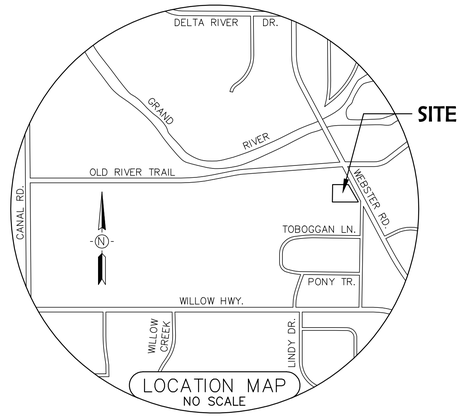
DELTA MILLS PARK RESTROOM RENOVATION

DELTA CHARTER TOWNSHIP

TF #19-0069



OWNER:
DELTA CHARTER TOWNSHIP
7710 WEST SAGINAW HWY
LANSING, MI 48917

LANDSCAPE ARCHITECT / CIVIL ENGINEER:
VIRIDIS DESIGN GROUP
2926 WEST MAIN STREET
KALAMAZOO, MI 49006

ARCHITECT:
MAYOTTE GROUP
6240 W MT HOPE HWY
LANSING, MI 48917

BUILDING M/E/P ENGINEERS:
CLARK TROMBLEY RANDERS
504 S CREYTS ROAD, SUITE B
LANSING, MI 48917

SHEET INDEX

GENERAL NOTES

APPLICABLE TO ALL SHEETS

1. ALL UTILITY LOCATIONS SHOWN ARE APPROXIMATE. CALL "MISS DIG" AND VERIFY ALL UNDERGROUND UTILITIES BEFORE EXCAVATION AT THE SITE. ANY UTILITIES DISTURBED BY CONSTRUCTION SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE. USE PRIVATE UTILITY LOCATOR SERVICE FOR ANY UTILITIES MISS DIG WILL NOT TRACE.

2. ANY DISCREPANCIES BETWEEN THESE PLANS AND ACTUAL FIELD CONDITIONS SHOULD BE REPORTED TO THE OWNER'S REPRESENTATIVE IMMEDIATELY FOR RESOLUTION.

3. EROSION SHALL BE CONTROLLED AS SPECIFIED AND AS REQUIRED BY LOCAL, STATE OR FEDERAL AUTHORITIES HAVING JURISDICTION.

4. ALL DIMENSIONS ARE GIVEN TO OUTSIDE EDGE OF CURB OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED. ALL RADII ARE 5' UNLESS OTHERWISE NOTED.

5. ALL UNPAVED AREAS DISTURBED BY CONSTRUCTION SHALL RECEIVE 6" TOPSOIL AND ESTABLISH LAWN PER SPECIFICATIONS. SUPPLEMENT WITH IMPORTED TOPSOIL AS REQUIRED TO PROVIDE 6" DEPTH.

6. PROVIDE EXPANSION JOINTS IN NEW CONCRETE WALKS AND CURBS AT 50' MAXIMUM SPACING (AS SHOWN) AND CONTROL JOINTS AS SHOWN ON PLANS. PROVIDE EXP. JOINTS WHERE NEW CONCRETE MEETS EXISTING CONCRETE OR OTHER STRUCTURES.

7. ALL EXISTING VALVE BOXES, STORM AND SANITARY STRUCTURES TO REMAIN WITHIN THE AREA UNDER CONSTRUCTION SHALL BE ADJUSTED TO NEW FINISH GRADE ELEVATIONS.

8. THE EXISTING AND PROPOSED STORM DRAINAGE SYSTEM SHALL BE CLEANED AND FREE FROM SEDIMENT AT THE END OF CONSTRUCTION.

BARRIER-FREE NOTES

APPLICABLE TO ALL C-SERIES SHEETS

BARRIER-FREE PARKING AND ACCESSIBLE ROUTE(S) MUST COMPLY WITH THE AMERICANS WITH DISABILITIES ACT, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

- 1:50 (2%) MAXIMUM CROSS-SLOPE ON ACCESSIBLE ROUTE.
- NO CHANGES IN LEVEL GREATER THAN 1/2" ALONG ACCESSIBLE ROUTE.
- 1:20 (5%) MAXIMUM LONGITUDINAL SLOPE ON ACCESSIBLE ROUTE (EXCEPT WHERE RAMPS ARE PROVIDED).
- 1:50 (2%) MAXIMUM SLOPE (IN ANY DIRECTION) IN B.F. PARKING AND ACCESS AISLES.

LEGAL DESCRIPTION:
(As provided in Tax ID: 040-003-400-150-00)
West 1/2 of the Southeast fractional 1/4 lying West of Armstrong Road and South of Old River Trail, except Commencing at the Southwest corner, N00°04'35"W 1016.98 feet, S89°39'50"E 1209.29 feet, S00°20'10"W 1012 feet, West 1202.33 feet to beginning, Section 3, T4N, R3W, Delta Township, Eaton County, Michigan

MAYOTTE group ARCHITECTS
CLARK TROMBLEY RANDERS CONSULTING ENGINEERS

VIRIDIS Design Group
2926 West Main Street, Kalamazoo, MI 49006
(269) 978-5143 www.viridg.com

COVER SHEET

DELTA MILLS PARK
RESTROOM RENOVATION - TF #19-0069
DELTA CHARTER TOWNSHIP
DELTA TOWNSHIP, MICHIGAN

Revisions

ISSUED FOR BIDS - 01/11/2023

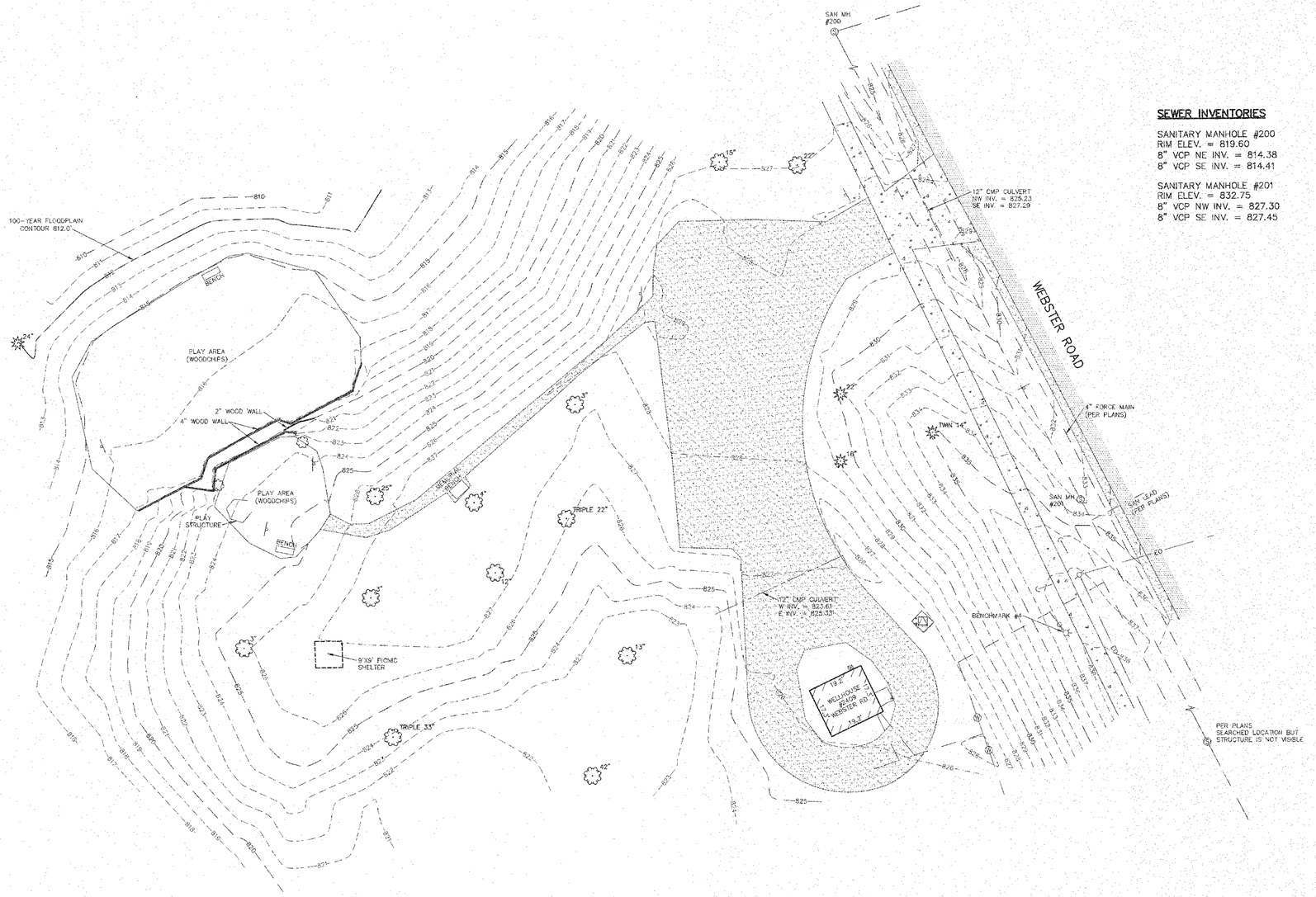
Sheet

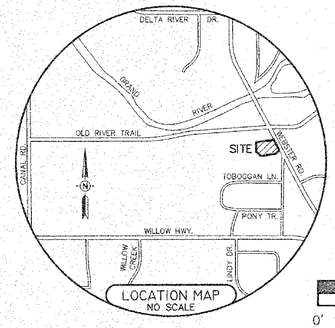
COV

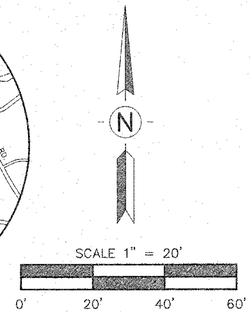
TOPOGRAPHIC SURVEY

FOR: VIRIDIS DESIGN GROUP

"DELTA MILLS PARK"







SEWER INVENTORIES

SANITARY MANHOLE #200
RIM ELEV. = 819.60
8" VCP NE INV. = 814.38
8" VCP SE INV. = 814.41

SANITARY MANHOLE #201
RIM ELEV. = 832.75
8" VCP NW INV. = 827.30
8" VCP SE INV. = 827.45

BENCHMARKS

BENCHMARK #3 ELEV. = 822.21 (NAVD88)
SOUTHWEST FLANGE BOLT, UNDER "A" IN "USA", FIRE HYDRANT, SOUTHWEST QUADRANT OF INTERSECTION OF OLD RIVER TRAIL AND WEBSTER ROAD.

BENCHMARK #4 ELEV. = 838.77 (NAVD88)
NORTHWEST FLANGE BOLT, FIRE HYDRANT, SOUTHWEST SIDE OF WEBSTER ROAD, 67' ENE OF SOUTHEAST CORNER OF WELLHOUSE #2409 WEBSTER ROAD.

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SURVEYOR'S NOTES:

1. This plan was made at the direction of the parties named hereon and is intended solely for their immediate use. Survey prepared from fieldwork performed in November 2017.

2. All dimensions are in feet and decimals thereof.

3. All elevations are North American Vertical Datum of 1988 (NAVD88).

4. No property lines were determined or monumented for this survey.

5. By scaled map location and graphic plotting only, this property lies within Flood Zone "AE", areas within the 100-year floodplain, and areas withing the 500-year floodplain, according to the National Flood Insurance Program, Flood Insurance Rate Map for Delta Charter Township, Eaton County, Michigan, Community Panel No. 260066 0094 E, dated November 26, 2010. Base 100-year flood elevation is determined to be 812.0' and is shown on the survey map.

6. Utility information as shown was obtained from available public records and from supporting field observations, where possible, and is subject to verification in the field by the appropriate authorities prior to use for construction.

LEGEND

●	= SET 1/2" BAR WITH CAP	(S)	= SANITARY MANHOLE
□	= FOUND IRON AS NOTED	(D)	= DRAINAGE MANHOLE
———	= DEED LINE	▦	= CATCHBASIN
——\———	= DISTANCE NOT TO SCALE	o_{CO}	= SANITARY CLEANOUT
-x-x-x-	= FENCE	⊄	= FIRE HYDRANT
▭	= ASPHALT	⊗	= VALVE
▭	= CONCRETE	⌀	= UTILITY POLE
▭	= GRAVEL	☼	= LIGHT POLE
+860	= EXISTING SPOT ELEVATION	⟵	= GUY WIRE
860	= EXISTING CONTOUR ELEVATION	⊠	= UTILITY PEDESTAL
— — —	= SANITARY SEWER	△	= TRANSFORMER
— — —	= STORM SEWER	⊟	= HANDHOLE
— — —	= WATER LINE	⊞	= ELECTRIC METER
—EO—	= OVERHEAD WIRES	⊠	= GAS METER
	= DECIDUOUS TREE	⊞	= WATER METER
	= CONIFEROUS TREE	—▫—	= SIGN
	= BUSH	◦	= POST

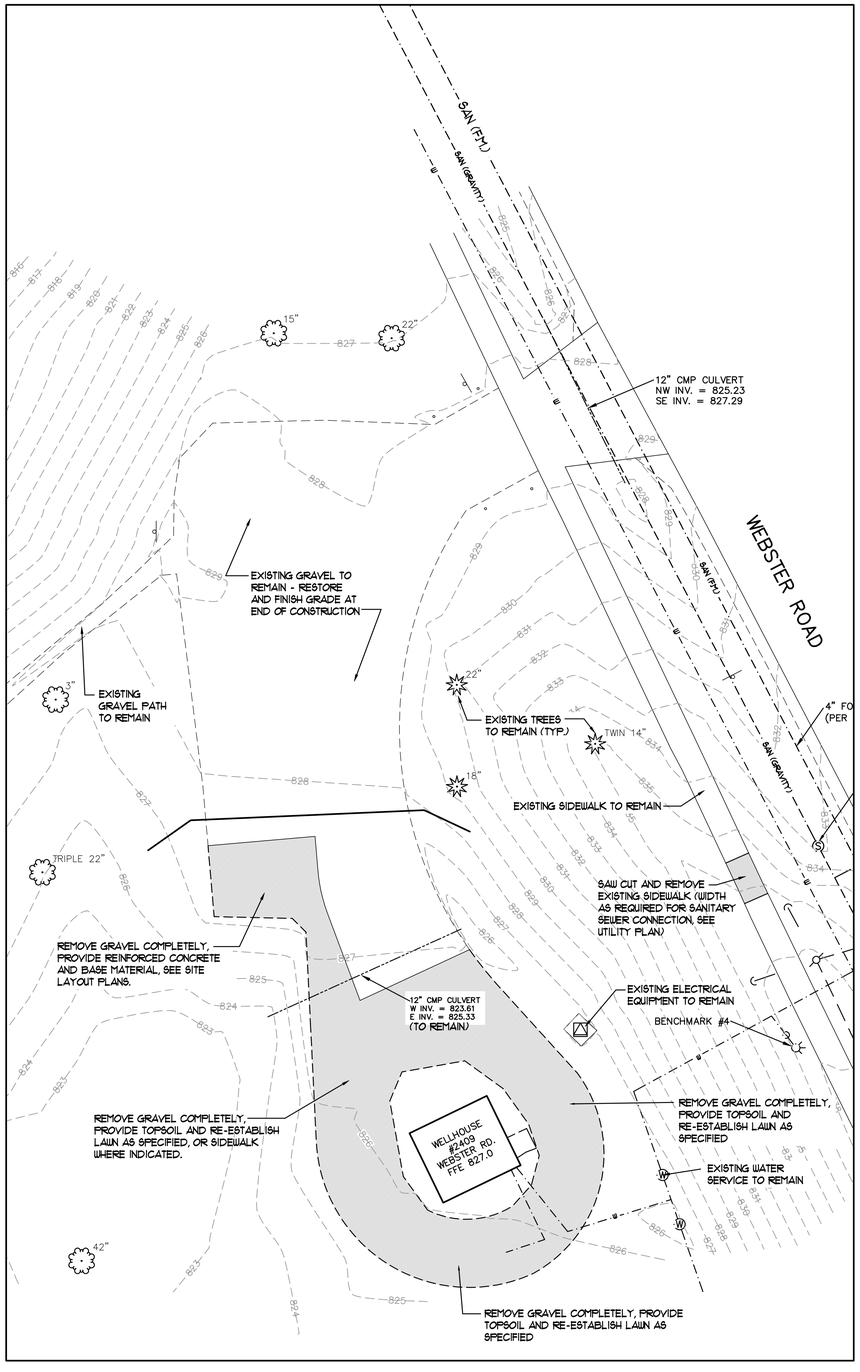
SP-0

ERICK R. FRIESTROM 11/15/17
PROFESSIONAL SURVEYOR NO. 53497 DATE

REVISIONS	COMMENTS
11/15/2017	ORIGINAL

KEBS, INC. ENGINEERING AND LAND SURVEYING
2116 HASLETT ROAD, HASLETT, MI 48840
PH. 517-339-1014 FAX 517-339-8047
WWW.KEBS.COM
Marshall Office – Ph. 269-781-9800

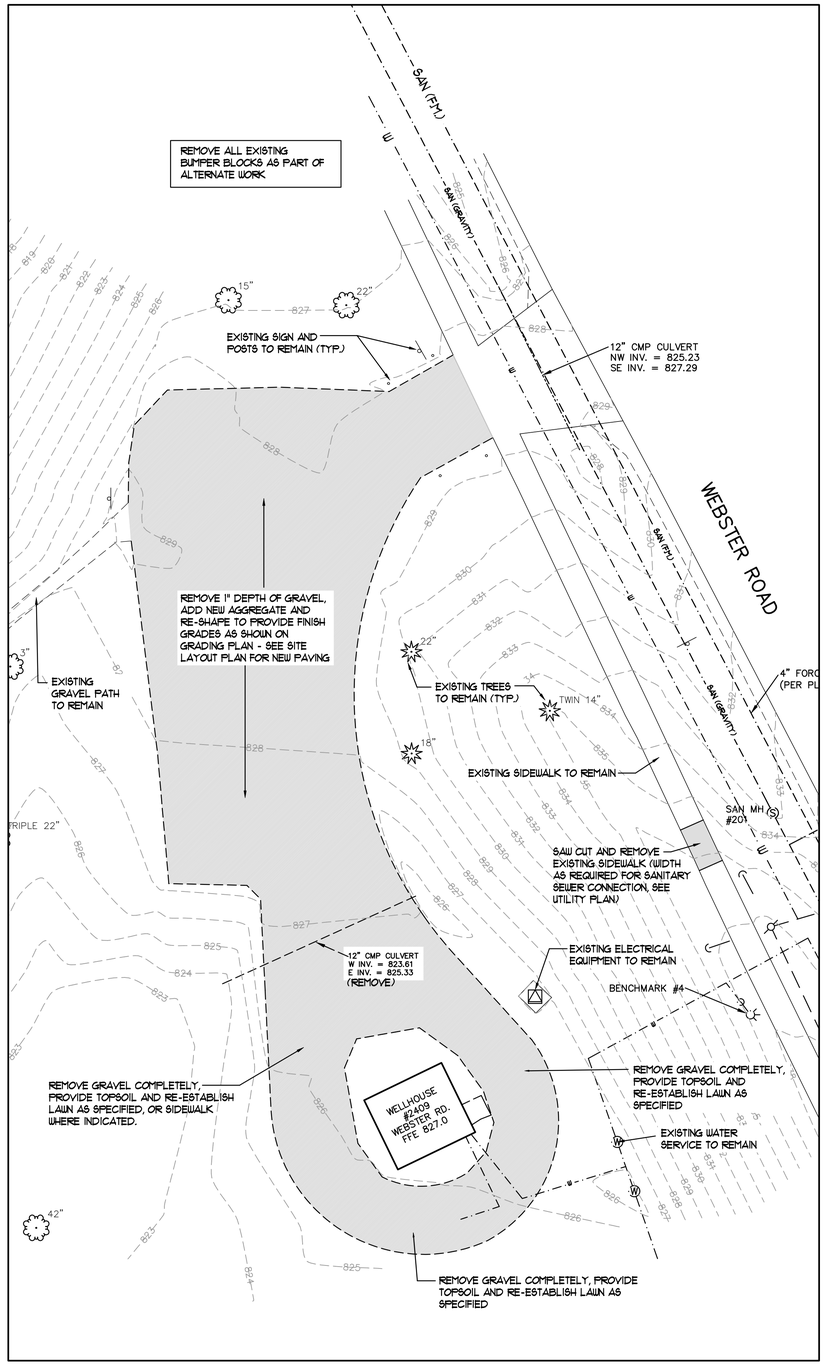
DRAWN BY SSF	SECTION 3, T4N, R3W
FIELD WORK BY SW	JOB NUMBER: 92934.TOP
SHEET 1 OF 1	



