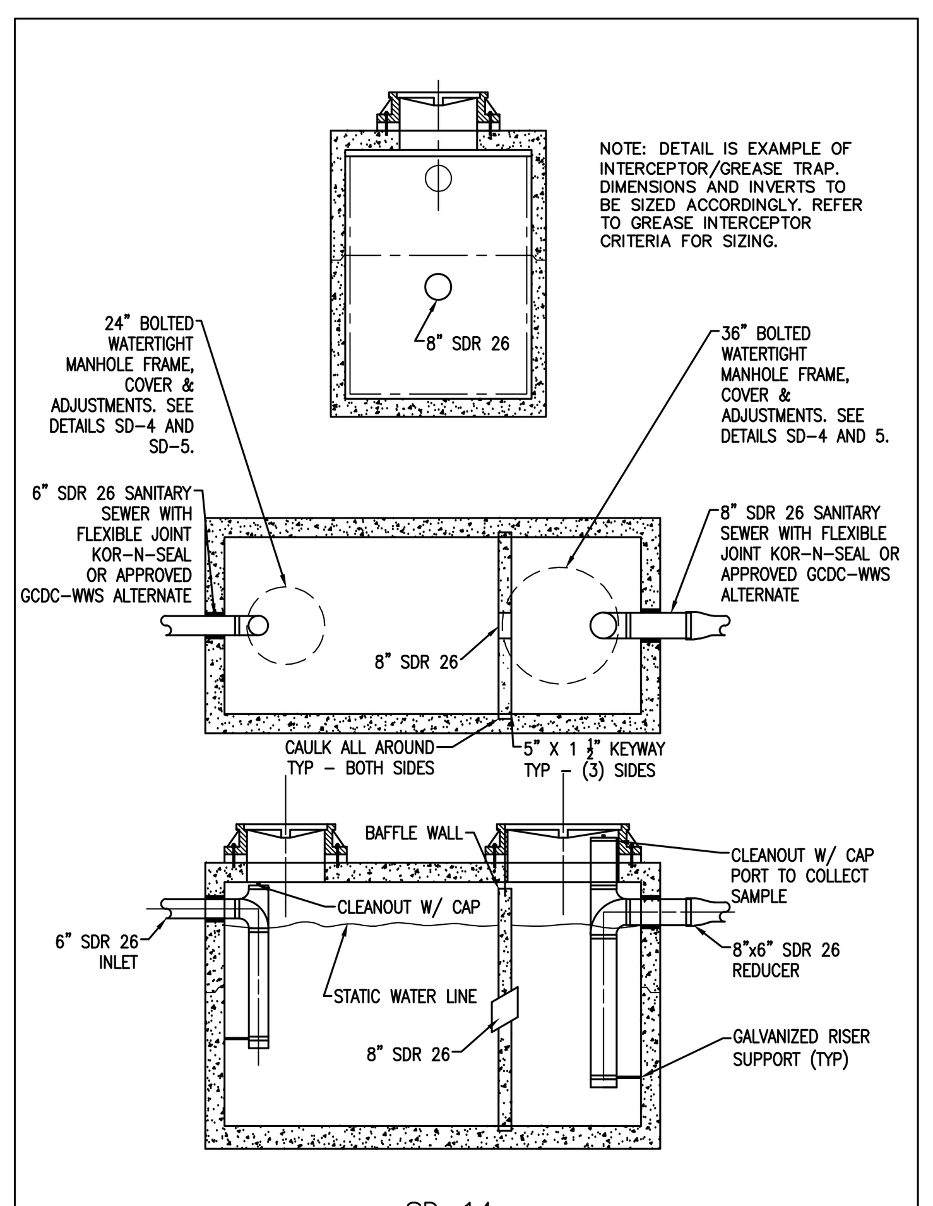
SD-13 IPP SAMPLING MANHOLE



SD-13
IPP SAMPLING MANHOLE

2020 SANITARY

SD-14 INTERCEPTOR/GREASE TRAP



SD-14
INTERCEPTOR/GREASE TRAP

2020 SANITARY

GENERAL NOTES FOR SANITARY SEWER CONSTRUCTION

1. ALL SANITARY SEWERS SHALL BE TELEVISED AND RECORDED WITH REPORTS SUBMITTED TO GCDC-WWS.

2. ALL PVC MAINLINE PIPE IS TO BE MANDRELLED BY A 9-SIDED MANDREL MEETING GCDC-WWS SPECIFICATIONS. THE MAXIMUM ALLOWABLE DEFLECTION IS 5%.

3. EACH 6" SERVICE CONNECTION SHALL BE STAKED, WITH AN INVERT ELEVATION, BY THE ENGINEER.

4. THE REPAIR OF SDR-26 PVC PIPE IS TO BE DONE WITH SDR-26 REPAIR COUPLINGS. FLEXIBLE BOOT CONNECTORS ARE <u>NOT</u> ALLOWED.