SITE DEMOLITION PLAN - BASE BID

0 16 80

SCALE IN FEET



SITE DEMOLITION PLAN - ALTERNATE #1

0 16 80

SCALE IN FEET

BENCHMARKS

BENCHMARK #3

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SITE DEMOLITION PLAN

DELTA MILLS PARK
RESTROOM RENOVATION - TF #19-0069
DELTA CHARTER TOWNSHIP
DELTA TOWNSHIP, MICHIGAN

Revisions

ISSUED FOR BIDS - 01/11/2023

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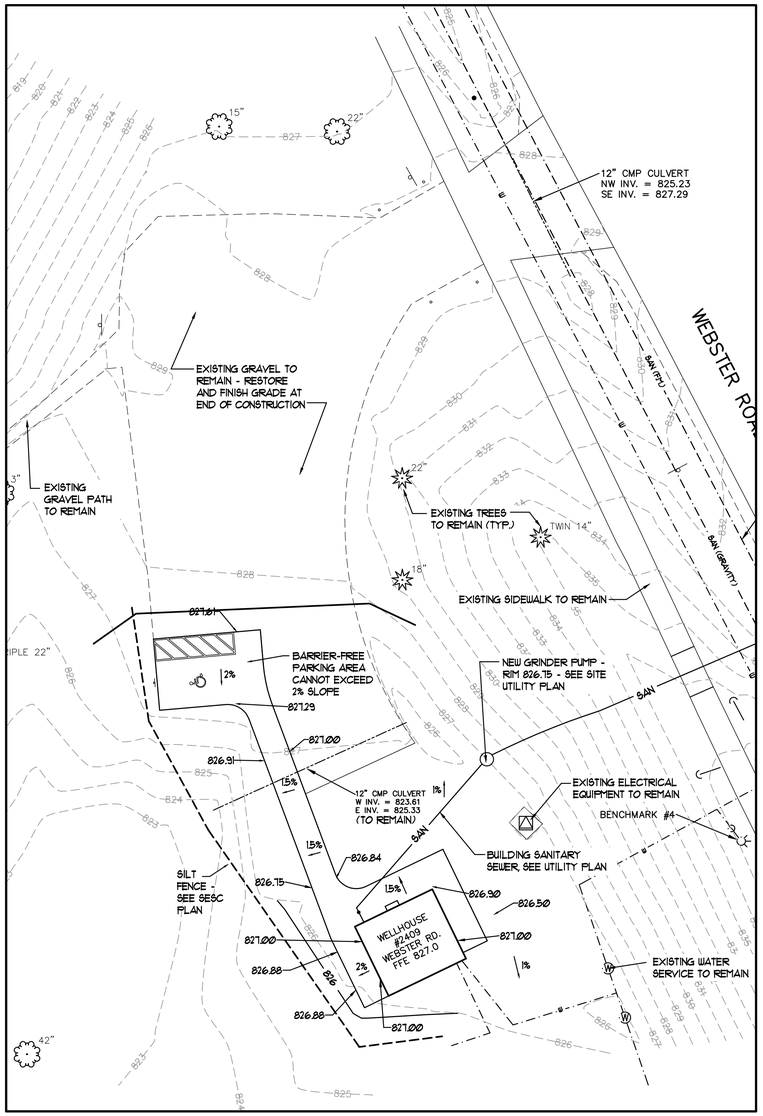
STORM STRUCTURE SCHEDULE - ALT #1

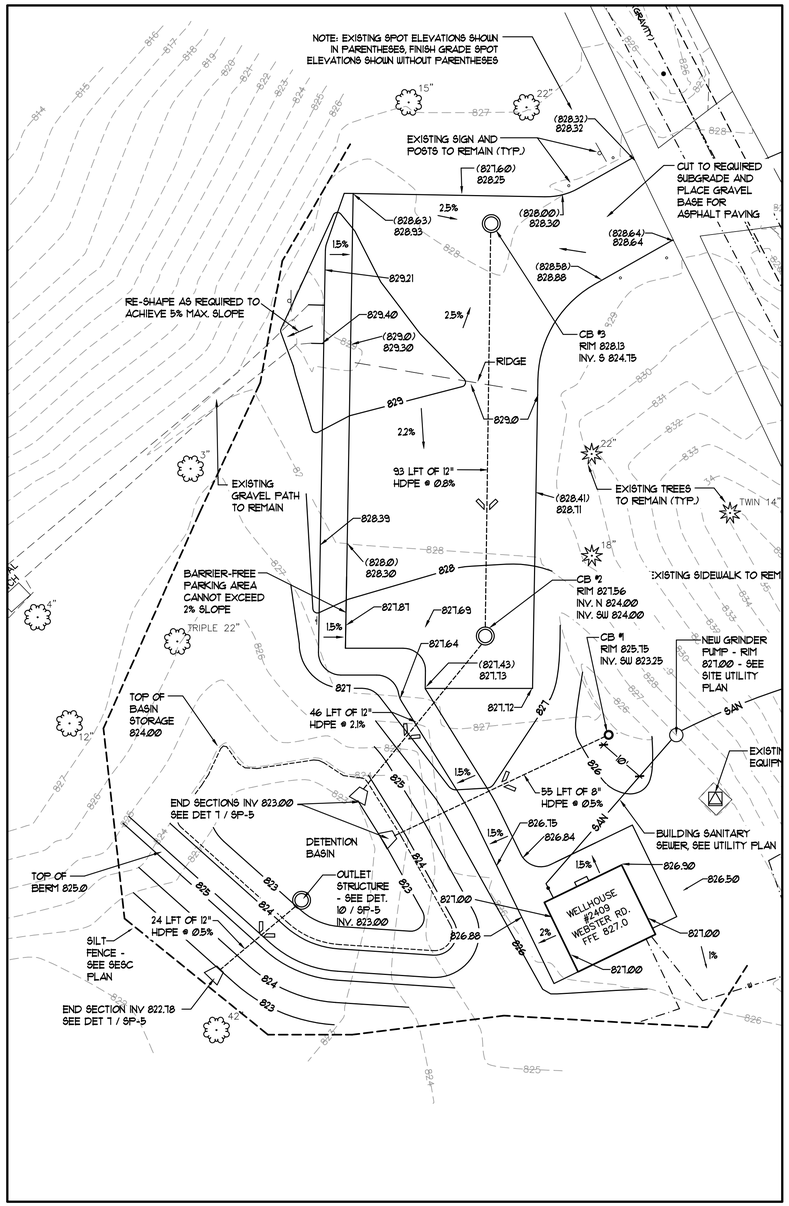
KEY	DESCRIPTION	* CASTING	DETAIL
CB #1	2' DIA. PRECAST CONC. STRUCTURE	EJIW 1130-M1	9 / SP-5
CB #2	4' DIA. PRECAST CONC. STRUCTURE	EJIW 1040-M1	8 / SP-5
CB #3	4' DIA. PRECAST CONC. STRUCTURE	EJIW 1040-M1	8 / SP-5

* CASTINGS BY EAST JORDAN IRON WORKS OR APPROVED EQUAL



SITE GRADING PLAN - BASE BID

0 16 80
SCALE IN FEET



SITE GRADING PLAN - ALTERNATE #1

0 16 80
SCALE IN FEET

IMPORTANT NOTES:

GENERAL EARTHWORK NOTES:

1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE REQUIRED EARTHWORK VOLUMES BASED ON THE GRADING PLAN. IF FILL IS REQUIRED FOR ESTABLISHMENT OF SUBGRADES FOR STRUCTURES, PAVEMENTS, ETC, THE CONTRACTOR SHALL INCLUDE THE REQUIRED VOLUME OF IMPORTED CLASS II ENGINEERED FILL. ON-SITE TOPSOIL MAY BE USED AS FILL IN LANDSCAPE AREAS ONLY. IF EXCESS OR UNSUITABLE SOILS NEED TO BE SPOILED, THE CONTRACTOR SHALL INCLUDE IN THE BID HAULING SOILS TO THE TOWNSHIP OWNED PARCEL AT THE NORTHEAST CORNER OF CANAL AND OLD RIVER TRAIL (JUST WEST OF THE PARK) AND SPOILING. ANY SPOIL AREAS SHALL BE CONFIRMED WITH THE OWNER, PROTECTED FROM EROSION, SEEDED AND MULCHED, WITH SLOPES NOT TO EXCEED 1V:6H. NO CONTRACT COST ADJUSTMENTS WILL BE CONSIDERED FOR EARTHWORK REQUIRED TO ACHIEVE THE FINISH GRADES SHOWN.

ANY ADDITIONAL WORK (IF REQUIRED AND AS DIRECTED BY THE OWNER'S TESTING AGENT) TO IMPROVE INTIAL SUBGRADES WHICH DO NOT PASS A PROOFROLL WILL BE PAID FOR ACCORDING TO CONTRACT PROVISIONS FOR CHANGES IN THE WORK. INITIAL SUBGRADE IS DEFINED AS THE SURFACE OR ELEVATION REMAINING AFTER COMPLETING TOPSOIL REMOVAL AND EXCAVATION, PRIOR TO PLACING ANY FILL. NO CONTRACT COST ADJUSTMENTS WILL BE CONSIDERED FOR SUBGRADES WHERE FILL HAS BEEN PLACED BY THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTION OF INITIAL SUBGRADES AFTER PROOFROLLING AND FOR ACHIEVING SPECIFIED COMPACTION OF ALL FILL AND BACKFILL MATERIALS.

2. THE CONTRACTOR IS REQUIRED TO CONDUCT ALL EARTH MOVING OPERATIONS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

GROUNDWATER CONTROL: THE CONTRACTOR SHALL INCLUDE ALL WORK NECESSARY FOR CONTROL OF TEMPORARY OR PERCHED GROUNDWATER TO ALLOW THE CONSTRUCTION OF THE WORK AS SHOWN.

SOIL MOISTURE CONTROL: CONTRACTOR SHALL CONTROL SOIL MOISTURE AS REQUIRED TO ACHIEVE SPECIFIED COMPACTION. CONTRACTOR SHALL ANTICIPATE AERATION, DISCING OR DRYING OF SOILS WILL BE REQUIRED AND THIS WORK SHALL BE INCIDENTAL TO THE BASE BID CONTRACT.

PROOFROLLING: AFTER CUTS ARE MADE TO SUBGRADE ELEVATIONS, THE INITIAL SUBGRADE SHALL BE PROOFROLLED IN THE PRESENCE OF THE OWNER'S TESTING AGENT, DURING APPROPRIATE WEATHER CONDITIONS. CONTRACTOR SHALL DISC, AERATE, RECOMPACT AND RE-PROOFROLL AREAS THAT FAIL THE FIRST PROOFROLL, IF ANY. IF IMPROVEMENTS ARE REQUIRED TO THE INITIAL SUBGRADE AFTER THE SECOND PROOFROLL, THIS WORK WOULD BE DIRECTED BY THE TESTING AGENT AND PAID FOR ACCORDING TO CONTRACT REQUIREMENTS FOR CHANGES IN THE WORK.

ENGINEERED FILL: OBTAIN THE TESTING AGENT'S APPROVAL OF ENGINEERED FILL COMPACTION. REFER TO NOTES ABOVE REGARDING GROUNDWATER AND SOIL MOISTURE CONTROL.

REFER TO THE SPECIFICATIONS FOR FULL EARTHWORK REQUIREMENTS.

3. ALL NEW SIDEWALKS AND PAVEMENTS SHALL BE PLACED AT AN ELEVATION THAT PROVIDES POSITIVE DRAINAGE AND CONSISTENT SLOPES. ENSURE NO LOW SPOTS ARE CREATED. NEW WALKS SHALL MEET EXISTING WALKS FLUSH AT EXISTING GRADE. NOTIFY OWNER AND/OR ENGINEER IF GRADES ON PLAN CANNOT BE MET TO ENSURE POSITIVE DRAINAGE.

4. MATCH ADJACENT PAVEMENT GRADES WHERE NEW PAVEMENT BUTTS TO EXISTING PAVING.

5. PROPOSED CONTOURS ARE A GRAPHICAL REPRESENTATION OF FINISH GRADE ELEVATIONS. WHERE THERE ARE DISCREPANCIES BETWEEN SPOT ELEVATIONS AND CONTOURS, THE SPOT ELEVATIONS SHALL PREVAIL.

STORM DRAINAGE CALCULATIONS - ALT #1

DELTA MILLS BASIN

PRE-PROJECT Cw =			
GRAVEL AREA =	8,620 S.F. X 0.60 =	5,172	
BUILDING AREA =	330 S.F. X 0.95 =	314	
PERVIOUS AREA =	11,600 S.F. X 0.25	2,900	
TOTALS	20,550 S.F.	8,386	
PRE-PROJECT Cw =	0.41		
PROPOSED Cw:			
BIT. & CONC.	6,610 S.F. X 0.90 =	5,949	
BUILDING AREA =	330 S.F. X 0.95 =	314	
PERVIOUS AREA =	13,610 S.F. X 0.25	3,403	
TOTALS	20,550 S.F.	9,665	
PROPOSED C FACTOR, Cw	0.47		

100 YEAR STORM 5.2 INCHES (EATON CO. MANUAL, P255)

VOLUME = 5.2" X 1FT/12" X Cw = AREA (SF)

PRE-PROJECT VOLUME =	3,634 C.F.
PROPOSED VOLUME =	4,185 C.F.
REQUIRED VOLUME = AMOUNT OF INCREASE =	**552 C.F.**

ORIFICE CALCULATION	0.47 AC
ALLOWABLE DISCHARGE/ACRE	0.15
ALLOWABLE DISCHARGE RATE	0.07 C.F.S.
Basin Top Elevation =	824.00
Basin Bottom Elevation =	823.00
DESIGN WATER DEPTH	1.00 FT.
ORIFICE AREA =	
A= Q/(K x SQRT(2gH)) x 144	2.12 SQ. IN.
HOLE DIA. 0.75 AREA	0.44 SQ. IN.
NUMBER OF HOLES:	**5**

Detention Volume:
VOLUME CALCULATION = H / 3 [A1 + A2 + (A1 * A2)$^{1/2}$]

ELEV	AREA (SF)	VOLUME (CFT)
823.00	949	0
824.00	1645	1281

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SITE GRADING AND DRAINAGE PLAN

DELTA MILLS PARK
RESTROOM RENOVATION - TF #19-0069
DELTA CHARTER TOWNSHIP
DELTA TOWNSHIP, MICHIGAN

Revisions

ISSUED FOR BIDS - 01/11/2023

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NOTE: PROVIDE GRINDER PUMP AND ALARM PANEL BELOW FOR BUILDING SHOWN ON THIS SHEET. PROVIDE E/ONE SENTRY RETROFIT KIT TO PROVIDE CELL MODEM ON EXISTING E/ONE ALARM PANEL FOR EXISTING WEST RESTROOM BUILDING IN DELTA MILLS PARK.

E/ONE SENTRY ADVISOR BASIC SENTRY SIMPLEX

REMOTE MONITORING OF:
- HIGH LEVEL ALARM
- PUMP RUNNING

WEB INTERFACE PROVIDES:
- RUN TIME HISTORY
  - DAILY, CUMULATIVE, LAST, MIN., MAX., AVG.
- CYCLE HISTORY
  - DAILY, CUMULATIVE
- EXTENDED RUN TIME ALERTS
  - CYCLE, DAILY
- GENERATE PUMP RUN AND/OR ALARM EVENT REPORTS
- MAP LOCATION OF EACH GRINDER PUMP IN THE SYSTEM WITH STATUS INDICATION

BACKUP BATTERY FOR POWER LOSS NOTIFICATION

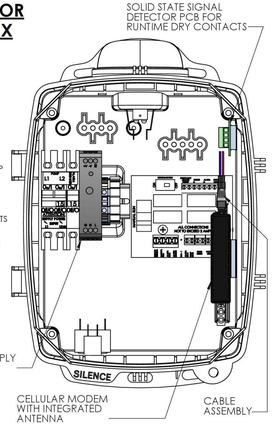
USES EXISTING BOARD ALARM DRY CONTACTS

FACTORY INSTALLED, RETROFIT, OR STANDALONE CONFIGURATIONS AVAILABLE

OPERATING TEMPERATURE RANGE:
- -20C TO +70C

INPUT VOLTAGE:
- 85 - 264VAC

MODEM CONTAINS:
- 2 AUXILIARY A-D INPUTS
- 2 SERIAL CHANNELS
- 5 AUXILIARY DIGITAL INPUTS



TYPICAL SENTRY PANEL IN SENTRY ENCLOSURE, SHOWN FOR REF. ENCLOSURE DOOR NOT SHOWN

jreibson	11/08/2013	SGS	C	7/31/2019
DR BY	DATE	CHK'D	ISSUE	DATE

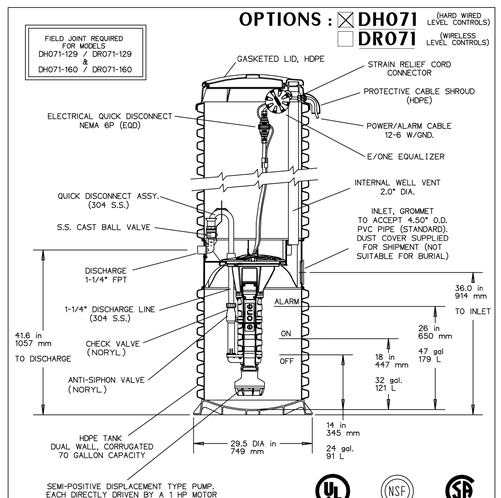
ENVIRONMENT ONE CORPORATION

CUT SHEET,ADVISOR,BASIC SENTRY 240V,2P

NA0440P02

LISTED

OPTIONS : ☒ DH071 (HARD WIRED LEVEL CONTROLS) ☐ DR071 (WIRELESS LEVEL CONTROLS)