5. ALL PROJECTS SHALL HAVE A MANDATORY PRE-CONSTRUCTION MEETING WITH GCDC-WWS.

C-13

NO.	DATE	DESCRIPTION
1	2020	EIGHTH EDITION

DIVISION OF WATER & WASTE SERVICES

SANITARY SEWER CONSTRUCTION

STANDARD DETAILS

For the Construction of Sanitary Sewers & Watermain in Genesee County

GENESEE COUNTY WWS DRAIN COMMISSIONER

SOIL EROSION & SEDIMENTATION CONTROL PLAN

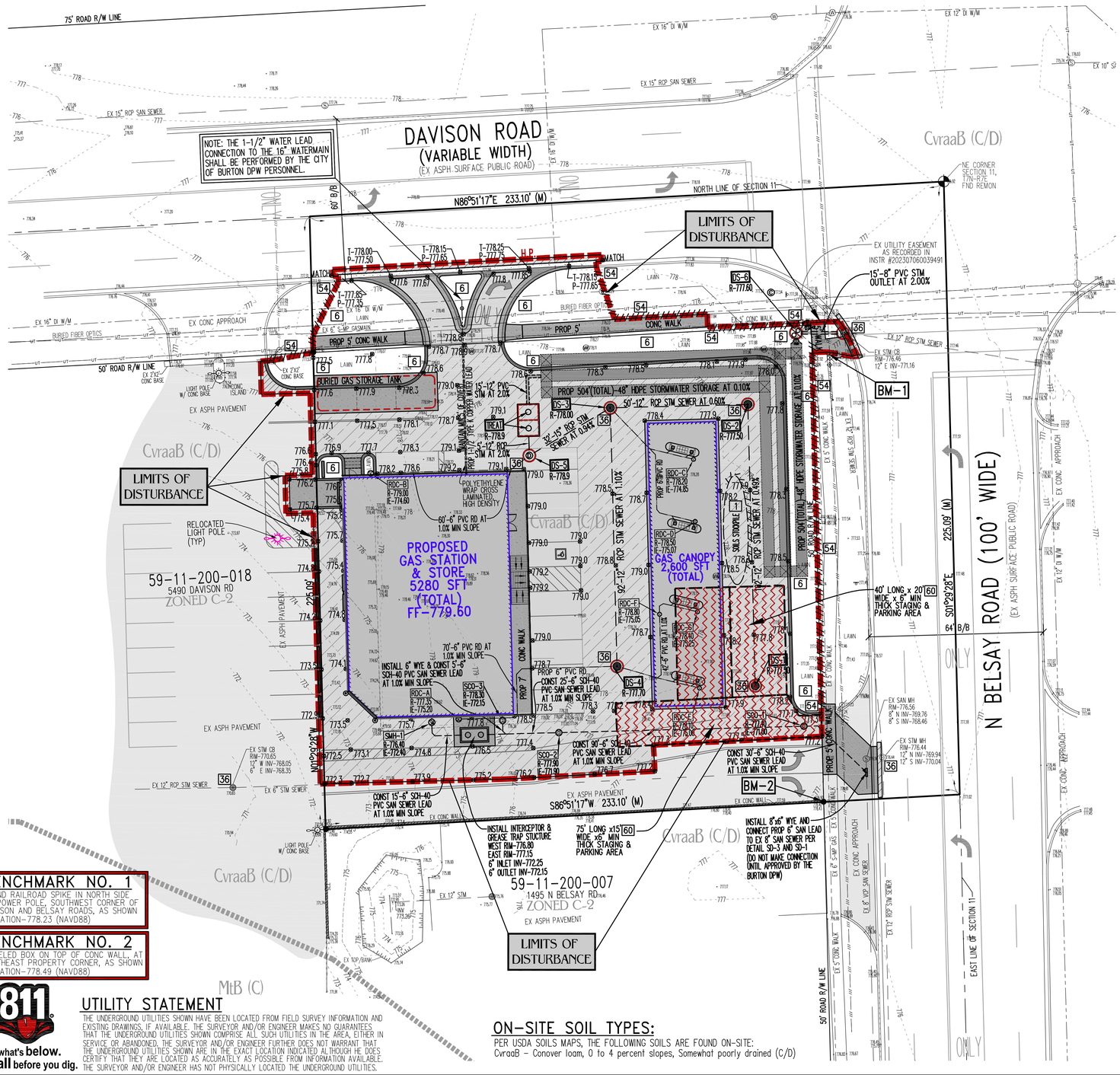
AREA OF DISTURBANCE = 0.75 ACRES

NORTH

GRAPHIC SCALE
20 0 10 20
(IN FEET)
1 inch = 20 ft.

LEGAL DESCRIPTION (AS PROVIDED):

PARCEL NUMBER 59-11-200-006, 5516 DAVISON ROAD
TRANSNATION TITLE AGENCY: COMMITMENT NO. 424925CLK
LAND LOCATED IN THE CITY OF BURTON, COUNTY OF GENESEE, STATE OF MICHIGAN:
THE EAST 233 FEET OF THE NORTH 225 FEET TO THE NORTHEAST 1/4 OF SECTION 11, TOWN 7 NORTH, RANGE 7 EAST. SUBJECT TO ALL EASEMENTS AND RIGHTS OF WAY OF RECORD.



BENCHMARK NO. 1

FOUND RAILROAD SPIKE IN NORTH SIDE OF POWER POLE, SOUTHWEST CORNER OF DAVISON AND BELSAY ROADS, AS SHOWN ELEVATION=778.23 (NAVD88)

BENCHMARK NO. 2

CHISELED BOX ON TOP OF CONC WALL, AT SOUTHEAST PROPERTY CORNER, AS SHOWN ELEVATION=778.49 (NAVD88)

811 Know what's below. Call before you dig.

UTILITY STATEMENT

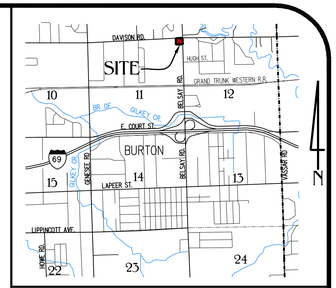
THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS, IF AVAILABLE. THE SURVEYOR AND/OR ENGINEER MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR AND/OR ENGINEER FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR AND/OR ENGINEER HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

ON-SITE SOIL TYPES:

PER USDA SOILS MAPS, THE FOLLOWING SOILS ARE FOUND ON-SITE:
CvraaB - Conover loam, 0 to 4 percent slopes, Somewhat poorly drained (C/D)

L E G E N D

EX ROAD SIGNS	PROP CONCRETE AREAS
EX TRANSFORMER	PROP GAS CANOPY AREA
EX UTILITY POLE	PROP HEAVY-DUTY ASPHALT AREAS
EX SERVICE PEDESTAL	PROP STANDARD ASPHALT AREAS
811.25 EX SURFACE ELEVATION	PROP THICKENED EDGE WALK
811 EX SURFACE CONTOUR	PROP 24" CURB & GUTTER, DET F4
EX OVERHEAD POWERLINES	PROP 6" ROOF DRAIN
EX BURIED GASMAIN	PROP 6" ROOF DRAIN CLEANOUT
EX STORM SEWER	RDC-1 PROP ROOF DRAIN CLEANOUT NO
EX STORM MANHOLE	PROP WATER SHUT-OFF VALVE & LEAD
EX STORM CATCHBASINS	775.0 PROP PAVEMENT ELEVATION
EX SANITARY SEWER	PROP SIDEWALK ELEVATION
EX SANITARY LEAD	PROP DITCH/SWALE CENTERLINE
EX SANITARY MANHOLE	DS-1 PROP DRAINAGE STRUCTURE NO
EX WATER MANHOLE	PROP STORM CATCHBASIN/MANHOLE
EX WATERMAIN LINE	PROP STORM SEWER
EX WATER LEAD LINE	SOILS TYPE LIMITS
EX BUILDING AREA	CvraaB (C/D) SOILS TYPE ABBREVIATION
EX CONC PAVEMENT AREAS	1 | 6 | 36 | 54 | 60 SOIL EROSION CONTROL KEY NO.S
EX DRAINAGE FLOW ARROW	PROP SILT FENCE
FF, FFE FINISHED FLOOR ELEV	CONSTRUCTION ENTRANCE (MUD-MAT DRIVE)
	LIMITS OF DISTURBANCE



LOCATION MAP

SOIL EROSION AND SEDIMENTATION CONTROL (SESC) NOTES:

1. SOIL EROSION: THE CONTRACTOR SHALL SUBMIT A DETAILED SOIL EROSION AND SEDIMENTATION CONTROL PLAN AND OBTAIN AN ACT 451 PART 91, SOIL EROSION AND SEDIMENTATION CONTROL PERMIT. THIS INCLUDES THE PAYMENT OF FEES AND THE PROVIDING OF NECESSARY BONDS. NO EARTH CHANGES OR EXCAVATION SHALL BE STARTED PRIOR TO THE ISSUANCE OF THIS PERMIT. THE CONTRACTOR SHALL PROTECT ALL EXISTING AND PROPOSED STORM SEWER FACILITIES ON AND ADJACENT TO THE SITE DURING EXCAVATION AND CONSTRUCTION. ALL SEDIMENT SHALL BE CONTAINED ON SITE. ANY SILT IN COUNTY DRAINS, STORM SEWER, CULVERTS, ETC. AS A RESULT OF THIS PROJECT, SHALL BE REMOVED BY THE CONTRACTOR AT THE COST OF THE CONTRACTOR.

2. ALL SOIL EROSION AND SEDIMENTATION CONTROL WORK SHALL CONFORM TO ALL APPLICABLE REQUIREMENTS OF CITY OF BURTON, DIVISION OF SOIL EROSION CONTROL SERVICES, SOIL EROSION DEPARTMENT (GCDC-SESC). THE CONTRACTOR SHALL OBTAIN A SOIL EROSION AND SEDIMENTATION CONTROL PERMIT OR WAIVER FROM CITY OF BURTON PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS.

3. SOIL EROSION AND SEDIMENTATION CONTROL MEASURES MUST BE PLACED PRIOR TO OR AS THE FIRST STEP IN CONSTRUCTION. SEDIMENT CONTROL PRACTICES WILL BE APPLIED AS A PERIMETER DEFENSE AGAINST ANY TRANSPORTING OF SILT OFF THE SITE.

4. CONTRACTOR SHALL PLACE AND MAINTAIN ALL TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES AS REQUIRED BY CITY OF BURTON, AND AS SHOWN ON THESE PLANS. CONTRACTOR SHALL REMOVE TEMPORARY MEASURES AS SOON AS ALL PERMANENT EROSION CONTROL MEASURES HAVE BEEN COMPLETED AND APPROVED BY CITY OF BURTON.

5. EROSION AND ANY SEDIMENT CREATED FROM WORK ON THIS SITE SHALL BE CONTAINED ON THE SITE AND NOT ALLOWED TO COLLECT ON ANY OFF-SITE AREAS OR IN ANY DRAINAGE FACILITIES. DRAINAGE FACILITIES INCLUDE BOTH NATURAL AND MAN-MADE OPEN DITCHES, STREAMS, STORM DRAINS, LAKES, AND PONDS.

6. ALL MUD, DIRT, AND DEBRIS TRACKED ONTO EXISTING ROADS FROM THIS SITE SHALL BE PROMPTLY REMOVED BY THE CONTRACTOR. ALL MUD, DIRT, AND DEBRIS TRACKED OR SPILLED ONTO PAVED SURFACES WITHIN THIS SITE SHALL BE PROMPTLY REMOVED BY THE CONTRACTOR.

7. CONTRACTOR MUST IMPLEMENT APPROPRIATE MEASURES AS REQUIRED TO CONTROL DUST AT ALL TIMES, AS APPROVED BY CITY OF BURTON.

8. DAILY INSPECTIONS SHALL BE MADE BY THE CONTRACTOR TO DETERMINE EFFECTIVENESS OF EROSION AND SEDIMENT CONTROL MEASURES, AND ANY NECESSARY REPAIRS SHALL BE PERFORMED WITHOUT DELAY.

9. FAILURE TO COMPLY WITH ALL APPLICABLE SOIL EROSION AND SEDIMENTATION CONTROL REQUIREMENTS MAY RESULT IN WORK STOPPAGE BY CITY OF BURTON.

10. CONTRACTOR MUST IMMEDIATELY HAUL AWAY ALL EXCAVATED DIRT TO AN APPROVED OFF SITE LOCATION, OR TEMPORARILY STORE THE MATERIAL ON THE SITE. ALL STORED MATERIAL MUST BE PROTECTED TO PREVENT EROSION.

11. THE CONTRACTOR MUST PROVIDE A WRITTEN SCHEDULE INDICATING THE TIMING AND SEQUENCING OF ALL SOIL EROSION AND SEDIMENTATION CONTROL MEASURES AND CONSTRUCTION ITEMS, INCLUDING THE INSTALLATION OF ALL PERMANENT SOIL EROSION AND SEDIMENTATION CONTROL MEASURES.

12. APPROXIMATELY 0.75 ACRES WILL BE DISTURBED IN CONSTRUCTION OF THIS PROJECT, THEREFORE A NPDES STORM WATER DISCHARGE PERMIT WILL NOT BE REQUIRED.

13. THE CLOSEST STREAM, DRAIN, OR BODY OF WATER IS THE KEARSLEY CREEK, APPROXIMATELY 1100'± NORTHEASTERLY OF THE SITE. THIS SITE IS IN THE DRAINAGE DISTRICT OF THE RUMPH DRAIN, AN ENCLOSED COUNTY DRAIN (#0120).

SOIL EROSION CONTROL MAINTENANCE NOTES:

1. FILTER BARRIERS SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING ANY PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.
2. IF THE FABRIC DECOMPOSES OR BECOMES INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE, AND THE BARRIER IS STILL REQUIRED, THE FABRIC SHALL BE REPLACED PROMPTLY.
3. ALL TEMPORARY EROSION CONTROL MEASURES SHALL BE CLEANED AND MAINTAINED AS REQUIRED SUCH THAT THE MEASURES ARE EFFECTIVE AND IN PROPER WORKING ORDER AT ALL TIMES.
4. ALL MUD/DIRT TRACKED ONTO ROADS OR THE PARKING LOT FROM THE SITE DUE TO CONSTRUCTION, SHALL BE PROMPTLY REMOVED BY THE CONTRACTOR.
5. ALL SOIL EROSION AND SEDIMENTATION CONTROL MEASURES, BOTH PERMANENT AND TEMPORARY, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

SOIL EROSION CONTROL CONSTRUCTION SEQUENCE:

1. PLACE ALL TEMPORARY SOIL EROSION CONTROL MEASURES AS PER THESE PLANS.
2. SAWCUT & REMOVE PAVEMENT AREAS, AS SHOWN ON THESE PLANS.
3. CONSTRUCT ALL PROPOSED UTILITIES AND THE DETENTION BASIN, AS SHOWN ON THESE PLANS.
4. CONST BUILDING, NEW PAVEMENT, & CURBS, AS SHOWN ON THESE PLANS.
5. PLACE 4" TOPSOIL, FERTILIZER, SEED, AND MULCH TO RESTORE ALL DISTURBED TURF AREAS.
6. REMOVE ALL TEMPORARY SOIL EROSION CONTROL MEASURES AFTER ALL SITE CONSTRUCTION HAS BEEN COMPLETED, AND ALL NEW TURF AREAS HAVE BEEN FULLY ESTABLISHED.
7. CONTRACTOR SHALL KEEP STREET AND ALL OTHER PAVEMENT CLEAN AT ALL TIMES, AND PREVENT DUST POLLUTION.