CONCRETE BALLAST MAY BE REQUIRED SEE INSTALLATION INSTRUCTION FOR DETAILS

NOTE: DIMENSIONS ARE FOR REF ONLY

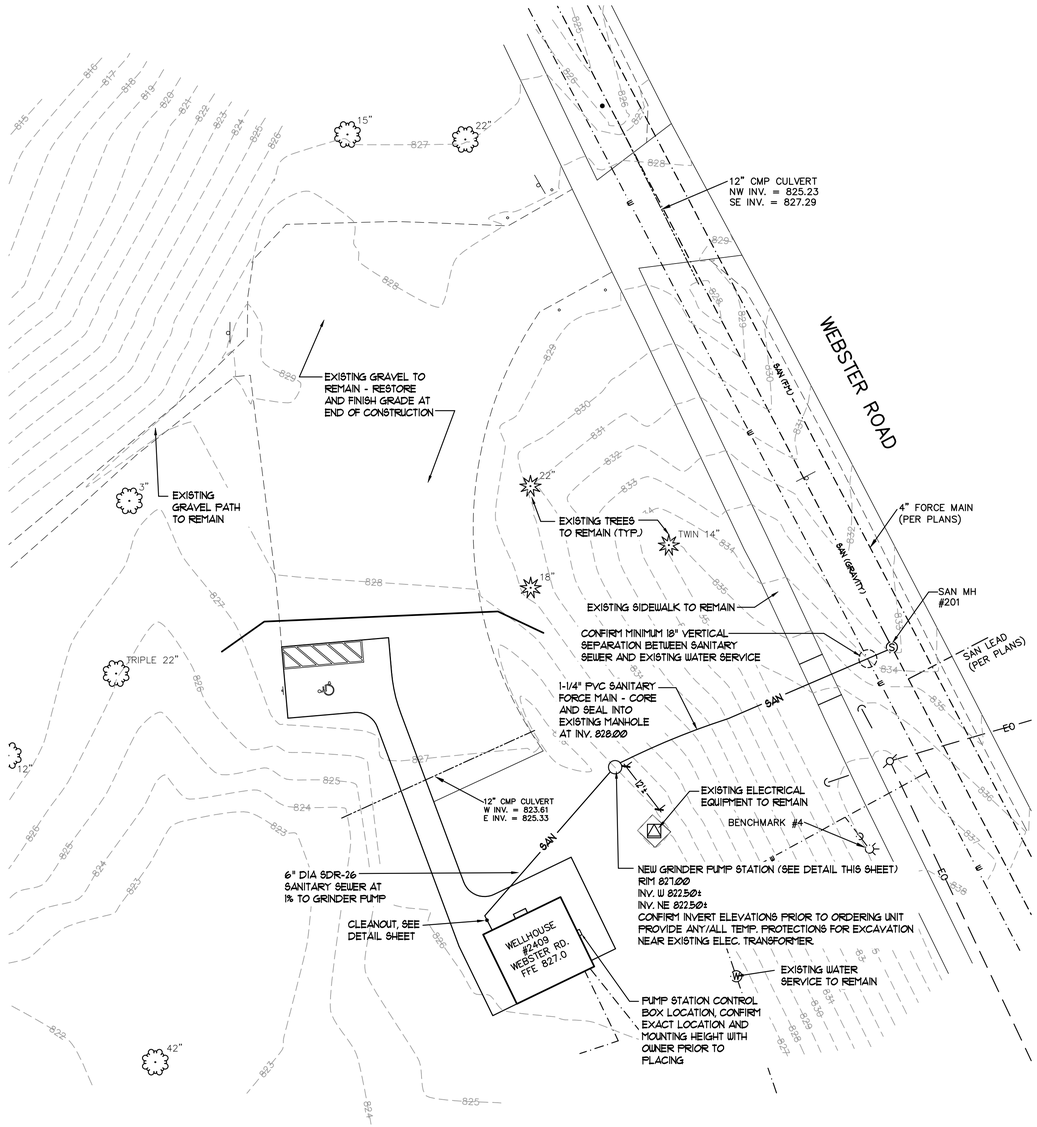
AD	CH	10/20/10	D	
DR BY	CHK'D	DATE	ISSUE	SCALE

SEWER SYSTEMS

MODEL DH071 / DR071 DETAIL SHEET

NA0050P02

SANITARY GRINDER PUMP STATION DETAILS



NOTE: SITE UTILITY WORK IS THE SAME FOR BASE BID AND ALTERNATE SCOPE

0 16 80

SCALE IN FEET

BENCHMARKS

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SITE UTILITY PLAN

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DELTA CHARTER TOWNSHIP
DELTA TOWNSHIP, MICHIGAN

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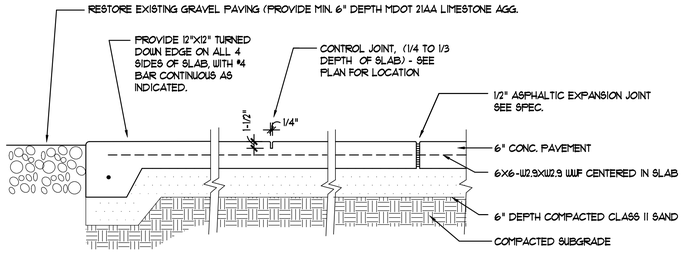
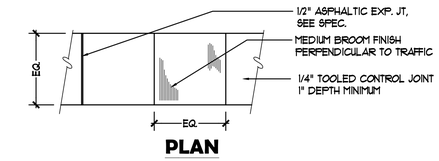
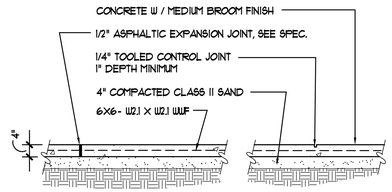


1 Concrete Paving Detail

Not to Scale



PLAN

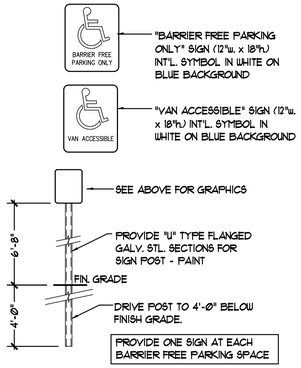


SECTION

2 Concrete Walk Detail

Not to Scale

NOTE: SIGN PANELS SHALL BE Ø0Ø0" ALUMINUM WITH 3 MIL REFLECTIVE VINYL LETTERS

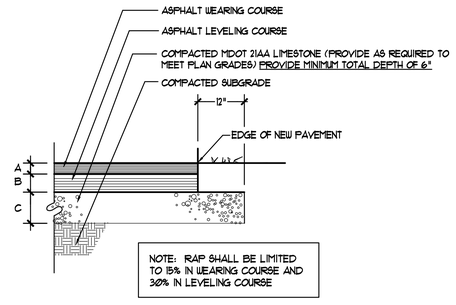


PROVIDE ONE SIGN AT EACH BARRIER FREE PARKING SPACE

3 Barrier Free Signage Detail

Not to Scale

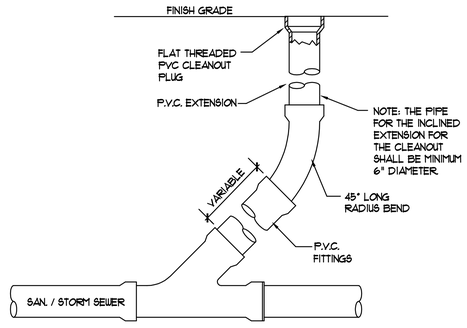
DIM.	THICKNESS
A	1-1/2" MDOT 36A
B	2" MDOT 13A
C	SEE NOTE



NOTE: RAP SHALL BE LIMITED TO 15% IN WEARING COURSE AND 30% IN LEVELING COURSE

4 Asphalt Paving Detail

Not to Scale

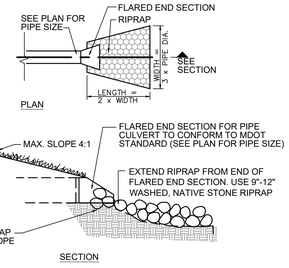


5 Cleanout Detail

Not to Scale

6 Not Used

Not to Scale

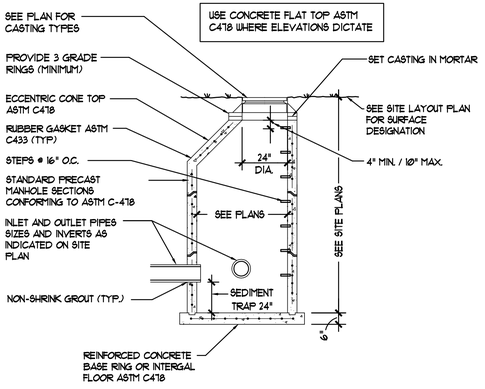


NOTES:

1. FLARED END SECTION FOR PIPE 12" AND LARGER SHALL BE COVERED WITH A STEEL GRATE WHICH CONFORMS TO STANDARD PLAN OF STEEL GRATE FOR PRECAST CONCRETE END SECTION, STATE OF MICHIGAN, DEPT. OF STATE HIGHWAYS AND TRANSPORTATION.

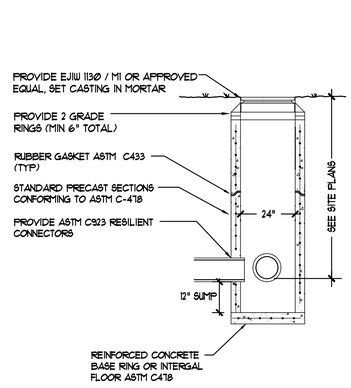
7 Pipe Culvert with Flared End Section

Not to Scale



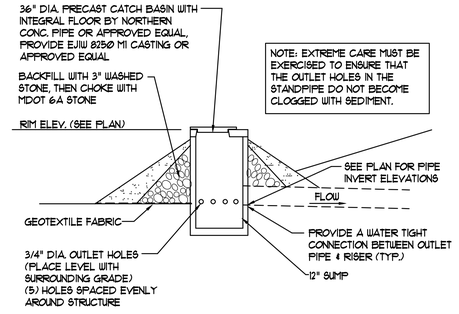
8 Catch Basin Detail

Not to Scale



9 Catch Basin Detail

Not to Scale



10 Outlet Structure Detail

Not to Scale

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SITE DETAILS

DELTA MILLS PARK
RESTROOM RENOVATION - TF #19-0069
DELTA CHARTER TOWNSHIP
DELTA TOWNSHIP, MICHIGAN

Revisions

ISSUED FOR BIDS - Ø1/11/2023

Sheet

SP-5

PROJECT LOCATION MAP
N.T.S.

7710 Old River Trail
Lansing, MI 48917

CONSTRUCTION SCHEDULE & SEQUENCING

CONSTRUCTION SCHEDULE & SEQUENCING:	2021 JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
PLACE AND MAINTAIN TEMPORARY EROSION CONTROLS							
TOPSOIL STRIPPING & STOCKPILING							
ON-SITE UTILITIES CONSTRUCTION							
SITE GRADING & EARTHWORK							
TOPSOIL SPREADING							
PERMANENT SEEDING							
FINAL INSPECTIONS & REMOVE TEMPORARY EROSION CONTROLS							

S.E.S.C. KEYING SYSTEM

KEY	BEST MANAGEMENT PRACTICES	WHERE USED
EROSION CONTROLS		
E8	PERMANENT SEEDING	Stabilization method utilized on sites where earth change has been completed (final grading attained).
E12	RIPRAP	Use along shorelines, waterways, or where concentrated flows occur. Slows velocity, reduces sediment load, and reduces erosion.
S51	SILT FENCE	Use adjacent to critical areas, to prevent sediment laden sheet flow from entering these areas.
S53	STABILIZED CONSTRUCTION ACCESS	Used at every point where construction traffic enters or leaves a construction site.
S55	SEDIMENT BASIN	At the outlet of disturbed areas and at the location of a permanent detention basin.
S58	INLET PROTECTION FABRIC DROP	Use at stormwater inlets, especially at construction sites.

MAINTAIN, CLEAN AND RESTORE GRAVEL CONSTRUCTION ACCESS ROUTES

GENERAL NOTES:

1. THE CONTRACTOR SHALL SUBMIT INFORMATION SHEET AND OBTAIN ANY CONDITIONS OF CONSTRUCTION FROM THE TOWNSHIP ENGINEER'S OFFICE.
2. ALL EROSION CONTROL MEASURES SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE TOWNSHIP ENGINEER'S OFFICE REQUIREMENTS AND PROJECT SPECIFICATIONS.
3. ANY EROSION OR SEDIMENT FROM WORK ON THIS SITE SHALL BE CONTAINED ON THE SITE AND NOT ALLOWED TO COLLECT ON ANY OFF SITE AREAS OR IN WATERWAYS: WATERWAYS INCLUDE BOTH NATURAL AND MAN-MADE OPEN DITCHES, STREAMS, STORM DRAINS, LAKES AND PONDS.
4. CONTRACTOR SHALL APPLY TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES AS REQUIRED AND AS DIRECTED ON THESE PLANS. HE SHALL REMOVE TEMPORARY MEASURES AS SOON AS PERMANENT STABILIZATION OF SLOPES, DITCHES AND OTHER EARTH CHANGES HAVE BEEN ESTABLISHED. THE PERMIT WILL NOT BE CLOSED UNTIL THE TEMPORARY MEASURES HAVE BEEN REMOVED.

SEQUENCE OF CONSTRUCTION:

1. THE CONTRACTOR SHALL PLACE THE TEMPORARY CATCH BASIN AND SILT TRAPS PRIOR TO COMMENCING GRADING OPERATIONS.
2. INSTALL FABRIC DROP BETWEEN THE FRAME AND COVER OF ALL EXISTING YARD BASINS OR INLETS WHICH MAY BE SUSCEPTIBLE TO SEDIMENT EROSION FROM THE PROPOSED CONSTRUCTION AS SHOWN IN THESE PLANS.
3. WHILE MAINTAINING A VEGETATIVE BUFFER WHENEVER POSSIBLE, STRIP AND STOCKPILE TOPSOIL ABOVE AREAS OF PROPOSED EXCAVATION OR GRADING FOR LATER USE ON SITE. PLACE STOCKPILED TOPSOIL IN AREAS WHICH ARE NEITHER SUBJECT TO HIGH RUNOFF NOR ALONG STEEP SLOPES. SEED AND MULCH STOCKPILES IMMEDIATELY TO PREVENT WIND BLOWN SEDIMENT POLLUTION AND EXCESSIVE DUST.
4. EXCAVATE FOR PROPOSED SITE AND UTILITY CONSTRUCTION AS NECESSARY. DO NOT EXPOSE AREAS FAR IN ADVANCE OF THE PROPOSED CONSTRUCTION FOR THAT AREA. ROUGHEN AND SCARIFY EXPOSED SURFACES TO REDUCE RUNOFF VELOCITY AND SEDIMENTATION. MAINTAIN VEGETATION WHENEVER POSSIBLE TO PROVIDE A NATURAL BUFFER.
5. AFTER COMPLETION OF THE PROPOSED UTILITIES, INSTALL TEMPORARY SEDIMENT BARRIERS WITH FABRIC DROP FOR ALL INLETS. FILTER DROPS SHALL BE "SILTSACK" BY ACF OR "BASIN BAG" BY CONSTRUCTION SUPPLY INC., OR EQUAL.
6. TOPSOIL, SEED, FERTILIZE & MULCH ALL EXPOSED AREAS WITHIN 5 CALENDAR DAYS OF ACHIEVING FINAL GRADE TO PROTECT AND RESTORE PERMANENT VEGETATION.
7. IN NON-TRAFFIC AREAS WHERE THE ROUGH GRADING OPERATIONS HAVE BEEN STOPPED BY THE CONTRACTOR FOR A PERIOD LONGER THAN 3 WORKING DAYS, THE CONTRACTOR SHALL STABILIZE THE AREA.
8. WATER EXPOSED GROUND REGULARLY TO CONTROL AIRBORNE PARTICULATE MATTER.
9. THE CONTRACTOR SHALL MAINTAIN ALL TEMPORARY AND PERMANENT SOIL EROSION AND SEDIMENTATION CONTROL MEASURES THROUGHOUT THE ENTIRE CONSTRUCTION PROCESS AND UNTIL PERMANENT VEGETATION IS REESTABLISHED IN ALL EXPOSED AREAS. REMOVE ACCUMULATED SEDIMENT FROM ALL STRUCTURES.
10. THE SITE WILL BE PERIODICALLY INSPECTED BY THE STAFF OF THE DEPARTMENT OF TECHNOLOGY MANAGEMENT AND BUDGET. THE CONTRACTOR SHALL BECOME FAMILIAR WITH THE RULES AND REGULATIONS OF THAT OFFICE.
11. UPON FINAL APPROVED INSPECTION OF THE COMPLETED CONSTRUCTION BY ALL REVIEWING AGENCIES, THE CONTRACTOR SHALL REMOVE ALL TEMPORARY SOIL EROSION AND SEDIMENTATION CONTROL MEASURES.

SOIL EROSION CONTROL INSTALLATION & MAINTENANCE PROGRAM:

1. THE CONTRACTOR SHALL MAINTAIN ALL TEMPORARY AND PERMANENT SOIL EROSION AND SEDIMENTATION CONTROL MEASURES THROUGHOUT THE ENTIRE CONSTRUCTION PROCESS AND UNTIL PERMANENT VEGETATION IS RE-ESTABLISHED IN ALL EXPOSED AREAS. REMOVE ACCUMULATED SEDIMENT FROM ALL STRUCTURES.
2. DAILY INSPECTIONS SHALL BE MADE BY THE CONTRACTOR TO DETERMINE EFFECTIVENESS OF EROSION AND SEDIMENTATION CONTROL MEASURES, AND ANY NECESSARY REPAIRS SHALL BE PERFORMED WITHOUT DELAY.
3. AFTER EACH RAINFALL EVENT, CONTRACTOR SHALL INSPECT AND MAINTAIN ALL SOIL EROSION CONTROL MEASURES AND CLEAN AND REPLACE CATCH BASIN FILTERS.
4. DUST CONTROL WILL BE EXERCISED AT ALL TIMES WITHIN THE PROJECT BY THE CONTRACTORS. SPRINKLING TANK TRUCKS SHALL BE AVAILABLE AT ALL TIMES TO BE USED ON HAUL ROUTES OR OTHER PLACES WHERE DUST BECOMES A PROBLEM.
5. ALL MUD, DIRT AND DEBRIS TRACKED ONTO EXISTING ROADS SHALL BE PROMPTLY REMOVED BY THE CONTRACTOR NO LESS THAN ON A DAILY BASIS. ALL MUD, DIRT AND DEBRIS TRACKED OR SPILLED ONTO PAVED SURFACES WITHIN THIS SITE SHALL BE PROMPTLY REMOVED

LEGAL DESCRIPTION:

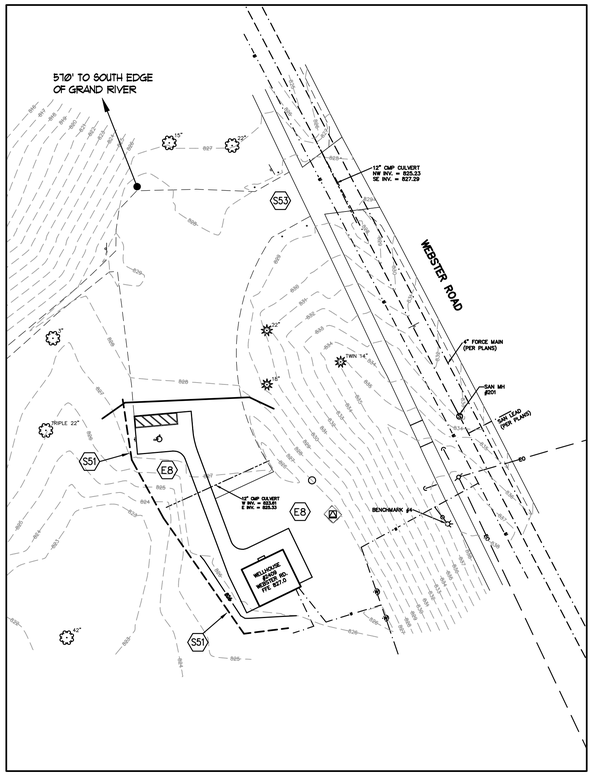
(As provided in Tax ID: 040-003-400-150-00)
West 1/2 of the Southeast fractional 1/4 lying West of Armstrong Road and South of Old River Trail, except Commencing at the Southwest corner, N00°04'35"W 1016.98 feet, S89°39'50"E 1209.29 feet, S00°20'10"W 1012 feet, West 1202.33 feet to beginning, Section 3, T4N, R3W, Delta Township, Eaton County, Michigan

PER THE EATON COUNTY SOILS SURVEY, ONSITE SOILS THIS SHEET CONSIST OF:

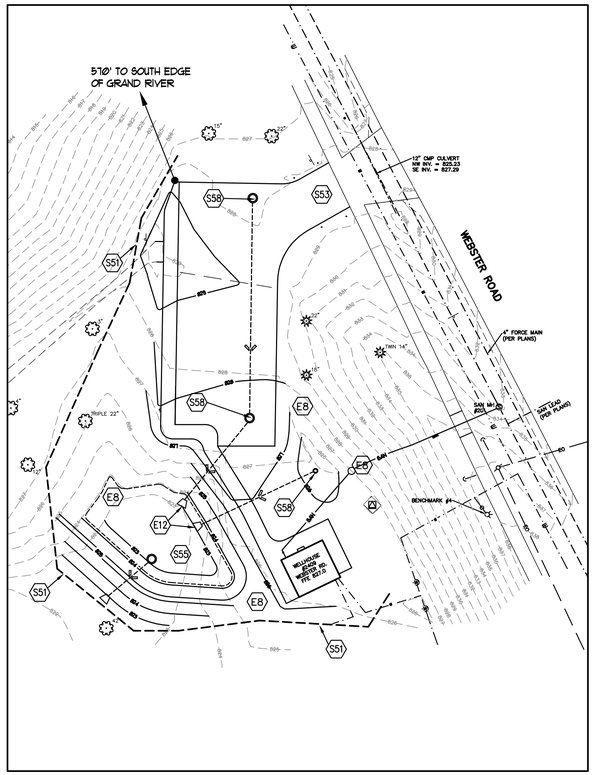
Ch, COHOCTAH FINE SANDY LOAM, FREQUENTLY FLOODED
MaC FILER LOAM, 6 TO 12 PERCENT SLOPES
MaB MARLETTE LOAM, 2 TO 6 PERCENT SLOPES
Sh, SHOALS-SLOAN LOAMS

ESTIMATED AREA WITHIN EARTH DISTURBANCE LIMITS

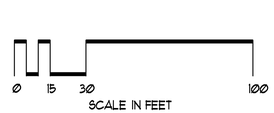
SHT.	SHEET NAME	AREA (AC.)
SP-3	SITE GRADING / DRAINAGE PLAN	0.50 Ac.



SESC PLAN - BASE BID



SESC PLAN - ALTERNATE #1



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SESC PLAN

DELTA MILLS PARK
RESTROOM RENOVATION - TF #19-0069
DELTA CHARTER TOWNSHIP
DELTA TOWNSHIP, MICHIGAN

Revisions

ISSUED FOR BIDS - 01/11/2023

Sheet

SP-6

E8 PERMANENT SEEDING SPECIFICATIONS

When
- To finalize stabilization of temporary seeding areas or when an area needs permanent stabilization following completion of construction. Also used when vegetative establishment can correct existing soil erosion or sedimentation problem.
- Within 5 days of final grade.