EX SITE AREA TYPES & CALCS:

1. BUILDING AREAS = 0/32,833 = 0.00%
2. PAVEMENT AREAS = 11,111/32,833 = 33.84%
3. GRAVEL AREAS = 6,238/32,833 = 19.00%
4. LAWN/LAWN AREAS = 15,484/32,833 = 47.16%
5. TOTAL SITE AREA IS 32,833 SFT or 0.754 ACRES

PROP SITE AREA TYPES & CALCS:

1. BUILDING AREAS = 5,280/32,833 = 16.08%
2. PAVEMENT AREAS = 25,128/32,833 = 76.53%
3. LAWN/LAWN AREAS = 2,425/32,833 = 7.39%
4. TOTAL SITE AREA IS 32,833 SFT or 0.754 ACRES

SITE IMPERVIOUS/PERVIOUS CALCS:

1. EXISTING SITE IMPERVIOUS COVERAGE = 17,349/32,833 = 0.5284 or 52.84%
2. PROPOSED SITE IMPERVIOUS COVERAGE = 30,408/32,833 = 0.9261 or 92.61%
3. AN INCREASE OF 92.61-52.84 = 39.77% IMPERVIOUS SURFACE or 13,059 SFT

DRAINAGE DISTRICT LOCATION:

THIS SITE IS IN THE DRAINAGE DISTRICT OF THE RUMPH DRAIN, AN ENCLOSED COUNTY DRAIN (#0120). THE CLOSEST BODY OF WATER IS THE KEARSLEY CREEK, 1100'± NORTHEASTERLY OF THE SITE.

SOIL EROSION CONTROL KEYING SYSTEM

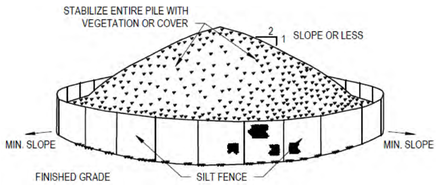
KEY	DETAIL	CHARACTERISTICS
1	STRIPPING & STOCKPILING TOPSOIL	TOPSOIL MAY BE STOCKPILED ABOVE BORROW AREAS TO ACT AS A DIVERSION STOCKPILE SHOULD BE TEMPORARILY SEEDED, AFTER CONSTRUCTION COMPLETION, REMOVE ACCESS SPOILS FROM SITE
6	SEEDING WITH MULCH AND/OR MATTING	WHEN BARE SOIL IS EXPOSED, TEMPORARILY OR PERMANENTLY, TO EROSIVE FORCES FROM WIND AND OR WATER ON FLAT AREAS, MILD SLOPES, GRASSED WATERWAYS AND SPILLWAYS, DIVERSION DITCHES AND DIKES, BORROW AND STOCKPILE AREAS, AND SPOIL PILES. SHOULD INCLUDE PREPARED TOPSOIL BED, EASILY PLACED IN SMALL QUANTITIES BY INEXPERIENCED PERSONNEL
26	DUST CONTROL	AS A TEMPORARY MEASURE ON EXPOSED AND UNSTABILIZED AREAS THAT MUST BE PROTECTED FROM WIND OR WATER EROSION.
36	CATCH BASIN PROTECTION	COLLECTS HIGH VELOCITY CONCENTRATED RUNOFF PLACE FILTER BAG UNDER INLET
54	SILT FENCE	AS A TEMPORARY MEASURE USED TO CAPTURE SEDIMENT FROM SHEET FLOW. MAY ALSO DIVERT SMALL VOLUMES OF SHEET FLOW TO PROTECTED OUTLETS. USES GEOTEXTILE FABRIC AND POSTS OR POLES, EASY TO CONSTRUCT AND LOCATE AS NECESSARY
60	AGGREGATE COVER (MUD MAT DRIVES)	STABILIZES SOIL SURFACE, THUS MINIMIZING EROSION PERMITS CONSTRUCTION TRAFFIC IN ADVERSE WEATHER MAY BE USED AS PART OF PERMANENT BASE CONSTRUCTION OF PAVED AREAS

(SEE DETAILS ON SHEET C-15)

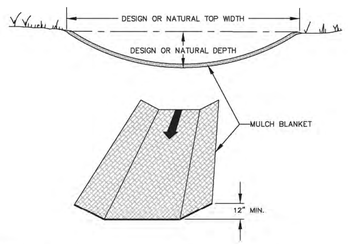
SCALE: 1"=20'	PREPARED FOR: DAVISON & BELSAY, LLC C/O DONOVAN SHANGO 3358 CREEKVIEW DRIVE DAVISON, MI 48423 EMAIL: DONOVAN.SHANGO@YAHOO.COM	PART OF THE NORTHEAST 1/4, SECTION 11, T7N-R7E CITY OF BURTON, GENESEE CO, MI	F&E	Fenton Land Surveying & Engineering, Inc 14165 N. FENTON ROAD, SUITE 101A, FENTON, MI 48430 PHONE: 810.354.8115 EMAIL:INFO@FENTONLSE.COM	SOIL EROSION & SEDIMENTATION CONTROL PLAN: PROPOSED GAS STATION & CONVENIENCE STORE 5516 DAVISON ROAD, BURTON, MI 48509	SHEET NO: C-14
JOB NO. 24-313					REVISIONS 12.08.2025 07.28.2026	DRN. BY: J.R.B. 03.17.2025 DSN BY: J.R.B. " CHK'D BY: J.P.W. " APPR BY: J.B.M. "

FLSE JOBS/24-313/BURTON/SESC PLAN.DWG - C-14

SOIL EROSION & SEDIMENTATION CONTROL DETAILS



TOPSOIL AND SOIL STOCKPILE 1



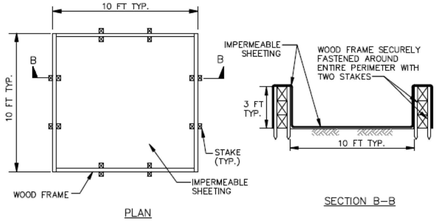
APPLICATIONS

1. STEEP SLOPES.
2. CHANNEL AND ROADSIDE DITCH BOTTOMS.
3. USE SEED AND HIGH VELOCITY MULCH BLANKETS TO STABILIZE THE GRASSED LINED CHANNEL IMMEDIATELY AFTER GRADING (ONE DAY MAX).
4. MUST NOT BE PLACED ON FROZEN SOIL; MUST REMAIN IN IN CONTACT WITH SEED AND SOIL.
5. MUST BE USED DURING THE NON-GROWING SEASON TO MINIMIZE EROSION UNTIL VEGETATION IS ESTABLISHED.

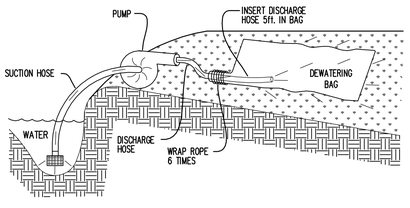
DESIGN

1. FOR DITCHES AND CHANNELS ROLL HIGH VELOCITY MULCH BLANKETS IN THE DIRECTION OF FLOW. DO NOT STRETCH.
2. FASTEN OR PEG MULCH BLANKET PER MANUFACTURERS INSTRUCTIONS.
3. ON BACKSLOPES, BLANKETS SHALL BE PLACED AT RIGHT ANGLES TO ROADBED OR PIPE LINE.
4. OVERLAY ENDS BY 18" AND EDGES BY 4".
5. AT ALL BLANKET EDGES, BURY 6"-10" OF BLANKET IN 3-4" DEEP TRENCH AND COMPACT TRENCH WITH NATIVE SOIL BACKFILL OR MDOT 6AA STONE.

MULCH MATTING BLANKETS 6



CONCRETE WASHOUT AREA DETAIL CW



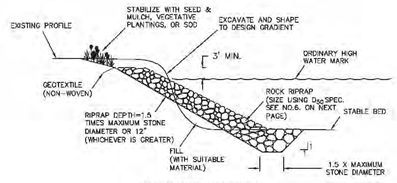
INSTALLATION AND USE:
1. PLACE SILT SACK DEWATERING BAG ON THE GROUND OR ON A TRAILER OVER A RELATIVELY LEVEL, STABILIZED AREA.

2. INSERT DISCHARGE PIPE A MINIMUM OF 5 FEET INSIDE SILT SACK DEWATERING BAG AND SECURE WITH A ROPE WRAPPED 6 TIMES AROUND THE SNOUT OVER A 6 INCH WIDTH OF THE BAG. TO CLOSE OPEN END OF THE DEWATERING TUBE : OVERLAP THE TUBE 2 FT. FROM THE END, GATHER THE CENTER OF THE DOUBLED-UP PORTION FORMING A BOW TIE. SECURE WITH A ROPE WRAPPED MULTIPLE TIMES.

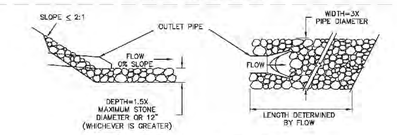
3. REPLACE SILT SACK DEWATERING BAG WHEN HALF FULL OF SEDIMENT OR WHEN THE SEDIMENT HAS REDUCED THE FLOW RATE OF THE PUMP DISCHARGE TO AN IMPRACTICAL AMOUNT, OR; EMPTY SILT SACK WHEN HALF FULL OF SEDIMENT OR WHEN THE SEDIMENT HAS REDUCED THE FLOW RATE OF THE PUMP DISCHARGE TO AN IMPRACTICAL RATE.

MAINTENANCE AND DISPOSAL:
REMOVE AND DISPOSE OF ACCUMULATED SEDIMENT AWAY FROM WATERWAYS OR ENVIRONMENTALLY SENSITIVE AREAS. OPEN DEWATERING BAG AND REMOVE ACCUMULATED SEDIMENT. DISPOSE OF BAG AT AN APPROPRIATE RECYCLING OR SOLID WASTE FACILITY, OR; OPEN BOTH ENDS OF THE DEWATERING TUBE. PICK IT UP IN THE CENTER AND DUMP ACCUMULATED SEDIMENT OUT OF BOTH ENDS. ALLOW TO DRY AND STORE FOR RE-USE, OR; AS DIRECTED BY ENGINEER OR INSPECTOR.

DEWATERING INTO SILT SACK DETAIL DW
(IF REQUIRED)



STREAM BANK APPLICATION



OUTLET POINT APPLICATION

APPLICATIONS

1. WHEN CONCENTRATED WATER FLOWS HAVE THE POTENTIAL TO CREATE SCOUR, EROSION, CUTTING, OR LATERAL CUTTING.
2. TO PREVENT LOSS OF LAND OR DAMAGE TO UTILITIES OR STRUCTURES. IN AQUATIC APPLICATIONS, RIPRAP IS USED TO CONTROL CHANNEL MEANDER AND MAINTAIN CAPACITY, PROTECT AGAINST WAVE ATTACK, AND REDUCE SEDIMENT LOAD.
3. ON SLOPES WITH PROFILES MEASURING 1:1.5 OR LESS.

DESIGN

1. REVIEW SUBJECT SITE TO IDENTIFY AREAS SUBJECT TO CONCENTRATED FLOWS OR WAVE/CURRENT ATTACK.
2. THE AREA UNDER REVIEW FOR RIPRAP PLACEMENT MUST BE SHAPED AND CONTOURED APPROPRIATELY BY GRADING PRIOR TO MATERIAL PLACEMENT.
3. NON-WOVEN GEOTEXTILE FABRIC SHOULD BE INSTALLED PRIOR TO RIPRAP PLACEMENT, WITH UPPER END AND TOE END OF FABRIC BURIED OR ANCHORED TO PREVENT MOVEMENT.
4. RIPRAP PLACEMENT SHOULD BE STARTED AT A STABILIZED LOCATION AND ENDED AT A STABILIZED OR CONTOURED POINT.
5. MATERIAL SELECTED FOR RIPRAP SHOULD BE HARD, ANGULAR, AND RESISTANT TO WEATHERING. APPROPRIATE MATERIAL SIZE DEPENDS ON EXPECTED WATER ENERGY AND INTENDED FUNCTION OF THE MATERIAL.

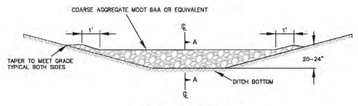
DESIGN (CONT.)