Why
- To stabilize soil and prevent or reduce soil erosion/sedimentation problems from developing.

Where
- Used on construction and earth change sites which require permanent vegetative stabilization.

How
1. Review SESC plan and construction phasing to identify areas in need of permanent vegetative stabilization.
2. Select perennial grass and ground cover for permanent cover.
3. Seed mixes vary. However, they should contain native species.
4. Seed mixes should be selected through consultation with a certified seed provider and with consideration of soil type, light, moisture, use applications, and native species content.
5. Soil tests should be performed to determine the nutrient and pH levels in the soil. The pH may need to be adjusted to between 6.5 and 7.0.
6. Prepare a 3–5" deep seedbed, with the top 3–4" consisting of topsoil.
7. Slopes steeper than 1:3 should be roughened.
8. Apply seed as soon as possible after seedbed preparation. Seed may be broadcast by hand, hydroseeding, or by using mechanical drills.
9. Mulch immediately after seeding.
10. Dormant seed mixes are for use after the growing season, using seed which lies dormant in the winter and begins growing as soon as site conditions become favorable.

STANDARD SYMBOL

MICHIGAN DEPARTMENT OF MANAGEMENT AND BUDGET

E8 PERMANENT SEEDING SPECIFICATIONS

How (cont.)
11. Protect seeded areas from pedestrian or vehicular traffic.
12. Divert concentrated flows away from the seeded area until vegetation is established.

Maintenance
- Inspect weekly and within 24 hours following each rain event in the first few months following installation to be sure seed has germinated and permanent vegetative cover is being established.
- Add supplemental seed as necessary.

Limitations
- Seeds need adequate time to establish.
- May not be appropriate in areas with frequent traffic.
- Seeded areas may require irrigation during dry periods.
- Seeding success is site specific, consider mulching or sodding when necessary.

MICHIGAN DEPARTMENT OF MANAGEMENT AND BUDGET

E8 PERMANENT SEEDING

Planting Zones:	Lower Peninsula (South of T20N) Zone 1	Lower Peninsula (North of T20N) Zone 2	Upper Peninsula Zone 3
Seeding Window Permanent Seeding	4/15 – 10/10	5/1 – 10/1	5/1 – 9/20
Seeding Window Dormant Seeding*	11/15 – Freeze	11/01 – Freeze	11/01 – Freeze

Source: Adapted from MDOT Interim 2003 Standard Specifications for Construction

	Zone 1 Lower Peninsula (South of U.S. 10)	Zone 2 Lower Peninsula (North of U.S. 10)	Zone 3 Upper Peninsula
Seeding Dates (with Irrigation or Mulch)	4/1 – 8/1	5/1 – 9/20	5/1 – 9/10
Seeding Dates (w/o Irrigation or Mulch)	4/1 – 5/20 or 8/10 – 10/1	5/1 – 6/10 or 8/1 – 9/20	5/1 – 6/15 or 8/1 – 9/20
Dormant Seeding Dates*	11/1 – Freeze	10/25 – Freeze	10/25 – Freeze

Source: Adapted from USDA NRCS Technical Guide #342 (1999)

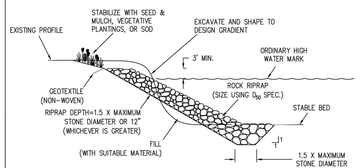
* Dormant seeding is for use in the late fall after the soil temperature remains consistently below 50°F, prior to the ground freezing. This practice is appropriate if construction on a site is completed in the fall but the seed was not planted prior to recommended seeding dates. No seed germination will take place until spring. A cool season annual grass may be added in an attempt to have some fall growth.

- Mulch must be used with dormant seed.
- Do not seed when the ground is frozen or snow covered.
- Do not use a dormant seed mix on grassed waterways.

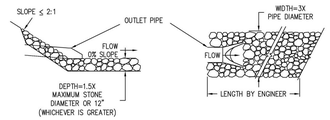
MICHIGAN DEPARTMENT OF MANAGEMENT AND BUDGET

E12 RIPRAP

STREAM BANK APPLICATION



OUTLET POINT APPLICATION



STANDARD SYMBOL

MICHIGAN DEPARTMENT OF MANAGEMENT AND BUDGET

E12 RIPRAP SPECIFICATIONS

When
- When concentrated water flows have the potential to create scour, down-cutting, or lateral cutting.

Why
- 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.

Where
- In natural or constructed channels with areas susceptible to erosion from the action of water, ice, or debris, or to damage by livestock or vehicular traffic.
- In shoreline areas where the erosion problem may be solved through simple structural measures.
- On slopes with profiles measuring 1:1.5 or less.

How
1. Review subject site to identify areas subject to concentrated flows or wave/current attack.
2. The appropriateness and extent of riprap placement is site specific and should be determined in the field.
3. The area under review for riprap placement must be shaped and contoured appropriately by grading prior to material placement.
4. 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.
5. Riprap placement should be started at a stabilized location and ended at a stabilized or contoured point.
6. 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.

MICHIGAN DEPARTMENT OF MANAGEMENT AND BUDGET

E12 RIPRAP SPECIFICATIONS

How (cont.)
7. Riprap mixture should be an even mixture of stone sizes based on the average, or 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.
8. See table on the following page for typical riprap stone sizes.
9. Rock shall be placed so that larger rocks are uniformly distributed and in contact with one another. Smaller rocks should fill the voids.
10. 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.

Maintenance
- All installations should be inspected immediately after the first rainfall to confirm the stability of the placed material. Follow–up inspections should occur regularly and provisions made for prompt repair if needed.

Limitations
- Area is cleared prior to the addition of riprap, therefore no areas are preserved with native vegetation.

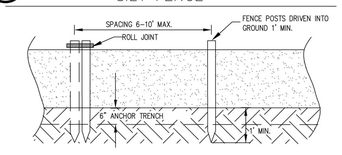
SIZE OF TYPICAL RIPRAP STONES

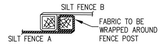
Weight (lbs.)	Average Spherical Diameter (in.) D_{50}	Typical Rectangular Shape Width/Height (in.)
50	10	18 6
100	13	21 7
150	14	24 8
300	18	30 10
500	22	36 12
1000	27	45 15
1500	31	52 17
2000	34	57 19
4000	43	72 24
6000	49	83 28
8000	54	90 30

Source: Adapted from USDA NRCS

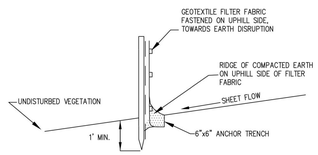
MICHIGAN DEPARTMENT OF MANAGEMENT AND BUDGET

S51 SILT FENCE





ROLL JOINTS



STANDARD SYMBOL

MICHIGAN DEPARTMENT OF MANAGEMENT AND BUDGET

S51 SILT FENCE SPECIFICATIONS

When
- A temporary measure for preventing sediment movement.

Why
- Used to prevent sediment suspended in runoff from leaving an earth change area.

Where
- Use adjacent to critical areas, wetlands, base of slopes, and watercourses.

How
1. Install parallel to a contour.
2. The silt fence should be made of woven geotextile fabric.
3. Silt fence should accomodate no more than 1/2 to 1 acre of drainage per 100' of fence and on slopes less than 1:2 (v:h).
4. Dig a 6" trench along the area where the fence is to be installed.
5. Place 6" of the silt fence bottom flap into the trench.
6. Backfill the trench with soil and compact the soil on both sides. Create a small ridge on the up–slope side of the fence.
7. Install wooden stakes 6 – 10' apart and drive into the ground a minimum of 12".
8. Staple the geotextile fabric to the wooden stakes.
9. Join sections of silt fence by wrapping ends together (See drawing).

Maintenance
- Inspect frequently and immediately after each storm event. Check several times during prolonged storm events. If necessary, repair immediately.
- If the sediment has reached 1/3 the height of the fence, the soil should be removed and disposed of in a stable upland site.
- The fence should be re–installed if water is seeping underneath it or if the fence has become ineffective.
- Silt fence should be removed once vegetation is established and up–slope area has stabilized.

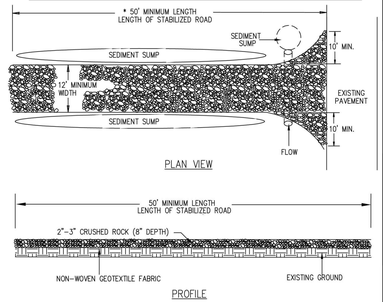
MICHIGAN DEPARTMENT OF MANAGEMENT AND BUDGET

S51 SILT FENCE SPECIFICATIONS

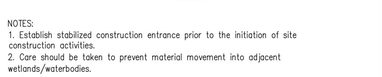
Limitations
- Silt fence may cause temporary ponding and could fail if too much water flows through the area.
- Do not use in areas with concentrated flows.
- Chance of failure increases if fence is installed incorrectly or if sediment accumulation is not removed.

MICHIGAN DEPARTMENT OF MANAGEMENT AND BUDGET

S53 STABILIZED CONSTRUCTION ACCESS



PLAN VIEW



PROFILE

NOTES:
1. Establish stabilized construction entrance prior to the initiation of site construction activities.
2. Care should be taken to prevent material movement into adjacent wetlands/waterbodies.
3. Care should be taken to maintain existing roadside drainage via culvert installation, with sediment sump placed downflow of culvert.

STANDARD SYMBOL

MICHIGAN DEPARTMENT OF MANAGEMENT AND BUDGET

S53 STABILIZED CONSTRUCTION ACCESS SPECIFICATIONS

When
- Construction traffic is expected to leave a construction site.
- Stabilization of interior construction roads is desired.

Why
- To minimize tracking of sediment onto public roadways and to minimize disturbance of vegetation.

Where
- Stabilized construction entrances shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must be routed over the rock ingress/egress corridor.

How
1. Stabilized construction access road should be established at the onset of the construction activities and maintained in place for the duration of the construction project.
2. Installation of this practice should be the responsibility of the site clearing or excavating contractor.
3. Access location should be cleared of woody vegetation.
4. Non–woven geotextile fabric shall be placed over the existing ground prior to placing stone.
5. Access size should be a minimum of 50'. (30' for single residence lot).
6. Access width should be 12' minimum, flared at the existing road to provide a turning radius.
7. Crushed aggregate (2" to 3"), or reclaimed or recycled concrete equivalent, shall be placed at least 8" deep over the length and width of the ingress/egress corridor.

Maintenance
- Periodic inspection and needed maintainence shall be provided after each rain event.
- Stabilized entrances shall be repaired and rock added as necessary.

MICHIGAN DEPARTMENT OF MANAGEMENT AND BUDGET

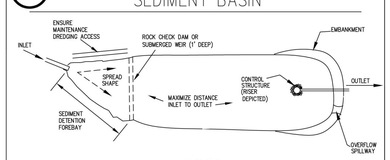
S53 STABILIZED CONSTRUCTION ACCESS SPECIFICATIONS

Maintenance (cont.)
- Sediment deposited on public rights–of–way shall be removed immediately and returned to the construction site.
- If soils are such that washing of tires is required, it shall be done in a wash rack area, stabilized with stone, immediately prior to the construction access stabilized corridor.
- At the project completion, rock access road should be removed and disposed of unless utilized as subgrade for final road.

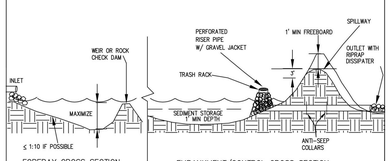
Limitations
- Effectiveness limited, sediment may be tracked onto roads requiring additional action.

MICHIGAN DEPARTMENT OF MANAGEMENT AND BUDGET

S55 SEDIMENT BASIN



PLAN VIEW



FOREBAY CROSS SECTION

EMBANKMENT/CONTROL CROSS SECTION

STANDARD SYMBOL

MICHIGAN DEPARTMENT OF MANAGEMENT AND BUDGET

S55 SEDIMENT BASIN SPECIFICATIONS

When
- When site runoff is sediment–laden and/or runoff release rate is required.

Why
- To detain runoff sufficiently to allow excessive sediment to settle out before stormwater leaves construction site.

Where
- At the outlet of any disturbed area or at the ultimate site outlet.
- Should be used in association with dikes, temporary channels, and pipes to divert stormwater from the disturbed areas into the basin.
- May be combined with permanent detention basin.

How
1. Basin to be designed by engineer or CPESC to ensure adequate storage volume from the contributing drainage area.
2. Basins should be constructed before clearing and grading work begins.
3. Basins should be located at the stormwater outlet for the site and multiple basins may be located throughout the site.
4. Basin location should ensure suitable access for maintenance and cleanout.
5. Do not locate in a stream.
6. All basin sites should be located where embankment failure will not compromise safety or result in property damage.
7. The basin volume should be designed to handle the volume of stormwater expected from the disturbed acreage for a minimum 10–year storm event.
8. The basin volume consists of two zones
   - A sediment storage zone to a 1' minimum depth.
   - A settling zone at least 2 feet deep.

MICHIGAN DEPARTMENT OF MANAGEMENT AND BUDGET

S55 SEDIMENT BASIN SPECIFICATIONS

How (cont.)
9. Design should contain sufficient capacity to detain runoff for 24–48 hours, maximizing sediment settlement potential.
10. Length to width ratio should be greater than 4:1 to allow for sufficient settlement time.
11. Utilize a well anchored riser pipe with anti–seep collars as the principal outlet, along with an emergency overflow spillway for greater events.

Maintenance
- Inspect weekly and after each major storm event.
- Check the depth of sediment deposit to insure capacity of basin storage is adequate for stormwater and sediment deposition.
- Remove sediment when the forebay or basin design depth is 50% full of sediment.

Limitations
- Liability concerns based on failure of the basin and flooding of adjacent properties.
- May become an attractive nuisance to children and waterfowl.
- Typically, permanent basins are used for drainage of 5 acres or more.
- Effective in removing sediment down to the medium silt size fraction, however, not effective with fine silt and clay without extending detention time.

MICHIGAN DEPARTMENT OF MANAGEMENT AND BUDGET

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SESC DETAILS

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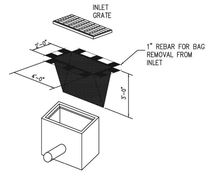
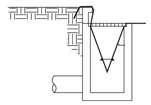
INLET PROTECTION – FABRIC DROP

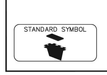


ISOMETRIC VIEW



INSTALLATION DETAIL

STANDARD SYMBOL



STATE OF MICHIGAN
DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
STATE FACILITIES ADMINISTRATION

S58

INLET PROTECTION – FABRIC DROP SPECIFICATIONS

When	• When sediment laden stormwater requires treatment before entering a stormwater drainage system.
Why	• To prevent sediment from entering stormwater systems.
Where	• Use in or at stormwater inlets, especially at construction sites or in streets.
How	1. A filter fabric bag is hung inside the inlet, beneath the grate. 2. Replace grate, which will hold bag in place. 3. Anchor filter bag with 1" rebar for removal from inlet. 4. Flaps of bag that extend beyond the bag can be buried in soil in earth areas.
Maintenance	• Drop inlet filters should be inspected routinely and after each major rain event. • Damaged filter bags should be replaced. • Clean and/or replace filter bag when 1/2 full. • Replace clogged fabric immediately. • If needed, initiate repairs immediately upon inspection. • Remove entire protective mechanism when upgradient areas are stabilized and streets have been swept.
Limitations	• Can only accommodate small flow quantities. • Requires frequent maintenance. • Ponding may occur around storm drains if filter is clogged.

STATE OF MICHIGAN
DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
STATE FACILITIES ADMINISTRATION

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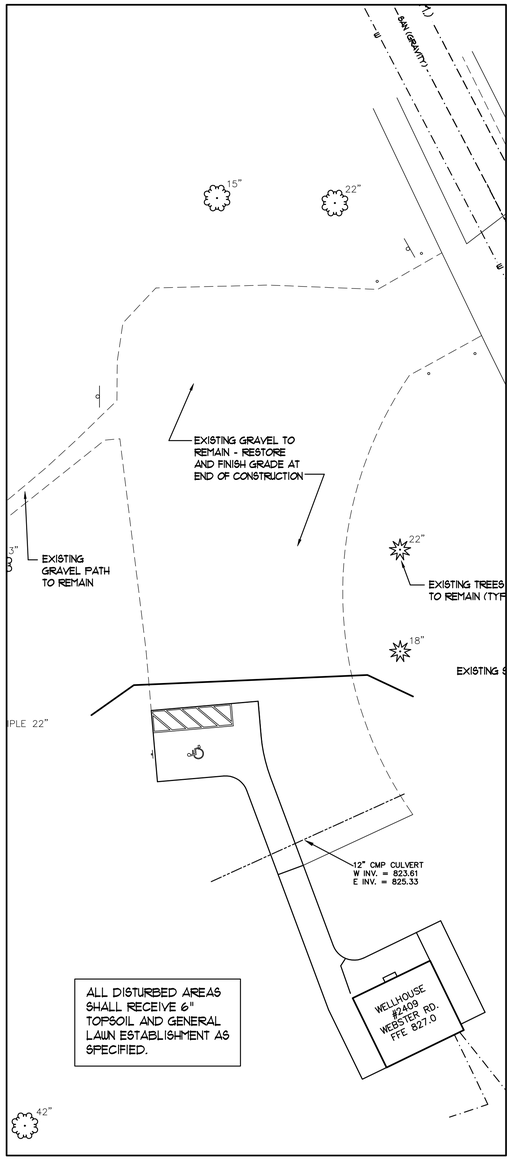
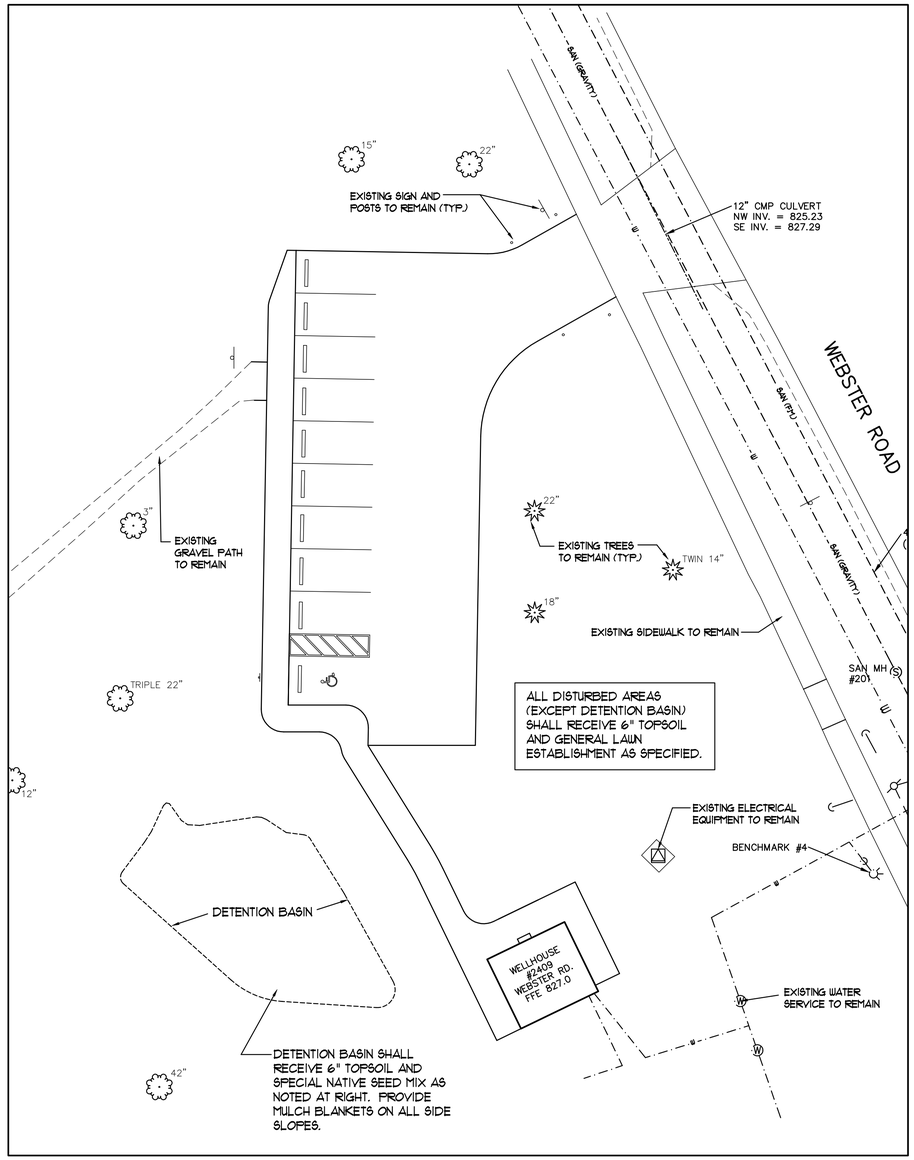


LANDSCAPE PLAN - BASE BID

0 16 80

SCALE IN FEET



LANDSCAPE PLAN - ALT #1

0 16 80

SCALE IN FEET

DETENTION BASIN SHALL BE SEEDED WITH CARDNO/JFNEW STORMWATER SEED MIX (OR APPROVED EQUAL) . SEE CHART BELOW FOR SPECIES AND APPLICATION RATES. SEED MIX SHALL BE INSTALLED, MULCHED AND MAINTAINED IN FULL ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. ACCEPTANCE OF THESE AREAS SHALL BE AT THE SOLE DISCRETION OF THE ARCHITECT, UNACCEPTABLE AREA(S) SHALL BE RE-SEEDED AS REQUIRED FOR FULL COVERAGE.