6. RIPRAP MIXTURE SHOULD BE AN EVEN MIXTURE OF STONE SIZES BASED ON THE AVERAGE OF D_{50}. THIS MEANS 50% OF THE STONE, BY SIZE, WILL BE LARGER THAN THE DIAMETER SPECIFIED, AND 50% WILL BE SMALLER THAN THE SIZE SPECIFIED. THE DIAMETER OF THE LARGEST STONE SHOULD NOT BE MORE THAN 1.5 TIMES THE D_{50} STONE SIZE.
7. SEE TABLE ON THE PREVIOUS PAGE FOR TYPICAL RIPRAP STONE SIZES.
8. ROCK SHALL BE PLACED SO THAT LARGER ROCKS ARE UNIFORMLY DISTRIBUTED AND IN CONTACT WITH ONE ANOTHER. SMALLER ROCKS SHOULD FILL THE VOIDS.
9. WHEN IN CONTACT WITH MOVING WATER, RIPRAP WILL TIE INTO A STABLE BANK AT THE DOWNSTREAM END AND WILL BE KEYED INTO THE BANK AT THE UPSTREAM END. RIPRAP SHOULD EXTEND 3 FT. ABOVE THE ORDINARY HIGH WATER MARK OR TO THE TOP OF THE BANK ON SHORT SLOPES. EXTEND RIPRAP A MINIMUM 10 FT. BEYOND ACTIVE EROSION AREA.

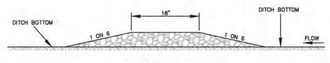
SIZE OF TYPICAL RIPRAP STONES

Weight (lbs.)	Average Spherical Diameter (D_{50})	Typical Rectangular Shape	
		Length (in.)	Width/Height (in.)
50	10	18	6
100	13	21	7
150	14	24	8
300	18	30	10
500	22	36	12
1000	27	45	15
1500	31	52	17
2000	34	57	19
4000	43	72	24
6000	48	83	28
8000	54	90	30

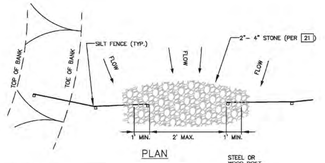
RIPRAP, RUBBLE, GABIONS 13 & 15



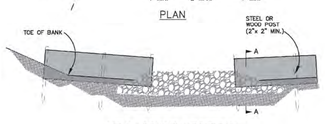
DITCH CROSS SECTION



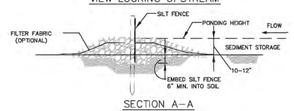
SECTION A – A



PLAN

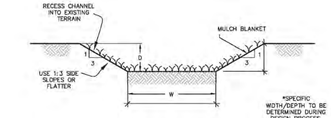


VIEW LOOKING UPSTREAM



SECTION A–A

STONE FILTER BERM 21 & 21A



CHANNEL CROSS-SECTION

APPLICATIONS

1. WHEN SURFACE FLOW VELOCITIES WITHIN A CREATED STORMWATER CHANNEL HAVE THE POTENTIAL TO CAUSE EROSION.
2. TO SLOW WATER VELOCITY AND REDUCE EROSION AND SEDIMENT LOADING IN THE STORMWATER CHANNEL.
3. FOR USE IN CONSTRUCTED DRAINAGEWAYS WHERE RUN-OFF MAY CAUSE EROSION.

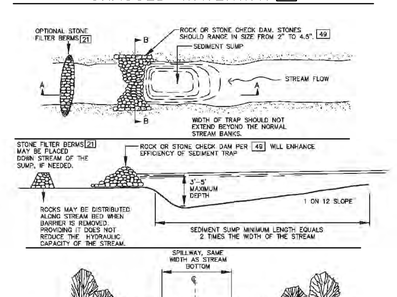
DESIGN

1. REVIEW SUBJECT SITE TO IDENTIFY CHANNEL AREAS POTENTIALLY SUSCEPTIBLE TO HIGH FLOWS, EROSIVE VELOCITIES OR FLOODING.
2. CONSULT A PROFESSIONAL LANDSCAPE ARCHITECT, PROFESSIONAL ENGINEER OR CPESC REGARDING CONSIDERATIONS OF CHANNEL DESIGN BASED ON WATER VELOCITY, CHANNEL SLOPE, DISCHARGE VOLUME AND SOIL TYPE.
3. GENERAL CAPACITY REQUIREMENTS SHOULD ALLOW FOR CONVEYANCE OF A 10-YEAR, 24-HOUR RAIN EVENT AT A MINIMUM.
4. CHANNEL SHAPE SHOULD EITHER BE PARABOLIC ( ) OR, ( ) TRAPEZOIDAL. V-SHAPED CHANNELS ARE NOT RECOMMENDED AS THEY FORM GULLIES AND INCREASE THE EROSION POTENTIAL.
5. ALL VEGETATED CHANNELS SHOULD HAVE A DEPTH OF ONE FOOT OR MORE.

DESIGN (CONT)

6. EXCAVATE OR GRADE CHANNEL SURFACE ACCORDING TO DESIGN. LOCATE CHANNELS IN NATURAL TOPOGRAPHIC DEPRESSIONS WHERE POSSIBLE. RECESS CHANNEL INTO EXISTING GRADE SO THAT CHANNEL TOP IS FLUSH WITH ADJACENT GRADE.
7. DETERMINE VEGETATIVE SPECIES BASED ON THE DEPTH TO WATER TABLE, CLIMATE, ANTICIPATED FLOW VELOCITIES, AND FINAL MANAGED LENGTH OF VEGETATION. UTILIZE NATIVE SPECIES FOR VEGETATION PURPOSES.
8. IN CHANNELS TO BE SEEDED, PREPARE SEEDBED, APPLY SEED, AND INSTALL MULCH BLANKET/TRM.
9. IN CHANNELS PLANTED WITH VEGETATIVE PLUGS OR SEEDLINGS, PREPARE CHANNEL AND INSTALL MULCH BLANKET/TRM.
10. NOT RECOMMENDED TO USE DORMANT SEEDINGS DUE TO HIGH FAILURE RATE.
11. ESTABLISH VEGETATED CHANNEL PRIOR TO PERIODS OF HIGH RUN-OFF.
12. PRIOR TO CONSTRUCTION WORK IN AREA SURROUNDING CHANNEL, ALLOW VEGETATION IN CHANNEL TO ESTABLISH.
13. CHECK DAMS OR VELOCITY DISSIPATERS MAY BE NEEDED UNTIL VEGETATION IS ESTABLISHED.