CARDNO / JF New Stormwater Seed Mix (or approved equal)

Botanical Name	Common Name	PLS Ounces/Acre
Permanent Grasses/Sedges/Rushes:		
Carex crisatella	Crested Oval Sedge	2.00
Carex lurida	Bottlebrush Sedge	3.00
Carex vulpinoidea	Brown Fox Sedge	6.00
Elymus virginicus	Virginia Wild Rye	13.50
Glyceria striata	Fowl Manna Grass	1.25
Juncus effusus	Common Rush	2.00
Leersia oryzoides	Rice Cut Grass	1.00
Panicum virgatum	Switch Grass	2.00
Scirpus atrovirens	Dark Green Rush	2.00
Scirpus cyperus	Wool Grass	1.00
Scirpus fluviatilis	River Bulrush	0.25
Scirpus validus	Great Bulrush	3.00
	Total	37.00

Botanical Name	Common Name	PLS Ounces/Acre
Temporary Cover:		
Avena sativa	Common Oat	360.00
Lolium multiflorum	Annual Rye	100.00
	Total	460.00
Forbs & Shrubs:		
Alisma spp.	Water Plantain (Various Mix)	4.25
Asclepias incarnata	Swamp Milkweed	1.50
Aster novae-angliae	New England Aster	1.50
Bidens spp.	Bidens (Various Mix)	2.00
Helenium autumnale	Sneezeweed	2.00
Iris virginica	Blue Flag	4.00
Lycopus americanus	Common Water Horehound	0.25
Mimulus ringens	Monkey Flower	1.00
Penthorum sedoides	Ditch Stonecrop	0.50
Polygonum spp.	Pinkweed (Various Mix)	4.00
Rudbeckia subtomentosa	Sweet Black-Eyed Susan	1.00
Rudbeckia triloba	Brown-Eyed Susan	1.50
Sagittaria latifolia	Common Arrowhead	1.00
Senna hebacarpa	Wild Senna	1.00
Solidago riddelli	Riddell's Goldenrod	0.50
Thalictrum dasycarpum	Purple Meadow Rue	2.00
	Total	28.00

NOTE: ANY PROPOSED SUBSTITUTION FOR THE SEED MIX MUST CONTAIN A SIMILAR NUMBER/TYPE OF SPECIES AND COMPARABLE APPLICATION RATE.

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LANDSCAPE PLAN

DELTA MILLS PARK
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DELTA CHARTER TOWNSHIP
DELTA TOWNSHIP, MICHIGAN

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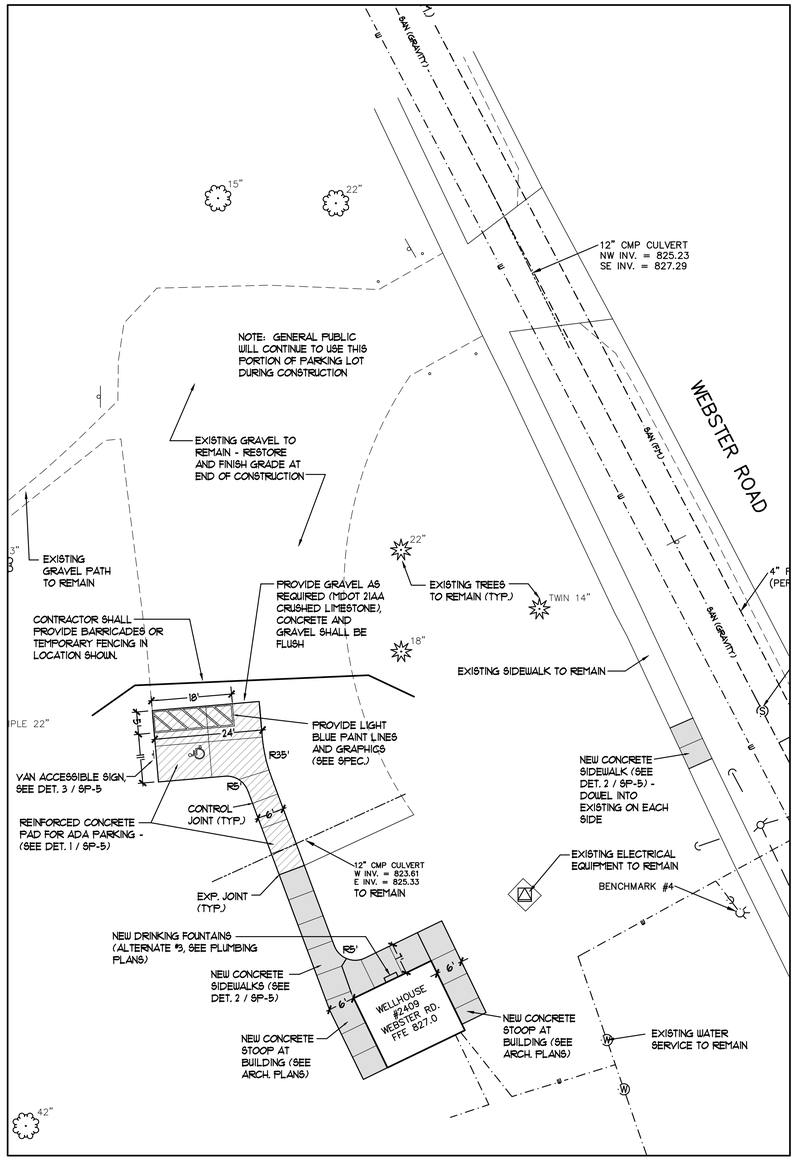
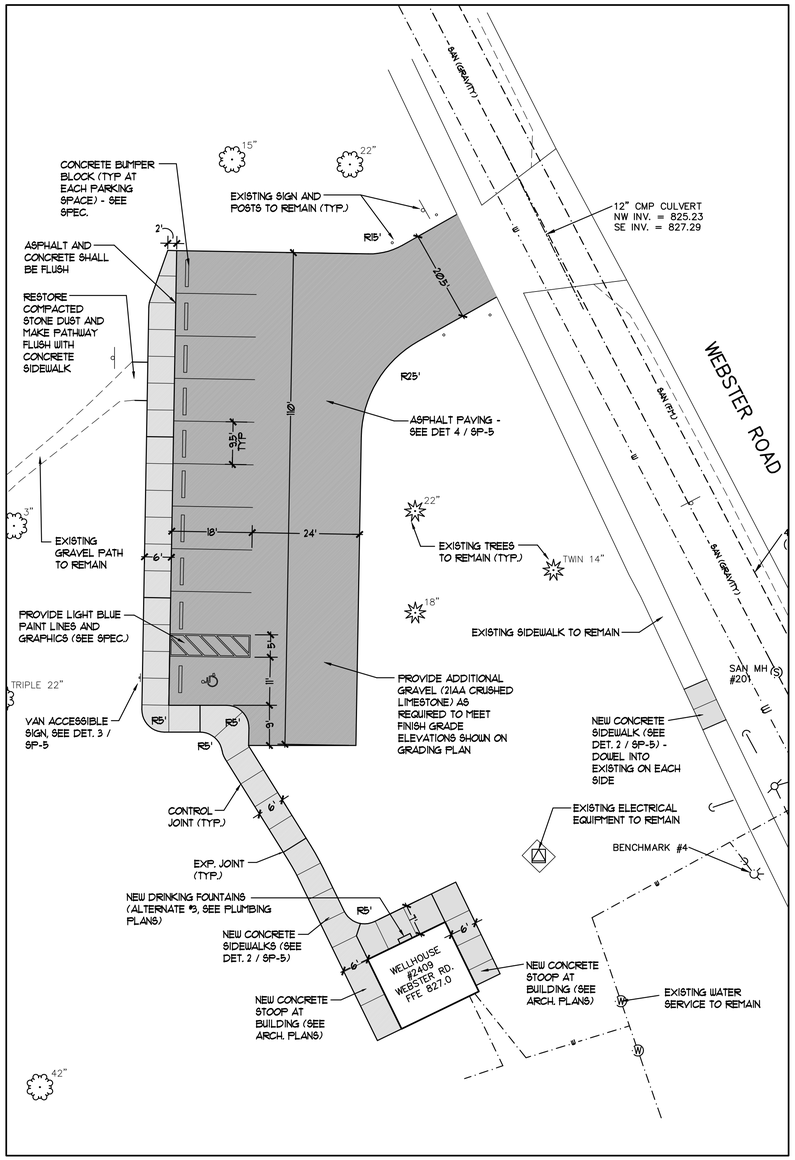


SITE LAYOUT PLAN - BASE BID

0 16 80

SCALE IN FEET



SITE LAYOUT PLAN - ALTERNATE #1

0 16 80

SCALE IN FEET

FOR ALTERNATE #1, PROVIDE BARRICADES OR TEMPORARY FENCING AND PLACE IN SIMILAR CONFIGURATION AS SHOWN FOR BASE BID, SO AS TO MAINTAIN PUBLIC ACCESS TO PARKING. CLOSELY COORDINATE PARKING LOT WORK WITH OWNER AND MINIMIZE PARKING LOT DOWN-TIME TO THE EXTENT POSSIBLE.

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SITE LAYOUT PLAN

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BUILDING CODE INFORMATION

GOVERNING CODES:

BUILDING CODE	2015 MICHIGAN BUILDING CODE
MECHANICAL CODE	2015 MICHIGAN MECHANICAL CODE
PLUMBING CODE	2018 MICHIGAN PLUMBING CODE
ELECTRICAL CODE	2017 NATIONAL ELECTRICAL CODE
	2017 CONSTRUCTION CODE PART 8
CONSTRUCTION	TYPE V
USE GROUP	U - UTILITY
GROSS AREA:	323 S.F.

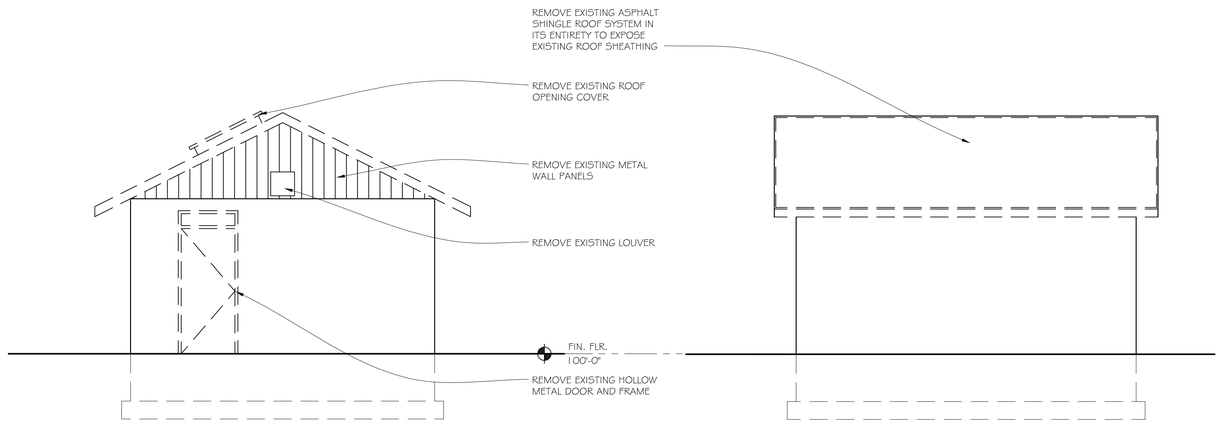
ENERGY CODE COMPLIANCE (ASHRAE 90.1-2013):

BUILDING EXTERIOR WALLS TO BE CONSIDERED AS MASS WALL
-PER TABLE 5.5-5, REQUIRED MAXIMUM ASSEMBLY U-FACTOR IS 0.090

-PER NCMA THERMAL CATALOG OF CONCRETE MASONRY ASSEMBLIES, EXISTING WALL ASSEMBLY PROVIDES U-FACTOR OF 0.075

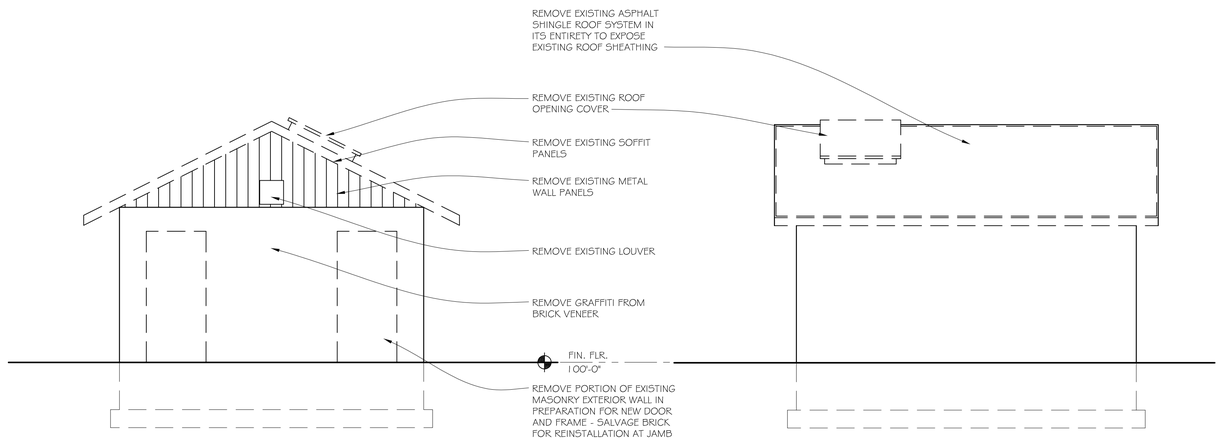
ROOF ASSEMBLY TO MEET ATTIC INSULATION REQUIREMENTS
-PER TABLE 5.5-5, REQUIRED MINIMUM R-VALUE IS R-49

-EXISTING ROOF ASSEMBLY PROVIDES R-19. ADDITION OF R-30 BATT INSULATION ABOVE NEW CEILINGS PROVIDES TOTAL OF R-49.



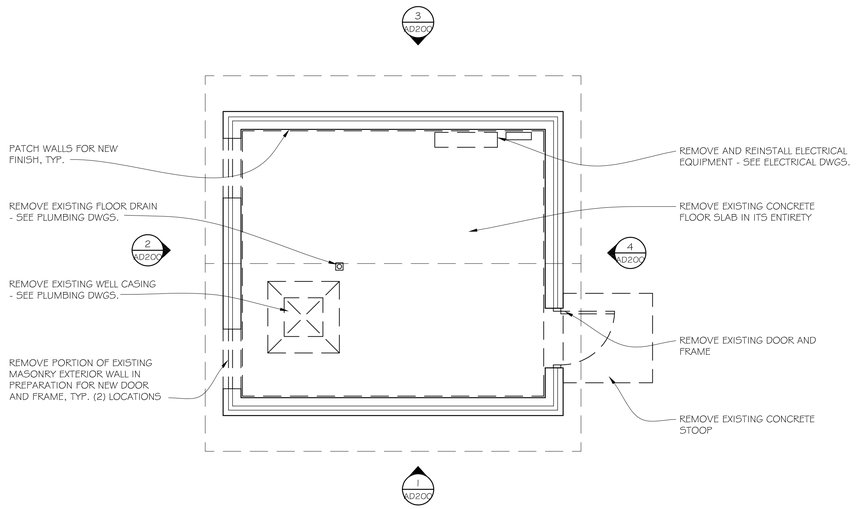
4 AD200 ELEVATION
1/4"=1'-0"

3 AD200 ELEVATION
1/4"=1'-0"



2 AD200 ELEVATION
1/4"=1'-0"

1 AD200 ELEVATION
1/4"=1'-0"



DEMOLITION PLAN
1/4"=1'-0"
NORTH

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DEMOLITION PLAN/ELEVATIONS

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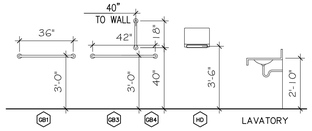
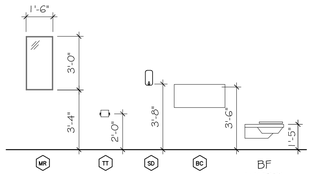
AD200

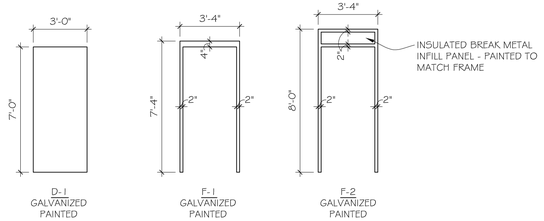
WASHROOM ACCESSORIES KEY:	
GB1	18" GRAB BAR
GB3	36" GRAB BAR
GB4	42" GRAB BAR
HD	HAND DRYER
MR	18"x36" MIRROR
TT	TOILET TISSUE DISPENSER – 1 ROLL
SD	SOAP DISPENSER
BC	BABY CHANGING STATION





DOOR SCHEDULE

OPENING NO.	DOOR TYPE	WIDTH	HEIGHT	THICKNESS	FRAME				FIRE RATING	NOTES
					TYPE	MATERIAL	HEAD	JAMB		
100	D-1	3'-0"	7'-0"	1-3/4"	F-1	HM	4/A201	3/A201		INSULATED CORE
101	D-1	3'-0"	7'-0"	1-3/4"	F-1	HM	4/A201	3/A201		INSULATED CORE
102	D-1	3'-0"	7'-0"	1-3/4"	F-2	HM	4/A201 SIM.	3/A201		INSULATED CORE



DOOR AND FRAME TYPES

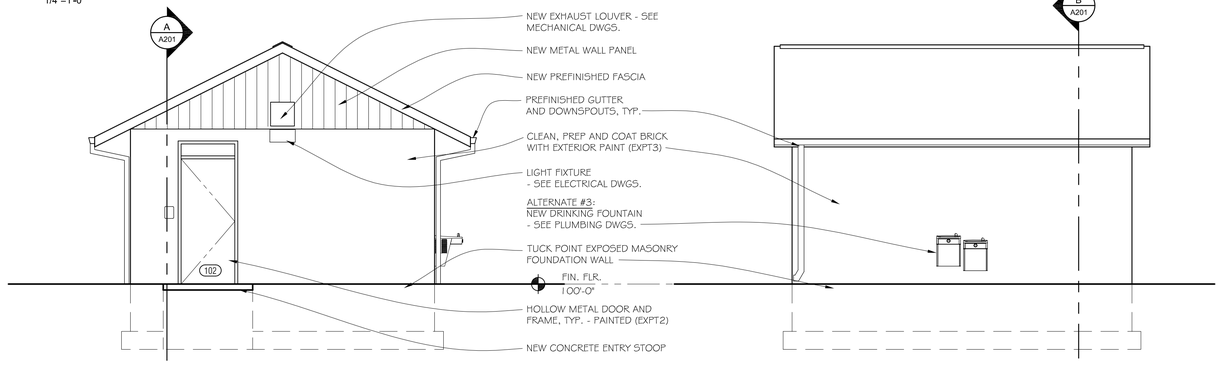
1/4"=1'-0"

ROOM FINISH SCHEDULE

ROOM NO.	ROOM NAME	FLOOR	BASE	WALL MATERIAL / WALL FINISH				CEILING MATERIAL	CEILING FINISH	CEILING HEIGHT	NOTES
				NORTH	SOUTH	EAST	WEST				
100	TOILET	CONC	-	UM I/PT I	EXIST/PT I	UM I/PT I	EXIST/PT I	GYP	PT2	8'-0"	
101	TOILET	CONC	-	EXIST/PT I	UM I/PT I	UM I/PT I	EXIST/PT I	GYP	PT2	8'-0"	
102	MAINTENANCE	CONC	-	EXIST/PT I	EXIST/PT I	EXIST/PT I	UM I/PT I	GYP	PT2	8'-0"	

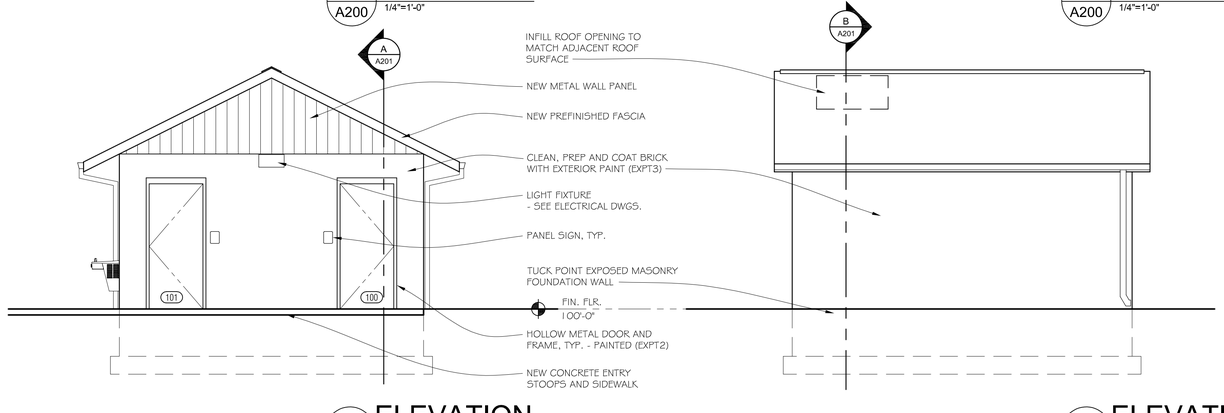
ABBREVIATIONS

CONC - CONCRETE
EXIST - EXISTING
GYP - GYPSUM BOARD
PT - PAINT
UM - UNIT MASONRY



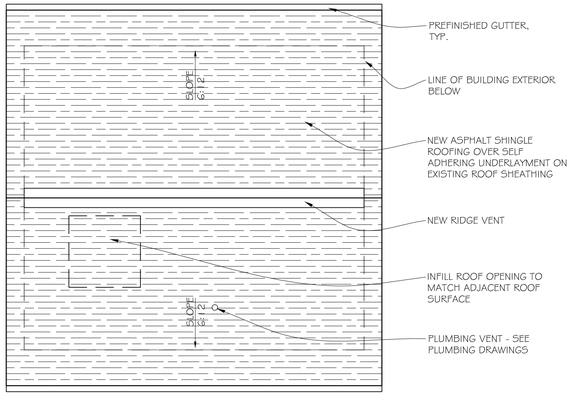
4 A200 ELEVATION 1/4"=1'-0"

3 A200 ELEVATION 1/4"=1'-0"



2 A200 ELEVATION 1/4"=1'-0"

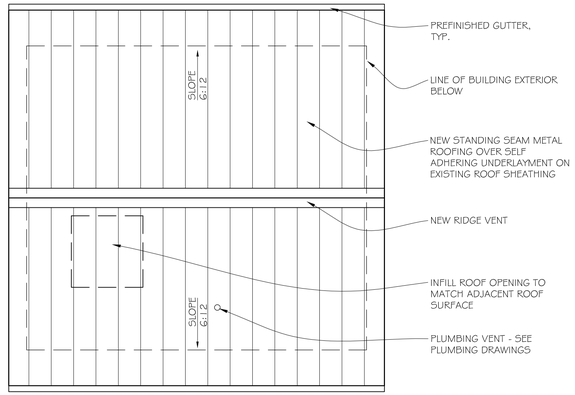
1 A200 ELEVATION 1/4"=1'-0"



ALTERNATE #2 ROOF PLAN

1/4"=1'-0"

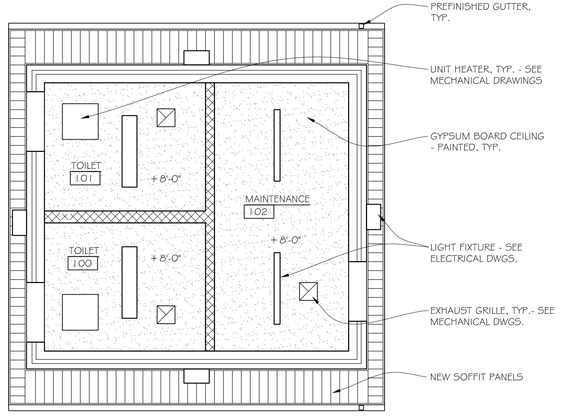
NORTH



ROOF PLAN

1/4"=1'-0"

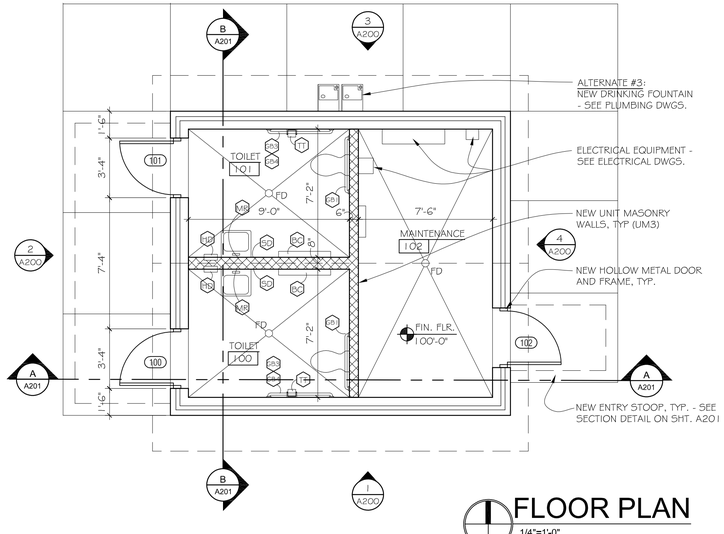
NORTH



REFLECTED CEILING PLAN

1/4"=1'-0"

NORTH



FLOOR PLAN

1/4"=1'-0"

NORTH

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PLANS & ELEVATIONS

DELTA MILLS PARK
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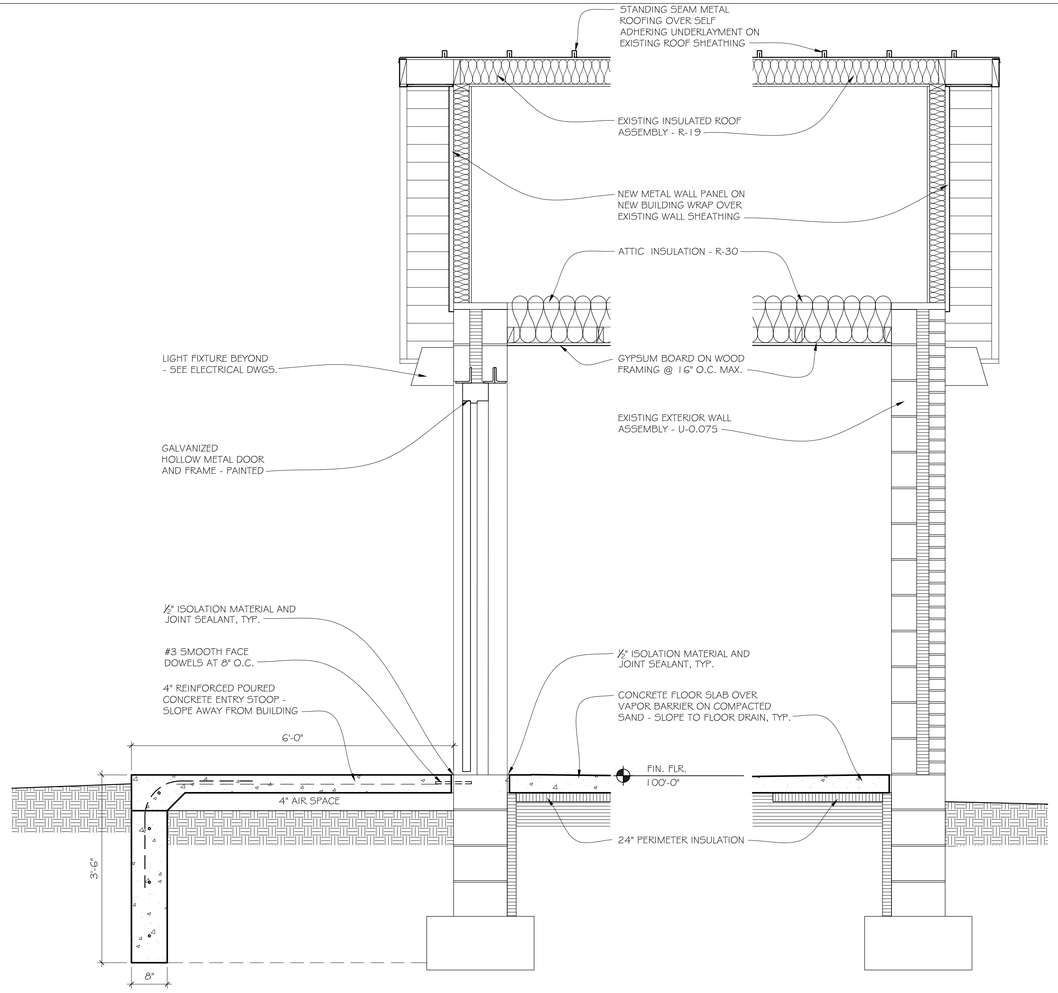
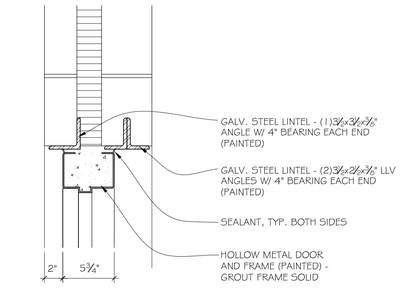
A200

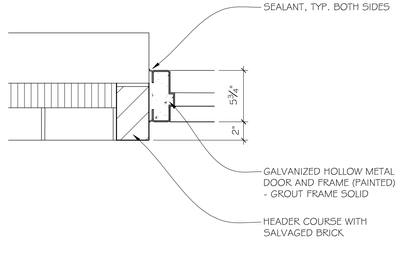


2 A201 **WALL SECTION** 3/4"=1'-0"

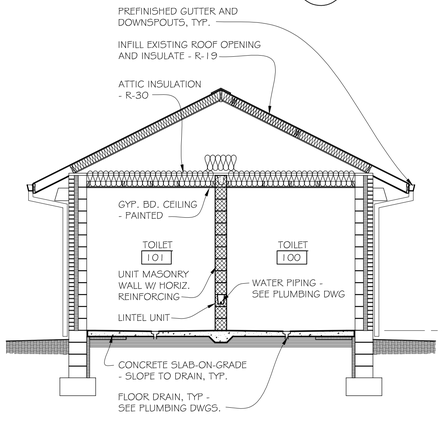
1 A201 **WALL SECTION** 3/4"=1'-0"



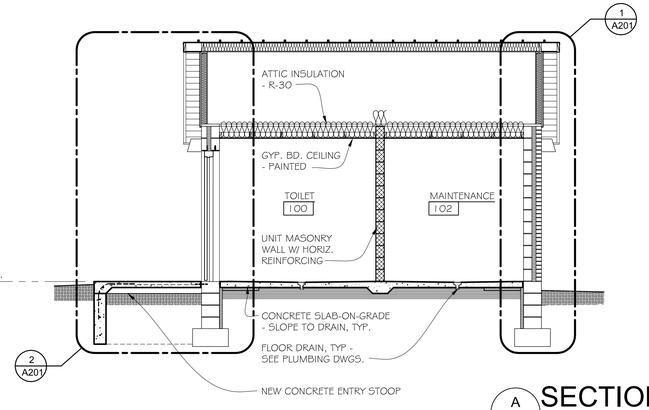
4 A201 **DOOR HEAD** 1-1/2"=1'-0"



3 A201 **DOOR JAMB** 1-1/2"=1'-0"



B A201 **SECTION** 1/4"=1'-0"



A A201 **SECTION** 1/4"=1'-0"

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BUILDING & WALL SECTIONS

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DELTA CHARTER TOWNSHIP
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HVAC ABBREVIATIONS

ATC	ARCHITECTURAL TRADES CONTRACTOR
AC	AIR CONDITIONING(ER)
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
AMB	AMBIENT
BDD	BACKDRAFT DAMPER
B.O.D.	BOTTOM OF DUCT
CONV	CONVECTOR
CFM	CUBIC FEET PER MINUTE
CWR	CHILLED WATER RETURN
CWS	CHILLED WATER SUPPLY
CU	CONDENSING UNIT
COR	CONDENSER WATER RETURN
COS	CONDENSER WATER SUPPLY
DB	DRY BULB TEMPERATURE
ETC	ELECTRICAL TRADES CONTRACTOR
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EBB	ELECTRIC BASEBOARD
ECUH	ELECTRIC CABINET UNIT HEATER
EF	EXHAUST FAN
EG	EXHAUST GRILLE
EUH	ELECTRIC UNIT HEATER
EXH	EXHAUST
F/SD	COMBINATION FIRE/SMOKE DAMPER
G	LOW PRESSURE GAS
GPM	GALLONS PER MINUTE
HR	HEATING HOT WATER RETURN
HS	HEATING HOT WATER SUPPLY
HP	HORSEPOWER
HPS	HIGH PRESSURE STEAM SUPPLY
HVAC	HEATING/VENTILATING/AIR CONDITIONING
LAT	LEAVING AIR TEMPERATURE
LPS	LOW PRESSURE STEAM SUPPLY
MTC	MECHANICAL TRADES CONTRACTOR
MAX	MAXIMUM
MBH	BTU PER HOUR (THOUSAND)
MFR	MANUFACTURER
MPS	MEDIUM PRESSURE STEAM SUPPLY
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
OA	OUTSIDE AIR
OD	OUTSIDE DIAMETER
P	PUMP
PRV	PRESSURE REDUCING VALVE
PSC	PUMPED STEAM CONDENSATE
PSI	POUNDS PER SQUARE INCH
RA	RETURN AIR
RG	RETURN GRILLE
RL	REFRIGERANT LIQUID
RP	RADIANT PANEL
RS	REFRIGERANT SUCTION
RTU	ROOF TOP UNIT
SA	SUPPLY AIR
SC	STEAM CONDENSATE
SD	SUPPLY DIFFUSER
SG	SUPPLY GRILLE
SP	STATIC PRESSURE
TG	TRANSFER GRILLE
TU	TERMINAL UNIT
TXV	THERMAL EXPANSION VALVE
TYP	TYPICAL
UH	UNIT HEATER
VFD	VARIABLE FREQUENCY DRIVE
WB	WET BULB TEMPERATURE
X-	EXISTING

SD-1 — TAG (DIFFUSERS AND GRILLES)
8"ø — NECK SIZE
200 CFM — AIR FLOW

NOTE:
ALL ABBREVIATIONS AND SYMBOLS SHOWN ON THIS SHEET MAY NOT BE USED ON THIS PROJECT.

GENERAL SYMBOLS

- KEY NOTE
- CONNECTION POINT, NEW TO EXISTING
- DEMOLITION END POINT
- THERMOMETER
- PRESSURE GUAGE

SHEET METAL SYMBOLS

- SUPPLY AIR DUCT
- RETURN AIR DUCT
- EXHAUST AIR DUCT
- BALANCE DAMPER
- CONICAL TEE
- 90° TEE WITH 45° APPROACH
- TRANSITION CONCENTRIC
- TRANSITION ECCENTRIC
- VERTICAL FIRE DAMPER
- HORIZONTAL FIRE DAMPER
- VERTICAL COMBINATION FIRE SMOKE DAMPER
- HORIZONTAL COMBINATION FIRE SMOKE DAMPER
- VERTICAL SMOKE DAMPER
- HORIZONTAL SMOKE DAMPER
- MOTORIZED DAMPER
- AIR FLOW DIRECTION

CONTROL SYMBOLS

- (T) THERMOSTAT
- (T)$_N$ NIGHT THERMOSTAT
- (T)$_R$ LINE VOLTAGE REVERSE ACTING THERMOSTAT
- (S) TEMPERATURE SENSOR
- [T]$_O$ TIMER OVERRIDE
- (H) HUMIDISTAT
- (SD) DUCT SMOKE DETECTOR. INSTALLED BY M.T.C. PROVIDED AND WIRED BY E.T.C.

PIPING SYMBOLS

- PIPE TURNED UP
- PIPE TURNED DOWN
- PIPE OUT OF TOP
- PIPE OUT OF BOTTOM
- PIPE ANCHOR
- PIPE ALIGNMENT GUIDE
- PIPE EXPANSION JOINT
- STRAINER
- UNION
- SHUT-OFF VALVE
- CHECK VALVE
- BALL VALVE
- GLOBE VALVE
- MOTOR OPERATED VALVE
- SOLENOID OPERATED VALVE
- 2-WAY TEMPERATURE CONTROL VALVE
- 3-WAY TEMPERATURE CONTROL VALVE
- STEAM TRAP
- CIRCUIT BALANCE VALVE
- HS — HEATING HOT WATER SUPPLY
- HR — HEATING HOT WATER RETURN
- CWS — CHILLED WATER SUPPLY
- CWR — CHILLED WATER RETURN
- COS — CONDENSER WATER SUPPLY
- COR — CONDENSER WATER RETURN
- RL — REFRIGERANT LIQUID
- RS — REFRIGERANT SUCTION
- CD — CONDENSATE DRAIN
- CA — COMPRESSED AIR
- HPS — HIGH PRESSURE STEAM 76-100 LBS.
- MPS — MEDIUM PRESSURE STEAM 21-75 LBS.
- LPS — LOW PRESSURE STEAM 0-20 LBS.
- SC — STEAM CONDENSATE
- PSC — STEAM CONDENSATE PUMPED
- G — GAS PIPE - LOW PRESSURE
- HPG — GAS - HIGH PRESSURE
- MPG — GAS - MEDIUM PRESSURE
- [M] — GAS METER

GENERAL HVAC NOTES

A. PERFORM WORK IN ACCORDANCE WITH THE LATEST EDITIONS, REVISIONS, AMENDMENTS, OR SUPPLEMENTS OF APPLICABLE STATUTES, ORDINANCES, CODES OR REGULATIONS OF FEDERAL, STATE, AND LOCAL AUTHORITIES HAVING JURISDICTION IN EFFECT ON THE DATE BIDS ARE RECEIVED.

B. WHERE APPROVED STANDARDS HAVE BEEN ESTABLISHED BY OSHA, UNDERWRITERS LABORATORIES, AMERICAN CODES, ASA, ASHRAE, ARI, NEC, STATE FIRE INSURANCE REGULATION BODY, NFPA OR OTHERS. THESE STANDARDS SHALL BE FOLLOWED WHETHER OR NOT INDICATED ON THE DRAWING AND SPECIFICATIONS.

C. ALL WORK SHALL COMPLY WITH THE MICHIGAN MECHANICAL CODE AND ALL APPLICABLE LOCAL CODES.

D. ALL DUCT TO BE OF 1" PRESSURE CLASS, UNLESS NOTED OTHERWISE.

E. COORDINATE WITH ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR EXACT LOCATION OF ROOF TOP EQUIPMENT.

F. DUCTWORK SHALL BE ACOUSTICALLY LINED WITHIN 20 FT OF THE INTAKE AND/OR DISCHARGE OF A FAN.

G. INSTALL VOLUME DAMPERS IN ALL BRANCH DUCTS SERVING A SINGLE GRILLE, REGISTER, OR DIFFUSER.

H. INSTALL FLEXIBLE DUCT CONNECTIONS AT THE INLET AND DISCHARGE OF ALL FANS.

I. MAXIMUM LENGTH OF FLEXIBLE DUCT TO AIR TERMINAL DEVICES SHALL NOT EXCEED 5'-0" IN LENGTH WITH A MAXIMUM OF ONE 90° TURN AND SHALL BE INSULATED. ELBOWS SHALL BE MIN. 1.5 RADIUS. CONNECTIONS TO TERMINAL DEVICES SHALL BE BANDED AND TAPED.

J. UNDERGROUND GAS SERVICE BY UTILITY COMPANY, REFER TO CIVIL DRAWINGS. COORDINATE SERVICE, METER, ETC. LOCATIONS WITH UTILITY COMPANY.