GRASSED WATERWAY 24



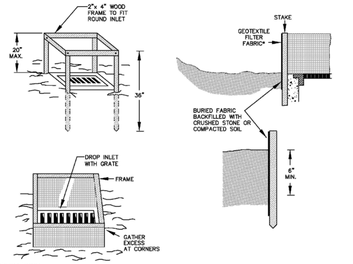
APPLICATION

1. FLOWING STREAMS.

DESIGN

1. TRAP DESIGN FOR APPROXIMATELY 170 FT^3 OF SEDIMENT.
2. REMOVED SEDIMENT AND RESTORE ORIGINAL CAPACITY WHEN SUMP IS 50% FULL.
3. STONE SHALL BE MAINTAINED AND REPAIRED WHEN DAMAGE OR DISPLACED.
4. WARNING: THIS DEVICE MAY CAUSE FLOODING OF ADJACENT PROPERTY.

SEDIMENT TRAP DETAIL 33



APPLICATIONS

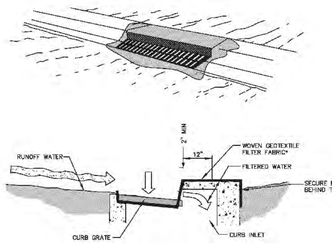
1. INLETS WITH DRAINAGE OF 1 ACRE OR LESS AND SLOPES LESS THEN 5%
2. SERVICE, CLEAN AND REPAIR AFTER EACH STORM EVENT.

* NOTE *
DO NOT USE SILT FENCE IN LIEU OF FILTER FABRIC FOR THIS APPLICATION.

DESIGN

1. FILTER BAGS MAY BE PLACED IN THE MANHOLE TO INCREASE THE EFFECTIVENESS OF THIS DEVICE.
2. IN SOME CASES FILTER BAGS IN THE MANHOLE MAY BE USED ALONE.
3. WARNING: THIS DEVICE MAY CAUSE FLOODING OF ADJACENT PROPERTY.
4. TOP OF FRAME (PONDING HEIGHTS) MUST BE LOWER THAN GROUND ELEVATION DOWN STREAM TO PREVENT BYPASSING THE INLET. A TEMPORARY DIKE MAY BE NECESSARY DOWN SLOPE OF THE STRUCTURE.

DRAINAGE STRUCTURE PROTECTION 36



APPLICATION

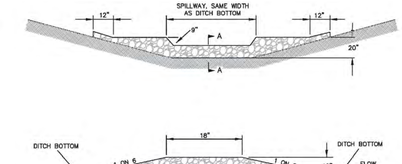
1. INLETS AT CURB OPENINGS.

* NOTE *
DO NOT USE SILT FENCE IN LIEU OF FILTER FABRIC FOR THIS APPLICATION.

DESIGN

1. FILTER BAGS MAY BE PLACED IN THE CATCH BASIN AS AN ALTERNATE.
2. WARNING: THIS DEVICE MAY CAUSE FLOODING OF ADJACENT PROPERTIES.
3. SERVICE CLEAN AND REPAIR AFTER EACH STORM EVENT.

DRAINAGE INLET PROTECTION 36



SECTION A – A

APPLICATION

1. ACROSS DITCH LINES AND LOW CONCENTRATED FLOW AREAS.

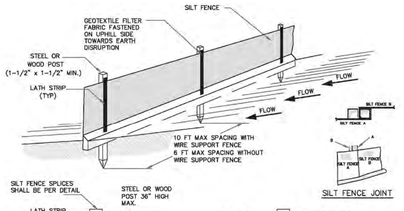
DESIGN

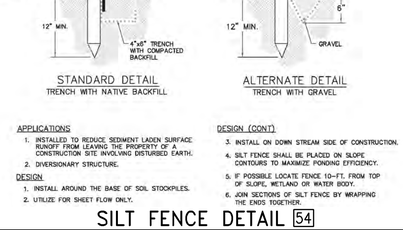
1. CHECK DAM STONES:
   2" TO 4" SIZE FOR DITCH GRADE LESS THAN 2%
   3" TO 8" SIZE FOR DITCH GRADES 2% OR GREATER.
2. APPROXIMATELY 60% OF STONE SIZE SHALL BE BETWEEN THE RANGES INDICATED. NO STONES GREATER THAN 8" SHALL BE ALLOWED.
3. SEDIMENT TRAPS MAY BE INSTALLED IMMEDIATELY UP SLOPE TO INCREASE ABILITY TO COLLECT SEDIMENT.
4. IF MULTIPLE CHECK DAMS ARE USED, THE GENERAL GUIDE TO SPACING IS THAT THE CREST OF THE DOWN SLOPE CHECK DAM SHOULD EQUAL THE ELEVATION OF THE TOE OF THE UP SLOPE CHECK DAM.

DESIGN (CONT)

5. CHECK DAMS SHALL BE REMOVED IN THEIR ENTIRETY WHEN THE SOIL IS ADEQUATELY STABILIZED. ANY DAMAGE CAUSED DURING REMOVAL MUST BE REPAIRED. IF DIRECTED BY THE ENGINEER/OWNER, CHECK DAMS MAY BE SPREAD OUT ON THE DITCH LOCATION PROVIDING THAT THE DITCH BOTTOM ELEVATION IS NOT INCREASED BY MORE THAN 6".
6. STONE SHALL BE MONITORED AND REPAIRED WHEN DAMAGED OR DISPLACED.
7. ALTERNATE: A MANUFACTURED BERM CAN INSTALLED IF APPROVED BY WMS. SPACING TO BE PER MANUFACTURER'S RECOMMENDATION.
8. WARNING THIS DEVICE MAY CAUSE FLOODING OF ADJACENT PROPERTY.

CHECK DAMS 49





APPLICATIONS

1. INSTALLED TO REDUCE SEDIMENT LADEN SURFACE RUNOFF FROM LEAVING THE PROPERTY OF A CONSTRUCTION SITE INVOLVING DISTURBED EARTH.
2. DIVERSIONARY STRUCTURE.

DESIGN

1. INSTALL AROUND THE BASE OF SOIL STOCKPILES.
2. UTILIZE FOR SHEET FLOW ONLY.

DESIGN (CONT)

3. INSTALL ON DOWN STREAM SIDE OF CONSTRUCTION.
4. SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.
5. IF POSSIBLE LOCATE FENCE 10–FT. FROM TOP OF SLOPE, WETLAND OR WATER BODY.
6. JOIN SECTIONS OF SILT FENCE BY WRAPPING THE ENDS TOGETHER.

SILT FENCE DETAIL 54

STEEL END SECTION W/ANIMAL GUARD ES

SOIL EROSION & SEDIMENTATION CONTROL CONSTRUCTION OPERATION TIME SCHEDULE														
CONSTRUCTION SEQUENCE	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEP	OCT	NOV	DEC	YEAR	NOTES
TEMPORARY CONTROL MEASURES													25/26	
CRUSHED CONCRETE ACCESS DRIVE													2025	
STRIP & STOCKPILE TOPSOIL													2025	
ROUGH GRADE SITE													25/26	
UNDERGROUND UTILITY CONSTRUCTION													25/26	
DRIVE/PARKING INSTALLATION													2026	
BUILDING/CANOPY CONSTRUCTION													25/26	
FINISH/FINAL SITE GRADING													2026	
PERMANENT CONTROL MEASURES													2026	
LANDSCAPING													2026	

SITE SEEDING NOTES:

SITE PREPARATION:

1. CONSIDER PROTECTING SEEDED AREAS FROM PEDESTRIAN ACCESS.

2. WHERE POSSIBLE, DIVERT CONCENTRATED FLOWS AWAY FROM THE SEEDED AREA AT LEAST UNTIL THE VEGETATION IS ESTABLISHED.

3. SOIL TESTS SHOULD BE DONE TO DETERMINE THE NUTRIENT AND PH CONTENT OF THE SOIL. DEPENDING ON THE RESULTS OF SOIL TESTS, SOIL MANAGEMENT MAY BE NECESSARY TO ADJUST THE PH TO BETWEEN 6.5 AND 7.0 (FOR MOST CONDITIONS). NOTE THAT SANDY LOAM, LOAM, AND SILT LOAM ARE THE PREFERRED SOILS FOR SEEDING. CONSIDERATION SHOULD BE GIVEN TO INCORPORATING THESE SOILS INTO THE SEEDBED.

4. PREPARE A 3–5–INCH DEEP SEEDBED, WITH THE TOP 3–4 INCHES CONSISTING OF TOPSOIL. NOTE THAT THE EARTH BED UPON WHICH THE TOPSOIL IS TO BE PLACED SHOULD BE AT THE REQUIRED GRADE.

5. THE SEEDBED SHOULD BE FIRM BUT NOT COMPACT. THE TOP THREE INCHES OF SOIL SHOULD BE LOOSE, MOIST AND FREE OF LARGE CLODS AND STONES. FOR MOST APPLICATIONS, ALL STONES LARGER THAN 2 INCHES IN DIAMETER, ROOTS, LITTER AND ANY FOREIGN MATTER SHOULD BE RAKED AND REMOVED. THE TOPSOIL SURFACE SHOULD BE IN REASONABLY CLOSE CONFORMITY TO THE LINES, GRADES AND CROSS SECTIONS SHOWN ON THE GRADING PLANS.

SITE PLANTING NOTES:

PLANTING:

1. SEED SHOULD BE APPLIED AS SOON AFTER SEEDBED PREPARATION AS POSSIBLE, WHEN THE SOIL IS LOOSE AND MOIST. IF THE SEEDBED HAS BEEN IDLE LONG ENOUGH FOR THE SOIL TO BECOME COMPACT, THE TOPSOIL SHOULD BE HARROWED WITH A DISK, A SPRING TOOTH DRAG, A SPIKE TOOTH DRAG, OR OTHER EQUIPMENT DESIGNED TO CONDITION THE SOIL FOR SEEDING.

2. ALWAYS APPLY SEED BEFORE MULCH.

3. APPLY SEED AT THE RATES SPECIFIED IN THE ATTACHED EXHIBITS USING CALIBRATED SPREADERS, CYCLONE SEEDERS, MECHANICAL DRILLS, OR HYDROSEEDERS.

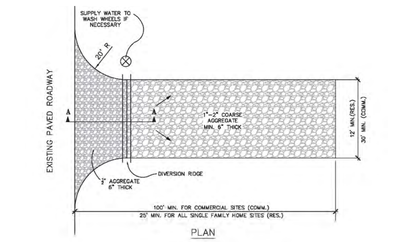
4. IDEALLY, BROADCAST SEED SHOULD BE INCORPORATED INTO THE SOIL BY RAKING OR CHAIN DRAGGING, OR OTHERWISE FLOATED, THEN LIGHTLY COMPACTED TO PROVIDE GOOD SEED–SOIL CONTACT.

5. FOR HYDROSEEDING OPERATIONS:

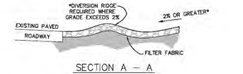
– SEED SHOULD BE APPLIED AT RECOMMENDED RATES. IF NO RATES ARE GIVEN, USE 220–240 LBS/ACRE.

– USE 3 TONS/ACRE STRAW MULCH, UNLESS OTHERWISE RECOMMENDED. USE 3 TONS/ACRE WHEN DORMANT.

6. ALL NEWLY SEEDED AREAS SHOULD BE PROTECTED FROM EROSIVE FORCES BY MULCH BLANKETS.



PLAN



SECTION A – A

APPLICATIONS

1. ASSISTS IN REMOVING SOIL FROM THE TIRES OF CONSTRUCTION EQUIPMENT/VEHICLES WHEN EXITING THE CONSTRUCTION SITE. THIS REDUCES TRACKING EXCESSIVE SEDIMENT/SOIL ONTO THE ADJACENT ROAD.

DESIGN

1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS–OF–WAY. THIS MAY REQUIRE TOP

DESIGN (CONT)

DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.

2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ON PUBLIC RIGHTS–OF–WAY.
3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.

TRACKING MAT ACCESS DRIVE & PARKING/STAGING AREA 60

FILE: JOBS/24-313/BURTON/PROP GAS STA – SESC DTL.DWG – C-15

SCALE: NONE

JOB NO. 24–313

PREPARED FOR:
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3358 CREEKVIEW DRIVE
DAVISON, MI 48423 EMAIL: DONOVAN.SHANGO@YAHOO.COM

PART OF THE NORTHEAST 1/4, SECTION 11, T7N–R7E CITY OF BURTON, GENESEE CO, MI

Fenton Land Surveying & Engineering, Inc
14165 N. FENTON ROAD, SUITE 101A, FENTON, MI 48430
PHONE: 810.354.8115 EMAIL:INFO@FENTONLSE.COM

SOIL EROSION & SEDIMENTATION CONTROL DETAILS FOR:
PROPOSED GAS STATION & CONVENIENCE STORE
5516 DAVISON ROAD, BURTON, MI 48509

REVISIONS	DRN. BY:	J.R.B.	11.25.2024
12.08.2025	DSN BY:	J.R.B.	"
07.28.2026	CHK'D BY:	J.P.W.	"
	APPR BY:	J.P.W.	"

SHEET NO: C-15