K. DUCT/PIPING LAYOUT IS SCHEMATIC. EXACT LOCATION OF DUCT/PIPING AND EQUIPMENT SHALL BE COORDINATED WITH BUILDING STRUCTURE, EQUIPMENT FURNISHED, ARCHITECTURAL DRAWINGS AND ALL OTHER TRADES PRIOR TO INSTALLATION. ANY CONTRACTOR INSTALLING WORK WITHOUT PRIOR COORDINATION SHALL RELOCATE HIS WORK AT HIS EXPENSE TO ALLOW PROPER INSTALLATION OF ANY AND ALL TRADES' WORK.

L. UNLESS OTHERWISE NOTED, ALL DUCT/PIPING SHALL BE CONCEALED WHEREVER POSSIBLE. PROVIDE CHROME ESCUTCHEON OR ALUMINUM DUCT COLLAR AT EACH PENETRATION OF A FINISHED SURFACE.

M. DUCT/PIPING SHALL NOT BE RUN ABOVE ELECTRICAL GEAR OR IN THE SERVICE SPACE REQUIRED BY THE NATIONAL ELECTRICAL CODE.

N. DUCT SIZES SHOWN ARE NET INSIDE CLEAR DIMENSIONS.

O. ANY ADDITIONAL LOW VOLTAGE CONTROL WIRING THAT IS REQUIRED SHALL BE PROVIDED BY THE HVAC CONTRACTOR. CONTROL WIRING SHALL BE RUN IN CONDUIT IF REQUIRED BY LOCAL CODES. FIELD VERIFY PRIOR TO BID. POWER WIRING SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR.

P. PROVIDE TRAP FOR CONDENSATION DRAIN LINES.

Q. PROVIDE VIBRATION ISOLATION AT EACH CONNECTION TO A MOTORIZED PIECE OF EQUIPMENT BY THE HVAC CONTRACTOR.

R. MOUNT THERMOSTAT/SENSORS AT 48" AFF UNLESS NOTED OTHERWISE.

S. THE HVAC CONTRACTOR SHALL CLOSELY COORDINATE AIR DEVICE AND DUCTWORK LOCATIONS WITH REFLECTED CEILING AND STRUCTURAL PLANS.

T. COORDINATE SENSOR AND THERMOSTAT LOCATION WITH ARCHITECT.

U. DO NOT SECURE MECHANICAL OR ELECTRICAL DEVICES OR ASSOCIATED SUPPORTS TO INSULATED METAL ROOF OR WALL PANELS. SECURE TO PRIMARY OR SECONDARY BUILDING STRUCTURE OR FRAMING WHICH IS SECURED TO PRIMARY OR SECONDARY BUILDING STRUCTURE.

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M001 MECHANICAL LEDGENDS

DELTA MILLS PARK
RESTROOM RENOVATION - TF #19-0069
DELTA CHARTER TOWNSHIP
DELTA TOWNSHIP, MICHIGAN

Revisions

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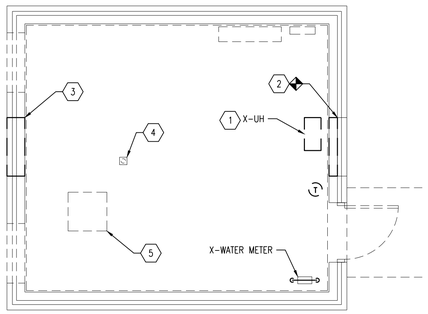
Sheet

M001



MECHANICAL & PLUMBING DEMO PLAN

SCALE: 1/4"=1'-0"

GENERAL DEMOLITION NOTES

A. SEE ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.

B. EXISTING EQUIPMENT LAYOUT IS SCHEMATIC. EXACT LOCATION OF EXISTING DUCT/PIPING AND EQUIPMENT SHALL BE COORDINATED WITH BUILDING STRUCTURE, EQUIPMENT FURNISHED, ARCHITECTURAL DRAWINGS AND ALL OTHER TRADES PRIOR TO DEMOLITION.

C. PERFORM WORK IN ACCORDANCE WITH THE LATEST EDITIONS, REVISIONS, AMENDMENTS, OR SUPPLEMENTS OF APPLICABLE STATUTES, ORDINANCES, CODES OR REGULATIONS OF FEDERAL, STATE, AND LOCAL AUTHORITIES HAVING JURISDICTION IN EFFECT ON THE DATE BIDS ARE RECEIVED.

D. WHERE APPROVED STANDARDS HAVE BEEN ESTABLISHED BY OSHA, UNDERWRITERS LABORATORIES, AMERICAN CODES, ASA, ASHRAE, ARI, NEC, STATE FIRE INSURANCE REGULATION BODY, NFPA OR OTHERS. THESE STANDARDS SHALL BE FOLLOWED WHETHER OR NOT INDICATED ON THE DRAWING AND SPECIFICATIONS.

E. COORDINATE CUTTING AND PATCHING WITH GENERAL CONTRACTOR.

F. ALL BOLD DASHED LINES INDICATE ITEMS TO BE REMOVED UNLESS NOTED BY KEYNOTE. ALL OTHER EXISTING SYSTEMS SHOWN FOR REFERENCE ONLY.

G. PATCH AND REPAIR ALL FLOOR AND WALL SURFACES LEFT DAMAGED OR INCOMPLETE FROM REMOVAL OF EXISTING PARTITIONS, MILLWORK, CASEWORK, OR OTHER FIXED ACCESSORIES AND EQUIPMENT WITH MATERIALS TO MATCH EXISTING, AS ACCEPTABLE TO THE ARCHITECT.

H. NOTATIONS ARE MADE IN VARIOUS PLACES ON THE DRAWINGS TO CALL ATTENTION TO DEMOLITION WHICH IS REQUIRED. HOWEVER, THESE DRAWINGS ARE NOT INTENDED TO SHOW EACH AND EVERY ITEM TO BE REMOVED. CONTRACTOR SHALL REMOVE ALL MATERIALS RELATED TO THEIR RESPECTIVE TRADES AS REQUIRED TO PERMIT THE CONSTRUCTION OF THE NEW WORK AS SHOWN.

I. THE GENERAL CONTRACTOR SHALL COORDINATE THE EXTENT OF THE REQUIRED DEMOLITION OF THE EXISTING BUILDING AS REQUIRED TO FACILITATE THE CONSTRUCTION OF THE PROJECT AS SHOWN AS PART OF THIS WORK.

J. ALL DEMOLITION SHALL BE APPROVED BY THE OWNER/TENANT PRIOR TO COMMENCEMENT AND SHALL BE PERFORMED UNDER REQUIREMENTS AND APPROVAL OF THE LOCAL CODE JURISDICTIONS.

K. ASBESTOS ABATEMENT: CONTRACTOR SHALL NOTIFY BUILDING REPRESENTATIVE IMMEDIATELY WHEN AND IF ANY ITEMS ARE ENCOUNTERED THAT IN ANY WAY, SHAPE, OR FORM APPEAR TO BE HAZARDOUS OF NATURE. ASBESTOS ABATEMENT IS NOT PART OF THE SCOPE OF THE DESIGN PROFESSIONALS DOCUMENTATION OR RESPONSIBILITY TO SURVEY, IDENTIFY, OR FOR CONSULTATION OF PROPER DISPOSAL.

L. PROTECT ALL EXISTING WORK WHICH IS TO REMAIN AND RESTORE IN AN APPROVED MANNER ANY SUCH WORK WHICH BECOMES DAMAGED.

M. RUBBISH AND DEBRIS RESULTING FROM THE WORK SHALL BE REMOVED IMMEDIATELY FROM THE SITE IN A SAFE AND LEGAL MANNER BY THE CONTRACTOR.

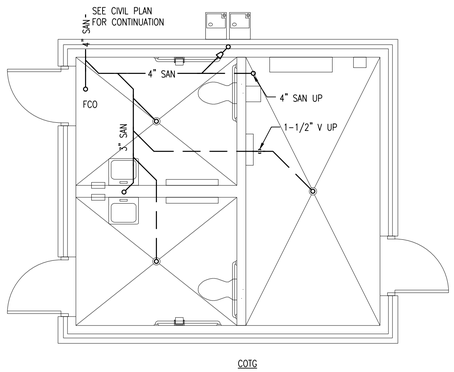
N. TEMPORARY LIGHTING AND POWER SHALL BE PART OF THE SCOPE OF THIS WORK; SEE ELECTRICAL.

O. DEMOLITION CONTRACTOR SHALL BE RESPONSIBLE TO CONTACT BUILDING REPRESENTATIVE TO CLARIFY ANY ITEMS NOT SHOWN ON THESE DOCUMENTS OR SHOWN NOT MATCHING FIELD CONDITIONS.

P. ALL PIPING IN MECHANICAL ROOM SHALL BE INSTALLED BELOW CEILING AND SHALL BE COPPER. UNDER NO CIRCUMSTANCES SHALL CROSS-LINKED POLYETHYLENE (PEX) PIPING BE USED IN AN EXPOSED APPLICATION.

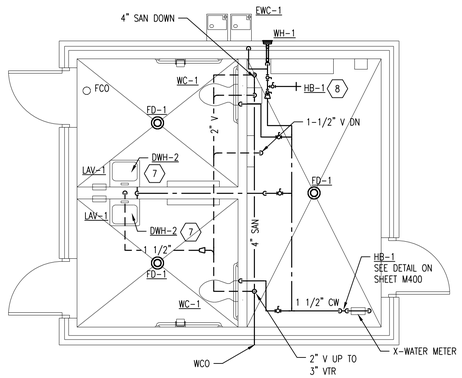
(#) KEY NOTES

1. DEMO EXISTING UNIT HEATER AND ASSOCIATED THERMOSTAT.
2. DEMO EXISTING THROUGH WALL EXHAUST FAN. EXISTING LOUVER SHALL REMAIN.
3. DEMO EXISTING LOUVER. PATCH OF BUILDING BY ARCHITECTURAL TRADES.
4. DEMO EXISTING FLOOR DRAIN AND ALL PIPING BELOW FLOOR ASSOCIATED WITH EXISTING BUILDING DRAINAGE.
5. DEMO ALL PIPING ASSOCIATED WITH ABANDONED WELL SYSTEM. SEAL AND CAP BELOW SLAB LEVEL.
6. CONNECT EXHAUST DISCHARGE TO EXISTING LOUVER.
7. INSTALL LOCAL TANKLESS WATER HEATER BELOW LAVATORY AND PIPE TO FAUCET. COMPLY WITH MANUFACTURER'S RECOMMENDATIONS.
8. PROVIDE HOSE BIB WITH THREADED HOSE CONNECTION OUTLET WITH ISOLATION VALVES IN LOCATIONS SHOWN. HOSE BIB WILL ALLOW FOR DRAIN DOWN AND AIR COMPRESSOR CONNECTIONS FOR WINTERIZATION OF DRINKING FOUNTAIN.
9. EXTEND COLD WATER PIPING FROM MECHANICAL SPACE TO NEW LAVATORIES THROUGH BOND BEAM IN WALL. COORDINATE EXACT ELEVATION IN THE FIELD.



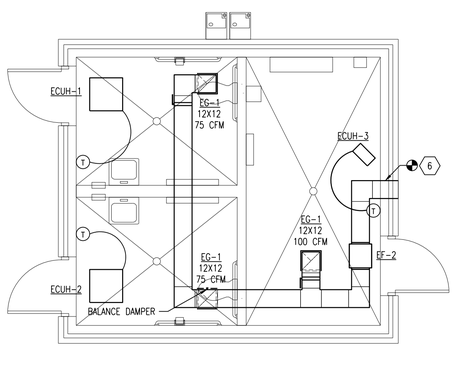
UNDERGROUND PLUMBING PLAN

SCALE: 1/4"=1'-0"



PLUMBING PLAN

SCALE: 1/4"=1'-0"



MECHANICAL PLAN

SCALE: 1/4"=1'-0"

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M200 EAST BUILDING MECHANICAL PLANS

DELTA MILLS PARK
RESTROOM RENOVATION - TF #19-0069
DELTA CHARTER TOWNSHIP
DELTA TOWNSHIP, MICHIGAN

Revisions

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M200

PLUMBING FIXTURE & PIPE CONNECTION SCHEDULE

TAG	BASIS OF DESIGN		DESCRIPTION	FAUCETS AND FITTINGS		PIPE CONNECTION DATA				ELECTRICAL DATA		NOTES
	MANUFACTURER	MODEL OR SERIES		MANUFACTURER	MODEL No.	COLD WATER	HOT WATER	VENT	SANITARY	FLA	VOLTAGE	
EWC-1	ELKAY	VRCTL8WSK	ELECTRIC WATER COOLER ADA BI-LEVEL WITH BOTTLE FILLING STATION	-	-	3/4"	-	1-1/2"	2"	4	120	**ALTERNATE #3 PRICING ONLY**. VANDAL RESISTANT, SELF-CONTAINED SYSTEM
FD-1	WATTS	FD-100-A	FLOOR DRAIN 5" ROUND STRAINER	SURESEAL	97044 TRAP SEALER	-	-	-	3"	-	-	
HB-1	WOODFORD	16	HOSE BIB WALL-MOUNTED	-	-	3/4"	-	-	-	-	-	-
LAV-1	AMERICAN STANDARD	0355.012	LAVATORY WALL-MOUNTED	SLOAN	EAF-225 CODE 3335075	1/2"	1/2"	1-1/2"	2"	-	120	PROVIDE HARD-WIRED WITH PLUG ADAPTOR, SENSOR OPERATED FAUCET
WC-1	AMERICAN STANDARD	2257.103	WATER CLOSET WALL MOUNTED	SLOAN	ROYAL 111 ESS-1.6-TMO-HW CODE 3450065	1-1/2"	-	-	4'	-	120	ADA COMPLIANT. PROVIDE HARD WIRED RECESSED SENSOR FLUSH VALVE
WH-1	WOODFORD	B24	WALL HYDRANT WALL MOUNTED WITH FLUSH-MOUNTED BOX	-	-	3/4"	-	-	-	-	-	-

DOMESTIC WATER HEATER SCHEDULE

TAG	BASIS OF DESIGN		DESCRIPTION	FLOW RATE GPM	TEMP RISE	ELECTRICAL DATA				NOTES
	MANUFACTURER	MODEL OR SERIES				KW	VOLTAGE	AMPS	MOPD	
DWH-1	RHEEM	RTEX-06	DOMESTIC WATER HEATER TANKLESS ELECTRIC	1	37	6	240	29	30	

DIFFUSERS, REGISTERS, GRILLES SCHEDULE

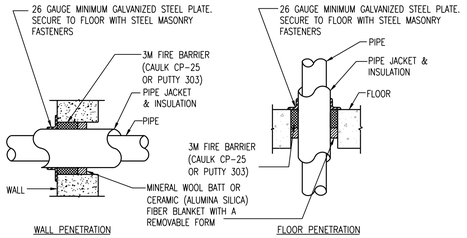
TAG	BASIS OF DESIGN		SERVICE	SIZE	TYPE	BORDER TYPE	CONNECTION SHAPE	CONSTRUCTION MATERIAL	GRILLE PATTERN	NOTES
	MANUFACTURER	MODEL OR SERIES								
EG-1	PRICE	80	EXHAUST	SEE PLANS	GRILLE	SURFACE MTD.	RECTANGULAR	STEEL	EGG CRATE	1"x1"x1" GRID

EXHAUST FAN SCHEDULE

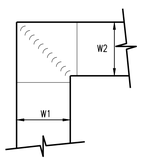
TAG	BASIS OF DESIGN		FLOW RATE (CFM)	E.S.P.	FAN SPEED (RPM)	DRIVE TYPE	SONES	ELECTRICAL DATA			DISCONNECT DATA		NOTES
	MANUFACTURER	MODEL OR SERIES						HP	RPM	VOLT/PH/HZ	M.T.C.	E.T.C.	
EF-1	GREENHECK	SQ-85-VG	250	0.6"	1,685	DIRECT	8.6	1/10	1725	120/1/60	√		

ELECTRIC CABINET UNIT HEATER SCHEDULE

TAG	BASIS OF DESIGN		TYPE	HEATING CAPACITY	ELECTRICAL		DISCONNECT DATA		NOTES
	MANUFACTURER	MODEL OR SERIES		KW	FLA	VOLT/PH/HZ	M.T.C.	E.T.C.	
ECUH-1	QMARK	EFF3008	RECESSED	3.0/1.5	14.4/7.2	208/1/60	√		PROVIDE REMOTE THERMOSTAT WITH PROGRAMMED SETBACK IN LOCKED, TAMPER PROOF BOX, INTEGRAL OCCUPANCY SENSOR, AND TEMP OVERRIDE.
ECUH-2	QMARK	EFF3008	RECESSED	3.0/1.5	14.4/7.2	208/1/60	√		PROVIDE REMOTE THERMOSTAT WITH PROGRAMMED SETBACK IN LOCKED, TAMPER PROOF BOX, INTEGRAL OCCUPANCY SENSOR, AND TEMP OVERRIDE.
ECUH-3	QMARK	MUH03-41	VERTICAL	3.0	3.6	480/3/60	√		PROVIDE WITH ELECTRIC THERMOSTAT INSTALLED IN LOCATION SHOWN



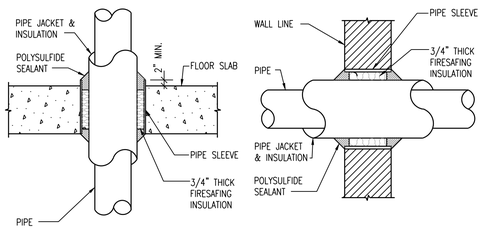
1 FIRE RATED PENETRATION DETAIL
SCALE: NOT TO SCALE



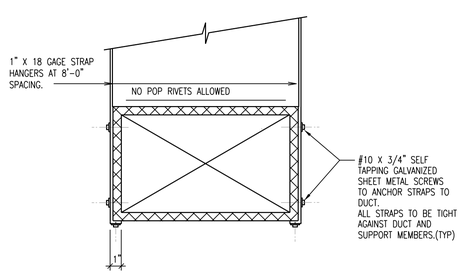
SQUARE VANED ELBOWS

NOTES:
1. ALL VANED ELBOWS SHALL BE CONSTRUCTED AND INSTALLED AS DETAILED BY SMACNA.
2. WHEN W1 DOES NOT EQUAL W2 VANE SHALL BE SINGLE VANE TYPE REGARDLESS OF W DIMENSION.
3. ALL SINGLE VANES SHALL HAVE A 2 INCH RADIUS, 1 1/2 INCH MAXIMUM SPACE BETWEEN VANES AND A 3/4 INCH TRAILING EDGE.
4. WHEN W1 EQUALS W2 AND W1 IS GREATER THAN 20 INCHES VANES SHALL BE DOUBLE VANE TYPE.

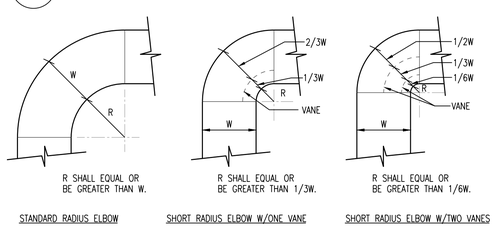
7 TYPICAL SQUARE VANED DUCT DETAIL
SCALE: NOT TO SCALE



3 PIPE PENETRATION DETAIL
SCALE: NOT TO SCALE

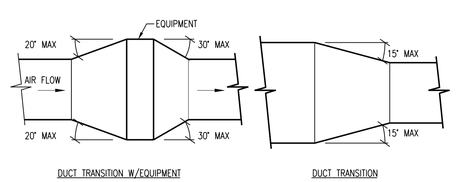


4 TYPICAL DUCT STRAP HANGER DETAIL
SCALE: NOT TO SCALE



NOTES:
1. THE INTERIOR SURFACE OF ALL RADIUS ELBOWS SHALL BE MADE ROUND.
2. ALL STANDARD RADIUS ELBOWS SHOWN ON PLANS MAY BE MADE SHORT RADIUS ELBOWS. ALL SHORT RADIUS ELBOWS SHALL HAVE VANES. VANES SHALL BE CONSTRUCTED,SUPPORTED AND FASTENED AS RECOMMENDED BY SMACNA.

5 TYPICAL DUCT RADIUS DETAIL
SCALE: NOT TO SCALE



NOTES:
1. UNLESS OTHERWISE INDICATED ON PLANS, MAXIMUM ANGLES SHOWN SHALL APPLY.

6 TYPICAL DUCT TRANSITION DETAIL
SCALE: NOT TO SCALE

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M400 MECHANICAL DETAILS AND SCHEDULES

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DELTA TOWNSHIP, MICHIGAN

Revisions

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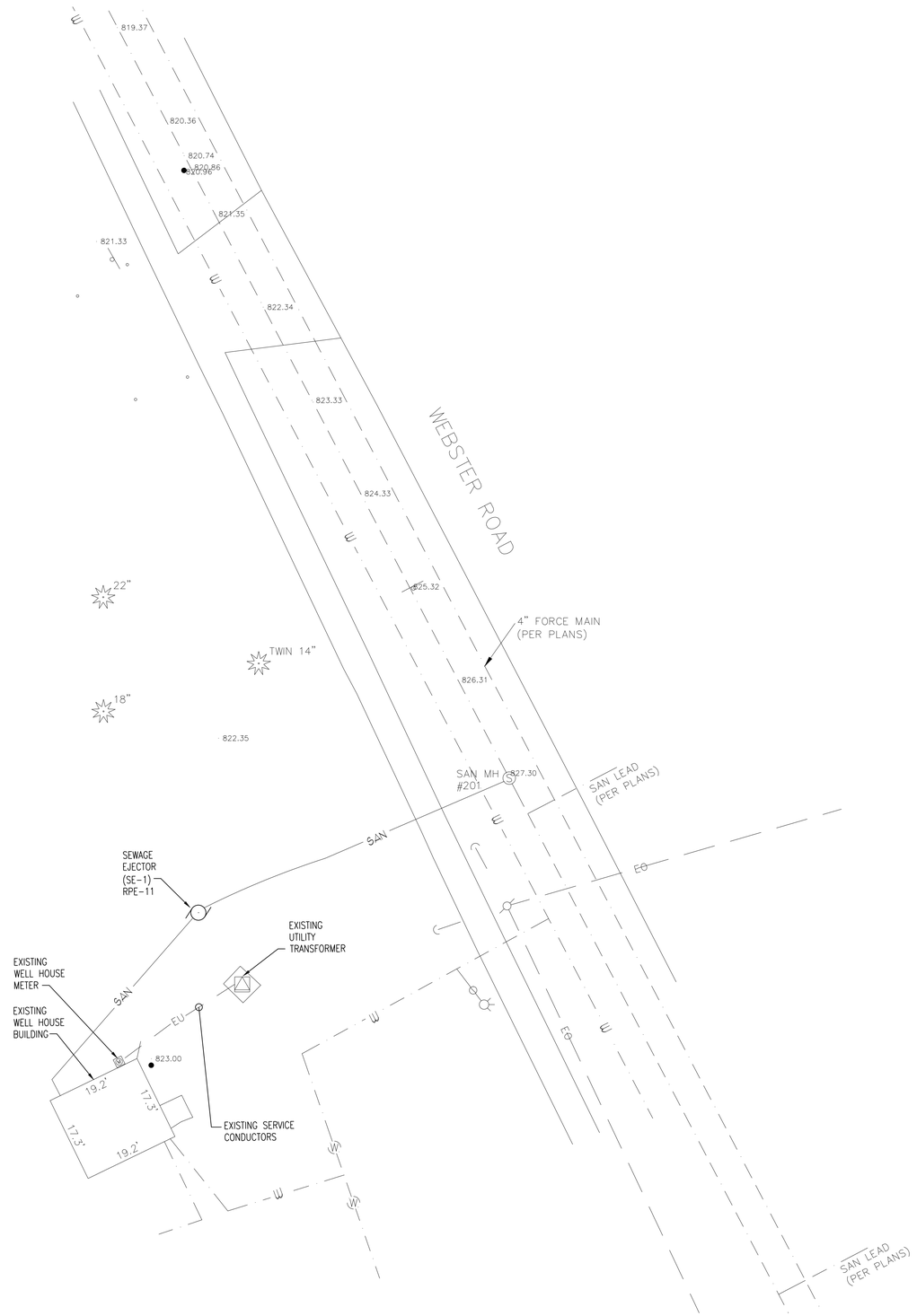
M400



ELECTRICAL SITE PLAN

SCALE: 1-1/2" = 1'-0"

N

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EAST BUILDING - ELECTRICAL SITE PLAN

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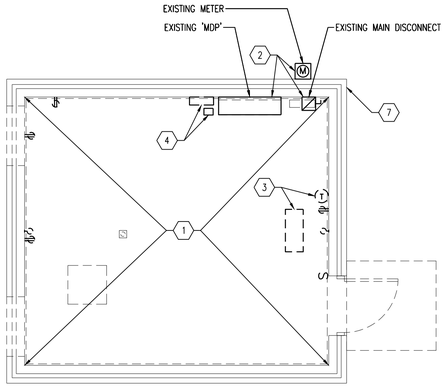
DELTA CHARTER TOWNSHIP
DELTA TOWNSHIP, MICHIGAN

Revisions

ISSUED FOR BIDS - 01/11/2023

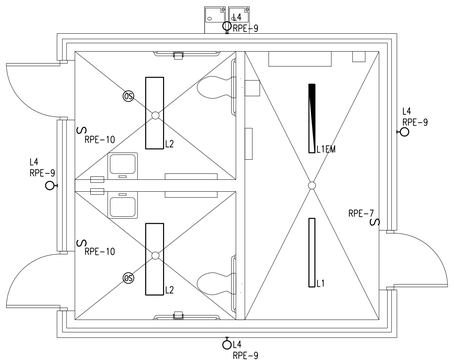
Sheet

ES101



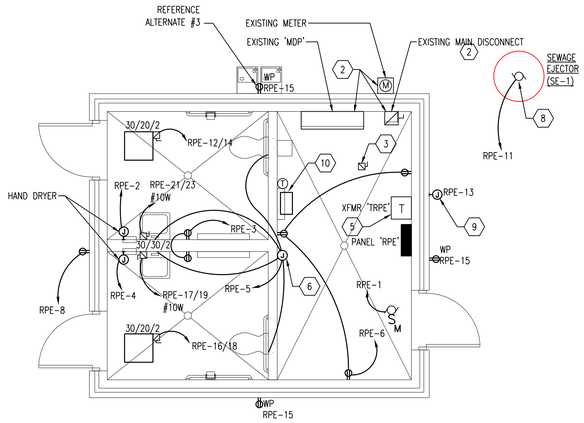
ELECTRICAL DEMOLITION PLAN

SCALE: 1/4" = 1'-0"



FLOOR PLAN - LIGHTING

SCALE: 1/4" = 1'-0"



FLOOR PLAN - POWER

SCALE: 1/4" = 1'-0"

Note: Above grade domestic water piping shall be copper in exposed locations and PEX when concealed above ceilings and in walls. Provide appropriate couplings at locations where material transitions occur.

POWER

φ	20A, 125V, 2 POLE, 3 WIRE GROUNDING DUPLEX RECEPTACLE, NEMA 5-20R
HH	HAND HOLE
J	JUNCTION BOX
○	CONDUIT UP
●	CONDUIT DOWN

LIGHTING

○	EXTERIOR WALL LUMINAIRE
	4' STRIPLIGHT
	1' X 4' SURFACE MOUNTED FIXTURE
S	SWITCH AT +48" U.O.N. THE FOLLOWING SUBSCRIPTS ARE USED TO INDICATE VARIOUS TYPES OF SWITCHES. NO SUBSCRIPT - SINGLE POLE M — MOTOR RATED
OS	OCCUPANCY SENSOR - CEILING MOUNTED

GENERAL NOTES

A. PERFORM WORK IN ACCORDANCE WITH THE LATEST EDITIONS, REVISIONS, AMENDMENTS, OR SUPPLEMENTS OF APPLICABLE STATUTES, ORDINANCES, CODES OR REGULATIONS OF FEDERAL, STATE, AND LOCAL AUTHORITIES HAVING JURISDICTION IN EFFECT ON THE DATE BIDS ARE RECEIVED.

B. WHERE APPROVED STANDARDS HAVE BEEN ESTABLISHED BY OSHA, UNDERWRITERS LABORATORIES, AMERICAN CODES, ASA, ASHRAE, ARI, NEC, STATE FIRE INSURANCE REGULATION BODY, NFPA, NEC OR OTHERS. THESE STANDARDS SHALL BE FOLLOWED WHETHER OR NOT INDICATED ON THE DRAWING AND SPECIFICATIONS.

C. ALL CONDUITS LOCATED IN INTERIOR SPACE MUST BE RECESSED IN WALLS OR LOCATED HIGH UP IN CEILING SPACE ABOVE. SURFACE MOUNTED CONDUIT WILL NOT BE ALLOWED UNLESS NOTED OTHERWISE.

D. E.C. TO PROVIDE TYPE WRITTEN PANEL LEGENDS.

E. ALL BRANCH CIRCUIT SHALL CONTAIN A DEDICATED NEUTRAL AND EQUIPMENT GROUND CONDUCTOR. SHARED NEUTRALS ARE NOT PERMITTED.

F. ALL BATTERY OPERATED FIXTURES SHALL BE PROVIDED A DEDICATED HOT FROM THE SAME CIRCUIT SERVING THE ADJACENT NORMAL LIGHTING FIXTURES.

G. LABEL ALL RECEPTACLES AND SWITCHES WITH PANELBOARD AND BRANCH CIRCUIT.

KEY NOTES

1. REMOVE ALL LIGHTING, SWITCHES, RECEPTACLES, CONDUIT, WIRING AND EQUIPMENT UNLESS OTHERWISE NOTED. REMOVE ALL WIRING BACK TO SOURCE.
2. EXISTING UTILITY METER, MAIN DISCONNECT, AND PANEL 'MDP' TO REMAIN.
3. EXISTING UNIT HEATER AND ASSOCIATED THERMOSTAT TO BE DEMOLISHED. REMOVE ALL ASSOCIATED CONDUIT AND WIRE.
4. REMOVE EXISTING 60A PANEL AND 3KVA TRANSFORMER AND ALL ASSOCIATED CONDUIT AND WIRING BACK TO SOURCE.
5. WALL MOUNTED TRANSFORMER 'TRPE'. FIELD VERIFY FINAL MOUNTING HEIGHT AND LOCATION PRIOR TO ROUGH-IN. PROVIDE ALL NECESSARY MOUNTING HARDWARE FOR A COMPLETE INSTALLATION.
6. CONTRACTOR SHALL PROVIDE CONNECTION TO POWERED PLUMBING EQUIPMENT. JUNCTION BOX SHOWN IS SCHEMATIC AND MAY NOT REFLECT EXACT LOCATION REQUIRED BY PLUMBING EQUIPMENT. PROVIDE CONNECTION TO EACH LOCATION REQUIRED BY PLUMBING CONTRACTOR. PROVIDE ALL FINAL CONNECTIONS TO EQUIPMENT. PROVIDE CONNECTION TO CIRCUIT SHOWN.
7. REMOVE EXISTING DAMAGED GROUNDING ELECTRODE AND GROUNDING ELECTRODE CONDUCTOR BACK TO SOURCE. SEE ONE LINE AND SPECIFICATIONS FOR REPLACEMENT REQUIREMENTS.
8. PROVIDE CONNECTION TO SEWAGE EJECTOR. SEE DRAWING SP-4W FOR WIRING DETAILS. CONTRACTOR SHALL PROVIDE COMPLETE INSTALLATION OF SYSTEM. REFER TO CIVIL PLAN FOR EXACT PUMP LOCATION.
9. PROVIDE CONNECTION TO SEWAGE EJECTOR CONTROLLER. SEE DRAWING SP-4W FOR ADDITIONAL INFORMATION. REFER TO CIVIL PLAN FOR EXACT LOCATION OF PUMP CONTROLLER.
10. REWORK AND EXTEND EXISTING UNIT HEATER BRANCH WIRING TO ACCOMMODATE NEW LOCATION. PROVIDE ALL NECESSARY MOUNTING HARDWARE, JUNCTION BOXES, CONDUIT, WIRE, CONNECTIONS AND ACCESSORIES FOR A COMPLETE INSTALLATION OF EXISTING UNIT HEATER, THERMOSTAT, DISCONNECT SWITCH, ETC. VERIFY FINAL LOCATION WITH MECHANICAL TRADES AND OWNER PRIOR TO ROUGH-IN.
11. PROVIDE 20/10/3 FUSED SWITCH TO SERVE UNIT HEATER. CONNECT TO EXISTING CIRCUIT REMAINING FROM DEMOLITION OF PREVIOUS UNIT HEATER.

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EAST BUILDING - ELECTRICAL

DELTA MILLS PARK
RESTROOM RENOVATION - TF #19-0069
DELTA CHARTER TOWNSHIP
DELTA TOWNSHIP, MICHIGAN

Revisions

ISSUED FOR BIDS - 01/11/2023

Sheet

E101

LIGHTING FIXTURE SCHEDULE

General: Lighting fixtures as hereinafter specified are identified by type as noted on drawings. Fixture specifications are based on construction and performance.
Manufacturer's catalogue numbers are of general nature and indicate level of quality required, but do not necessarily reflect complete options as specified.
Approval shall be based on description and specification of fixture as well as catalogue number indicated. Provide appropriate trim for fixture based on ceiling

	DESCRIPTION	MANUFACTURER & CATALOG NO.	LAMPS QUANTITY AND WATTS FLUOR	LED	INC	BALLAST	MOUNTING	NOTES
L1	4' LED SURFACE MOUNT EXTRUDED ALUMINUM FIXTURE. FLAT ENDCAPS, MATTE WHITE FINISH, PEARLESCENT POLYCARBONATE LENS, 4000K COLOR TEMPERATURE, 8000 LUMEN, 120V, PROVIDE TYPE 'EM' FIXTURE WITH PEL EMERGENCY DRIVER. CONTRACTOR MAY ORDER CONTINUOUS RUNS.	KENALL: MLHA12-48-F-MW-67L40K-1-120		67W		DRIVER	SURFACE	
L2	4' LED STRIPLIGHT, 5000 LUMEN, SNAP ON FROSTED LENS, 4000K COLOR TEMPERATURE. PROVIDE TYPE 'EM' FIXTURES WITH OPTION E7W. WHITE FINISH.	LITHONIA: ZL1N-L48-5000LM-FST-120-40K-80CRI-WH		42W		DRIVER	SURFACE	
L4	LED EXTERIOR WALL LUMINAIRE. 6000 LUMEN, 4000K COLOR TEMPERATURE, FORWARD THROW. COLOR TO BE SELECTED BY ARCHITECT. PROVIDE WITH INTEGRAL AUTOMATIC DIMMING AND PHOTOCELL CONTROL.	LITHONIA: WST LED-P3-40K-VF-120-PIR1FC3V		50W		DRIVER	WALL	

PANEL NAME: **RPE**
SECTION: 1 OF 1
POLES: 42
LOCATION: ELEC RM
MOUNTING: SURFACE
BUS: 100A
MAIN: 100A
MIN KAIC: 10
ISO GND BUS: NO
L-L VOLTS: 208
PHASE: 3
WIRE: 4
PROJECT #: 17103.00
FED FROM: MDP
* DENOTES GFCI CIRCUIT BREAKER
** DENOTES SCREW ON TYPE LOCKING DEVICE

CKT	LOAD DESCRIPTION	LOAD VOLT-AMPERES LTS	REC	MOTOR	OTHER	KIT	OCPD	P	CKT	PH	CKT	P	OCPD	LOAD VOLT-AMPERES LTS	REC	MOTOR	OTHER	KIT	LOAD DESCRIPTION	CKT
1	EF-1			500			20	1	1	A	2	1	20*				1450		HAND DRYER	2
3	RESTROOM RECEPTACLES		360				20*	1	3	B	4	1	20*				1450		HAND DRYER	4
5	POWERED FAUCETS				500		20*	1	5	C	6	1	20*		540				ELECTRICAL ROOM RECEPT	6
7	ELECT. RM. LTG. FIXT. (L1)	134					20	1	7	A	8	1	20*				500		EWC	8
9	EXTERIOR LTG. FIXT. (L4)	200					20	1	9	B	10	1	20	84					RESTROOM LTG. FIXT. (L2)	10
11	SEWAGE EJECTOR (SE-1)			1676			20	1	11	C	12	2	20				1500		ECUH-1	12
13	SEWAGE EJECTOR CONTROLLER				500		15	1	13	A	14						1500		ECUH-2	14
15	REC-EXTERIOR		540				20*	1	15	B	16	2	20				1500		ECUH-2	16
17	DWH-2				3000		30	2	17	C	18						1500		-	18
19	-				3000				19	A	20	1	20						SPARE	20
21	DWH-2				3000		30	2	21	B	22	1	20						SPARE	22
23	-				3000				23	C	24	1	20						SPARE	24
25	SPARE						20	1	25	A	26	1	20						SPARE	26
27	SPARE						20	1	27	B	28	1	20						SPARE	28
29	SPARE						20	1	29	C	30	1	20						SPARE	30
31	SPARE						20	1	31	A	32	1	20						SPARE	32
33	SPARE						20	1	33	B	34	1	20						SPARE	34
35	SPARE						20	1	35	C	36	1	20						SPARE	36
37	SPARE						20	1	37	A	38	1	20						SPARE	38
39	SPARE						20	1	39	B	40	1	20						SPARE	40
41	SPARE						20	1	41	C	42	1	20						SPARE	42

SUBTOTAL CONNECTED KVA

	LTS	REC	MOTOR	OTHER	KIT	TOTAL
PHASE A CONNECTED KVA	0.1	0.0	0.5	7.0	0.0	7.6
PHASE B CONNECTED KVA	0.3	0.9	0.0	6.0	0.0	7.1
PHASE C CONNECTED KVA	0.0	0.5	1.7	9.5	0.0	11.7
25% OF LARGEST MOTOR			0.0			

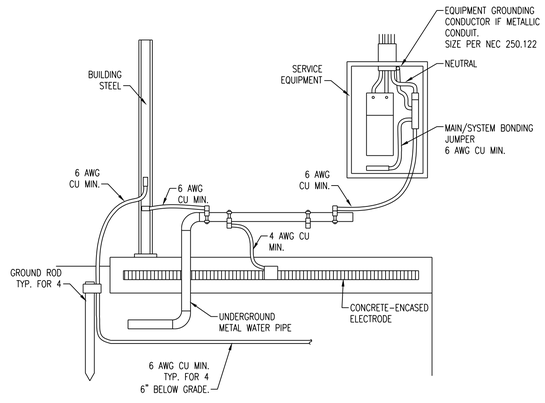
RECEPTACLE DEMAND FACTOR:
100% FIRST 10 KVA + 50% REMAINING

LOAD SUMMARY & FEEDER CALCULATION

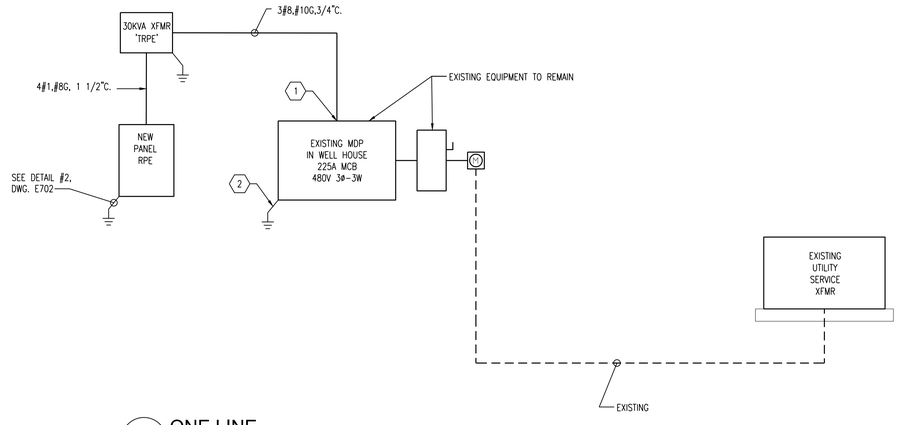
LTS	REC	MOTOR	OTHER	KIT	SUBTOT	SPARE	TOTAL	
0.4	1.4	2.2	22.4	0.0	26.4	0%		CONNECTED KVA
1.0	#1	1.0	1.0	1.0				DEMAND FACTOR
0.4	1.4	2.2	22.4	0.0	26.4	0.0	26.4	DEMAND KVA
							73.4	DEMAND AMPS
1.25	1.0	1.0	1.0	1.0		1.0		CONTINUOUS/NONCONT FACTOR
							73.7	MIN. OVERCURRENT DEVICE AMPS

KEY NOTES

1. PROVIDE NEW 40A FUSES IN EXISTING SWITCH TO SERVE NEW TRANSFORMER. PROVIDE FUSE REDUCERS AS REQUIRED.
2. CONTRACTOR SHALL REPLACE EXISTING GROUNDING ELECTRODE AND GROUNDING ELECTRODE CONDUCTOR BACK TO SOURCE.



2 / E702 GROUNDING DETAIL
SCALE: NO SCALE



1 / E702 ONE LINE
SCALE: NO SCALE

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E702